Conference Report
The humanitarian initiative marks one of the most important developments within the multilateral nuclear disarmament regime in recent years. 70 years after the bombings in Hiroshima and Nagasaki and more than 20 years following the end of the Cold War, the dangers and risks of a nuclear weapons explosion remain perilously high.

The motivation for putting the emphasis on the humanitarian dimension of nuclear weapons and the risks associated with this weaponry is due to the lack of credible progress on nuclear disarmament and the persistent stalemate in multilateral disarmament fora. The humanitarian initiative puts the focus back on the core reason behind all the international community's efforts to achieve nuclear disarmament and to halt the proliferation of nuclear weapons: to protect humanity from the grave consequences of nuclear weapons.

Norway, Mexico and Austria organised three international conferences to address the catastrophic consequences and the risks associated with nuclear weapons. The findings of the three conferences leave no room for doubt: it is in the interest of the very survival of humanity that nuclear weapons are never used again, under any circumstances. The only guarantee against a nuclear weapons explosion is the achievement of a world free of nuclear weapons.

The Vienna Conference on the Humanitarian Impact of Nuclear Weapons further highlighted that the consequences of nuclear weapons explosions are far greater and more complex, and the risks considerably higher, than previously understood. At the same time, no response capability exists to provide adequate humanitarian assistance on the scale that would be required in the case of a nuclear weapons detonation. These conclusions are a call for action. They remind us of the urgency of credible and determined progress towards nuclear disarmament.

I was encouraged by the serious discussions in Vienna, the broad participation, the energy, the enthusiasm and commitment of government representatives of 158 States, international organisations and civil society. Austria issued a national “Pledge” at the Vienna Conference to cooperate with all interested parties in the effort to stigmatise, prohibit and eliminate nuclear weapons in light of their unacceptable consequences and risks.

Let me thank all delegates, experts and civil society representatives for their active participation at the Vienna Conference. I hope that collectively we will be able to demonstrate in the near future that the facts and conclusions that have emerged in the humanitarian initiative can be translated into concrete and credible progress on nuclear disarmament. Austria looks forward to working with all interested partners to further strengthen the humanitarian imperative, to reinforce the credibility of the global nuclear disarmament and nonproliferation regime and to push for concrete progress on this issue. Preventing catastrophic humanitarian consequences is the raison d’être of our entire work in this field and should be the issue that unites us all.

Preface

By Sebastian Kurz, Federal Minister for Europe, Integration and Foreign Affairs
Republic of Austria

Vienna Conference on the Humanitarian Impact of Nuclear Weapons
8–9 December 201
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The Vienna Conference on the Humanitarian Impact of Nuclear Weapons was the result of a decisive development within the nuclear disarmament regime. Since the 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the international community has refocused its attention to the humanitarian dimension of and the risks associated with nuclear weapons. This evolution was reflected through cross-regional humanitarian statements in UN fora and culminated in the organisation of three Conferences on the Humanitarian Impact of Nuclear Weapons in Oslo (March 2013), Nayarit (February 2014) and Vienna (December 2014).

The Vienna Conference on the Humanitarian Impact of Nuclear Weapons (www.hinw14vienna.at) was attended by 158 States, a broad spectrum of international organisations from the UN system, the Red Cross and Red Crescent Movement, many academics and experts and several hundred representatives of civil society. The Conference was opened by Austrian Foreign Minister Sebastian Kurz; the UN Secretary General, the President of the ICRC and Pope Francis addressed the Conference through important statements and messages. Victims of nuclear explosions gave testimonies on their harrowing experiences. In four sessions, experts from various fields addressed the short- and long-term consequences of nuclear weapons, the impact of nuclear testing, the risk drivers for deliberate or inadvertent nuclear weapons use, scenarios of nuclear weapons use and the associated challenges as well as an overview of the norms under existing international law pertaining to the humanitarian consequences of nuclear weapons explosions.

The scientific results and the discussions which emerged at the Vienna Conference underscored that the humanitarian consequences and risks associated with nuclear weapons are far higher and graver than previously assumed, and that they should thus be at the centre of global efforts related to nuclear disarmament and non-proliferation.

Austria attempted to reflect the breadth of views that exist in the international community on the way forward in the Chair’s Summary, which was presented under her sole responsibility. The Chair’s Summary contains eight key substantive conclusions that have emerged from the humanitarian initiative of the past three years and the international conferences in Oslo, Nayarit and Vienna. In addition, Austria issued a national pledge that goes beyond the Chair’s Summary that contains the conclusions that Austria drew from the humanitarian arguments.

The Vienna Conference, thus, consolidated the substantive discussions that had taken place in the three Conferences on the Humanitarian Impact of Nuclear Weapons into a set of substantive and strong conclusions with respect to the humanitarian consequences of nuclear weapons, the risks associated with the existence of these weapons, as well as the legal and moral dimension of this weaponry. This was intended to provide key input for future work on nuclear disarmament, including at the 2015 Review Conference of NPT. Moreover, the Vienna Conference presented – through the line of argument contained in the “Austrian Pledge” – a set of conclusions that States could draw as a result of the humanitarian initiative and the new evidence that has emerged in this context.
The Vienna Conference on the Humanitarian Impact of Nuclear Weapons took place from 8 to 9 December 2014. It addressed the humanitarian consequences of any use of nuclear weapons, including effects on human health, the environment, agriculture and food security, migration and the economy, as well as the risks and likelihood of the authorised or unauthorised use of nuclear weapons, international response capabilities and the applicable normative framework.

Delegations representing 158 States, the United Nations, the International Committee of the Red Cross, the Red Cross and Red Crescent movement, civil society organisations and academia participated in the Conference.

The UN Secretary General and Pope Francis conveyed messages to the Conference. The President of the ICRC addressed the participants. Hibakusha, the survivors of the nuclear explosions in Hiroshima and Nagasaki, and victims of the effects of nuclear testing also participated in the Conference and gave their testimonies and experiences. Their presence and contributions exemplified the unspeakable suffering caused to ordinary civilians by nuclear weapons.

The Vienna Conference built upon the fact-based discussions at the First and Second Conferences on the Humanitarian Impact of Nuclear Weapons, held respectively in Oslo and Nayarit, and contributed to a deeper understanding of the consequences and the actual risks posed by nuclear weapons. Moreover, these further discussions underlined the extreme challenges for humanitarian response in the event of nuclear weapon explosions in populated areas. Furthermore, it presented a “bird’s-eye view” on international norms and the humanitarian impact of nuclear weapons. Key conclusions from the substantive sessions included the following:

- The impact of a nuclear weapons detonation, irrespective of the cause, would not be constrained by national borders and could have regional and even global consequences, causing destruction, death and displacement as well as profound and long-term damage to the environment, climate, human health and well-being, socioeconomic development, social order and could even threaten the survival of humankind.

- The scope, scale and interrelationship of the humanitarian consequences caused by a nuclear weapons detonation are catastrophic and more complex than commonly understood. These consequences can be large scale and potentially irreversible.

- The use and testing of nuclear weapons have demonstrated their devastating immediate, mid- and long-term effects. Nuclear testing in several parts of the world has left a legacy of serious health and environmental consequences. Radioactive contamination from these tests disproportionately affects women and children. It contaminated food supplies and continues to be measurable in the atmosphere to this day.

- As long as nuclear weapons exist, there remains the possibility of a nuclear weapons explosion. Even if the probability is considered low, given the catastrophic consequences of a nuclear weapons detonation, the risk is unacceptable. The risks of accidental, mistaken, unauthorised or intentional use of nuclear weapons are evident due to the vulnerability of nuclear command and control networks to human error and cyberattacks, the maintaining of nuclear arsenals on high levels of alert, forward deployment and their modernisation. These risks increase over time. The dangers of access to nuclear weapons and related materials by non-state actors, particularly terrorist groups, persist.

- There are many circumstances in which nuclear weapons could be used in view of international conflicts and tensions, and against the background of the current security doctrines of States possessing nuclear weapons. As nuclear deterrence entails preparing for nuclear war, the risk of nuclear weapon use is real. Opportunities to reduce risk must be taken now, such as de-alerting and reducing the role of nuclear weapons in security doctrines. Limiting the role of nuclear weapons to deterrence does not remove the possibility of their use. Nor does it address the risks stemming from accidental use. The only assurance
against the risk of a nuclear weapon detonation is the total elimination of nuclear weapons.

- No state or international body could address in an adequate manner the immediate humanitarian emergency or long-term consequences caused by a nuclear weapon detonation in a populated area, nor provide adequate assistance to those affected. Such capacity is unlikely ever to exist. Coordinated preparedness may nevertheless be useful in mitigating the effects including of a terrorist event involving the explosion of an improvised nuclear device. The imperative of prevention as the only guarantee against the humanitarian consequences of nuclear weapons use was highlighted.

- Looking at nuclear weapons from a number of different legal angles, it is clear that there is no comprehensive legal norm universally prohibiting possession, transfer, production and use. International environmental law remains applicable in armed conflict and can pertain to nuclear weapons, although it does not specifically regulate these arms. Likewise, international health regulations would cover effects of nuclear weapons. The new evidence that has emerged in the last two years about the humanitarian impact of nuclear weapons casts further doubt on whether these weapons could ever be used in conformity with IHL. As was the case with torture, which defeats humanity and is now unacceptable to all, the suffering caused by nuclear weapons use is not only a legal matter, it necessitates moral appraisal.

- The catastrophic consequences of a nuclear weapon detonation event and the risks associated with the mere existence of these weapons raise profound ethical and moral questions on a level transcending legal discussions and interpretations.

**General views and policy responses**

States, international organisations, UN entities, the Red Cross and Red Crescent movement and civil society representatives recalled their deep concern at the catastrophic humanitarian consequences of any use of nuclear weapons. They welcomed the convening of the Vienna Conference on the Humanitarian Impact of Nuclear Weapons. Participants appreciated the testimonies of survivors of nuclear weapons use and testing, including for educating and raising awareness among youth. Many delegates expressed concern about the limited progress in nuclear disarmament and stressed the view that humanitarian considerations should no longer be ignored but be at the core of all nuclear disarmament deliberations. They welcomed the broad participation, including by several nuclear weapons possessor states. They also considered that the discussions would contribute to the implementation of the 2010 NPT Review Conference Action Plan and earlier undertakings and the achievement of a meaningful outcome to the 2015 NPT Review Conference that takes nuclear disarmament efforts forward. Moreover, they reiterated the importance of the entry into force of the Comprehensive Nuclear-Test-Ban Treaty as a key element of the international nuclear disarmament and non-proliferation regime.

Many delegations expressed their concern that military doctrines in several States continued to set forth rationales and operational planning for the use of nuclear weapons.

Many delegations noted that the discourse on the humanitarian impact of nuclear weapons has revealed that nuclear weapons pose an unacceptable risk, that this risk is higher than commonly understood and that it continues to increase over time. Protection of civilians is a fundamental duty of States and requires particular care on their part. Many delegations affirmed that in the interest of the very survival of humanity nuclear weapons must never be used again, under any circumstances.

Many delegations considered that the existence and possible use of nuclear weapons and the resulting unacceptable consequences raise profound moral and ethical issues.

In light of sustainable development challenges, concern was expressed about the diversion of funds for nuclear weapons.

Many delegations considered that the growing understanding of the risk posed by nuclear weapons, including the likelihood and devastating humanitarian consequences of their use, underscores the urgent need for all States to pursue effective measures for the achievement of nuclear disarmament.

States expressed various views regarding the ways and means of advancing the nuclear disarmament agenda. A range of legally binding collective approaches to achieving progress toward a world without nuclear weapons was discussed. Many delegations reaffirmed that the total elimination of nuclear weapons is the most effective way to prevent their use.

Many delegations expressed appreciation for the important contribution of civil society and researchers in all aspects of advancing nuclear disarmament and non-proliferation and the achievement of a world without nuclear weapons. The necessity of a multilateral and inclusive approach in pursuing this objective was highlighted by many delegations.

The majority of delegations underscored that the final elimination of nuclear weapons should be pursued within an agreed legal framework, including a nuclear weapons convention.
A number of delegations argued that a step-by-step approach was the most effective and practical way to achieve nuclear disarmament, referring in particular to the entry into force of the CTBT and a Treaty banning the production of fissile material for nuclear weapons. These delegations also noted that the global security environment needs to be taken into consideration in discussions about nuclear weapons and nuclear disarmament. In this connection, they promoted various unilateral, bilateral, plurilateral and multilateral, building blocks that should and can be taken in the near- to mid-term in support of a world without nuclear weapons.

Many delegations stressed the need for security for all and underscored that the only way to guarantee this security is through the total elimination of nuclear weapons and their prohibition. They expressed support for the negotiation of a new legal instrument prohibiting nuclear weapons constituting an effective measure towards nuclear disarmament, as required also by the NPT.

It was recognised that the obligation to pursue effective measures for nuclear disarmament, as expressed in Article VI of the NPT, resides with each State Party, and that there are practical steps that States can take now to pursue such measures in good faith.

A number of delegations considered that the inability to make progress on any particular step was no reason not to pursue negotiations in good faith on other effective measures to achieve and maintain a nuclear-weapon-free world. Such steps have been taken very effectively in regional contexts in the past, as evidenced by nuclear weapon free zones.

Participants at the Vienna Conference were conscious that 2015 marks the 70th anniversary of the use of nuclear weapons in Hiroshima and Nagasaki and that calls for nuclear disarmament in this connection have been palpable and poignant. They considered that it is critical to sustain partnerships among States, the Red Cross Movement, international organisations, Parliamentarians and civil society with a view to translating the widespread concerns about the risks and consequences associated with nuclear weapons into concerted steps to achieve a world without these armaments.

The overwhelming majority of NPT States Parties expect that the forthcoming 2015 NPT Review Conference should take stock of all relevant developments, including the outcomes of the Conferences on the Humanitarian Impact of Nuclear Weapons, and determine the next steps for the achievement and maintenance of a nuclear-weapon-free world.
Austrian Pledge

Presented under the sole responsibility of Austria

Delivered by Michael Linhart, Deputy Foreign Minister, Federal Ministry for Europe, Integration and Foreign Affairs, Republic of Austria

Having hosted and chaired the Vienna Conference on the Humanitarian Impact of Nuclear Weapons from 8-9 December 2014 and in light of the important facts and findings that have been presented at the international conferences in Oslo, Nayarit and Vienna, Austria, solely in her national capacity, and without binding any other participant, wants to go beyond the summary just read out. After careful consideration of the evidence, Austria has come to the following inescapable conclusions and makes the subsequent pledge to take them forward with interested parties in available fora, including in the context of the NPT and its upcoming 2015 Review Conference:

Mindful of the unacceptable harm that victims of nuclear weapons explosions and nuclear testing have experienced and recognising that the rights and needs of victims have not yet been adequately addressed,

Understanding that the immediate, mid- and long-term consequences of a nuclear weapons explosion are significantly graver than it was understood in the past and will not be constrained by national borders but have regional or even global effects, potentially threatening the survival of humanity,

Recognising the complexity of and interrelationship between these consequences on health, environment, infrastructure, food security, climate, development, social cohesion and the global economy that are systemic and potentially irreversible,

Aware that the risk of a nuclear weapon explosion is significantly greater than previously assumed and is indeed increasing with increased proliferation, the lowering of the technical threshold for nuclear weapon capability, the ongoing modernisation of nuclear weapon arsenals in nuclear weapon possessing states, and the role that is attributed to nuclear weapons in the nuclear doctrines of possessor states,

Cogniscent of the fact that the risk of nuclear weapons use with their unacceptable consequences can only be avoided when all nuclear weapons have been eliminated,

Emphasising that the consequences of a nuclear weapon explosion and the risks associated with nuclear weapons concern the security of all humanity and that all states share the responsibility to prevent any use of nuclear weapons,

Emphasising that the scope of consequences of a nuclear weapons explosion and risks associated raise profound moral and ethical questions that go beyond debates about the legality of nuclear weapons,

Mindful that no national or international response capacity exists that would adequately respond to the human suffering and humanitarian harm that would result from a nuclear weapon explosion in a populated area, and that such capacity most likely will never exist,

Affirming that it is in the interest of the very survival of humanity that nuclear weapons are never used again, under any circumstances,

Reiterating the crucial role that international organisations, relevant UN entities, the Red Cross and Red Crescent Movement, elected representatives, academia and civil society play for advancing the shared objective of a nuclear-weapon-free world,

Austria regards it as her responsibility and consequently pledges to present the facts-based discussions, findings and compelling evidence of the Vienna Conference, which builds upon the previous conferences in Oslo and Nayarit, to all relevant fora, including in the context of the NPT and its upcoming 2015 Review Conference, as they should be at the centre of all deliberations, obligations and commitments with regard to nuclear disarmament,

Austria pledges to follow the imperative of human security for all and to promote the protection of civilians against risks stemming from nuclear weapons,

Austria calls on all states parties to the NPT to renew their commitment to the urgent and full implementation of existing obligations under Article VI, and to this end, to identify and pursue effective measures to fill the legal gap for the prohibition and elimination of nuclear weapons.
nuclear weapons and Austria pledges to cooperate with all stakeholders to achieve this goal,

Austria calls on all nuclear weapons possessor states to take concrete interim measures to reduce the risk of nuclear weapons detonations, including reducing the operational status of nuclear weapons and moving nuclear weapons away from deployment into storage, diminishing the role of nuclear weapons in military doctrines and rapid reductions of all types of nuclear weapons,

Austria pledges to cooperate with all relevant stakeholders, States, international organisations, the International Red Cross and Red Crescent Movements, Parliamentarians and civil society, in efforts to stigmatise, prohibit and eliminate nuclear weapons in light of their unacceptable humanitarian consequences and associated risks.
Conference Programme
Monday, 8 December 2014

10.00 – 11.00 am
Opening Ceremony
Sebastian Kurz, Federal Minister for Europe, Integration and Foreign Affairs of Austria

Message by the Secretary General of the United Nations Ban Ki-moon delivered by Angela Kane, United Nations High Representative for Disarmament

Peter Maurer, President of the International Committee of the Red Cross

Setsuko Thurlow, Hibakusha Stories, Hiroshima Peace Ambassador and Survivor of the atomic bomb explosion on 6 August 1945

Message by His Holiness Pope Francis, delivered by Archbishop Silvano Maria Tomasi, Apostolic Nuncio, Permanent Observer of Holy See to the United Nations in Geneva

11.00 am – 1.00 pm
Session I – Impact of Nuclear Weapons Explosions
This session will further address the short and long-term consequences of nuclear weapons explosions, especially in the areas of health, environment, climate, food security, and infrastructure, and the potential interaction of these consequences. The second part of this session will put a specific focus on the impacts of nuclear tests.

11.00 am – 12.00 pm
Session I a – Impact of Nuclear Weapons Explosions

Co-Chairs: Libran N. Cabactulan, Ambassador and Permanent Representative of the Republic of the Philippines to the United Nations in New York and Alexander Marschik, Ambassador and Permanent Representative of Austria to the Political and Security Policy Committee of the European Union

War of Human Consequences: Health Consequences of the use of nuclear weapons
Mary Olson, Senior Radioactive Waste Policy Specialist with Nuclear Information and Resource Service (NIRS)

Global Famine after a Regional Nuclear War: Overview of recent Research
Dr. Michael J. Mills, National Centre for Atmospheric Research

Calculating the Effects of a Nuclear Explosion at a European Military Base
Matthew McKinzie Ph.D., Natural Resources Defense Council (NRDC)

12.00 – 1.00 pm
Session I b – Impact of Nuclear Testing
Co-Chairs: Christine Stix-Hackl, Ambassador and Permanent Representative of Austria to the United Nations Office in Vienna and Alfredo Labbé Villa, Ambassador, Director General for Foreign Policy at the Ministry for External Relations of Chile

Overview of the History of Nuclear Testing 1945 until Today
Martin Kalinowski Ph.D., Chief, Capacity Building and Training Section, International Data Centre Division, CTBTO Preparatory Commission

Human Consequences: Testimonials on the Health, Environmental, Socio-economic and Cultural Impact of Nuclear Tests
Abacca Anjain-Maddison, Republic of the Marshall Islands, Michelle Thomas, HEAL Utah, U.S.A. and Sue Coleman-Haseldine, Australia

Assessing the Harm from Nuclear Weapons Testing and Production
Arjun Makhijani Ph.D., Institute for Energy and Environmental Research

Expert presentations of Sessions I a and I b are followed by Q&A and interactive debate.

1.30 – 2.30 pm
Side Event – Nuclear Weapons and the Moral Compass
Hosted by the Permanent Mission of the Philippines and the Global Security Institute

2.45 – 4.15 pm
Session II – Risk Drivers for Deliberate or Inadvertent Nuclear Weapons Use
This session will further address the range of human and technical factors that could lead to the explosion of (a) nuclear weapon(s), such as human error, negligence, miscalculation, miscommunication, technical faults, risk calculation, vulnerability and cyber security.


The Most Dangerous Machines
Eric Schlosser, author of “Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety”

Risk from Nuclear Weapons Use: A System’s Perspective
Reinhard Mechler, International Institute for Applied Systems Analysis and Vienna University of Economics
Cyber Risks in Securing Nuclear Weapons from Unauthorised or Inadvertent Use
Camille M. Francois; Harvard Law School Berkman Center for Internet & Society and Columbia University Arnold A. Saltzman Institute for War and Peace Studies

What is the Risk of Nuclear War?
Seth Baum, Global Catastrophic Risk Institute

Lowering the Nuclear Threshold: The Dangerous Evolution of World Nuclear Arsenals toward Far-Flung Dispersal, Hair-Trigger Launch Readiness, and First Use Doctrines
Bruce Blair, Global Zero and Princeton University research faculty in the Program on Science and Global Security

Expert presentations are followed by Q&A and interactive debate

4.45 – 6.15 pm
Session III – Scenarios, Challenges and Capabilities regarding Nuclear Weapons Use and Other Events
This session will address possible scenarios of nuclear weapons use/explosions, as well as explosions of radiological devices. Response plans and challenges of the international system as and implications for States will be discussed.

Co-Chairs: Taous Feroukhi, Ambassador, Director General of Political Affairs and International Security, Ministry for Foreign Affairs of Algeria and Alexander Kmentt, Ambassador, Director for Disarmament, Arms Control and Non-Proliferation, Ministry for Europe, Integration and Foreign Affairs of Austria.

Nuclear Deterrence, Nuclear War Planning, and Scenarios of Nuclear Conflict
Matthew McKinzie, Ph.D., Lands and Wildlife Program Natural Resources Defense Council and Hans M. Kristensen, Director of the Nuclear Information Project at the Federation of American Scientists in Washington

Preventing and Preparing for a Nuclear Explosion
Micah D. Lowenthal, Ph.D., National Academy of Sciences

South Africa’s National Response Capabilities in Managing Significant and Major Events
Mark Pillay, Colonel in the South African Police Service

Responding to the Humanitarian Consequences of Nuclear Weapon Use in Populated Areas
Rudolph Müller; Office for the Coordination of Humanitarian Affairs, Geneva

Expert presentations are followed by Q&A and interactive debate

6.15 – 8.00 pm
Reception for all Participants at the Conference Venue
Hosted by the Federal Ministry for Europe, Integration and Foreign Affairs of Austria

8.45 – 10.30 pm
Pre-Screening of the Documentary Movie – The Man Who Saved the World
At Gartenbaukino. Courtesy of Light Cone Pictures and Statement Films
Tuesday, 9 December 2014

9.30 – 11:00 am
Session IV - A “Bird’s-eye View” on International Norms and the Humanitarian Impact of Nuclear Weapons
This session will provide an overview of the norms under existing international law pertaining to the humanitarian consequences of nuclear weapons explosions, in particular regarding the environment and health, as well as a discussion of international humanitarian law and the humanitarian dimension in existing disarmament, arms control and non-proliferation instruments.

Co-Chairs: Dell Higgie, Ambassador for Disarmament of New Zealand and Helmut Tichy, Ambassador, Legal Advisor, Ministry for Europe, Integration and Foreign Affairs of Austria.

Nuclear Weapons and International Environmental Law
Dr. Jorge Vinuales, University of Cambridge

Nuclear Weapons and International Health Law
Steven A. Solomon is currently Acting Legal Counsel at the World Health Organization (WHO) in Geneva

The Use of Nuclear Weapons and International Humanitarian Law
Dr. Helen Durham, International Committee of the Red Cross

The Humanitarian Origins of International Law
Regulating Arms
Dr. Gro Nystuen, International Law and Policy Institute

The Fundamental Ethical and Moral Principles on Which International Legal Regulations of Nuclear Weapons Are Based
Nobuo Hayashi, University of Oslo

Expert presentations are followed by Q&A and interactive debate

11.30 am – 1:00 pm
Discussion / General Debate

1.30 – 2.30 pm
Side Event – Elected Representatives and the Humanitarian Initiative
Hosted by the International Campaign to Abolish Nuclear Weapons

2.30 – 6.00 pm
Discussion / General Debate continued

6.15 pm
Closing Session – Presentation of Chair’s Summary
Sebastian Kurz, Federal Minister for Europe, Integration and Foreign Affairs of Austria will present the summary of the proceedings and discussions in the form of a chair’s summary under his personal responsibility.

6.30 pm
Conference Ends
Opening Ceremony
It is a great pleasure for me to welcome you all to the Vienna Conference on the Humanitarian Impact of Nuclear Weapons. The fact that nearly 160 States, many international organisations, civil society and researchers from all over the world are here, is very encouraging for us.

In the world after the Cold War in which I grew up, most people seemed to stop worrying about nuclear weapons. They were seen as a relic from the past, only an abstract danger which didn’t matter very much. But this is fundamentally wrong!

The fact is: Over 16.000 nuclear warheads still exist - distributed among 14 countries and throughout the oceans - many of them on high alert and ready for use on short notice. And we have to be clear:

As long as nuclear weapons exist, the risk of their use - on purpose or by accident - remains real.

Ladies and gentlemen, States that possess nuclear weapons consider them as important for their security - that nuclear weapons deter war precisely because of their destructive force. It is therefore no surprise that progress on nuclear disarmament has been so slow. But whatever value is given to nuclear weapons, it must be seen in the context of the risks that these weapons carry.

Today we know more about these risks. Human error, technical flaws and cyber security among them. These risks can never be eliminated completely. Actually humankind has been very lucky on several occasions in the past. But can we continue to rely on luck for our safety?

Today we also know that the consequences of a single nuclear explosion would be even more terrifying and long-lasting than we thought. It would result in an immediate humanitarian emergency of enormous scale, an emergency that would not be constrained by national borders, but have regional and global effects. No national or international organisation is capable of dealing with such terrible consequences. In such a scenario nobody would win, everybody would lose.

Ladies and gentlemen, these are enough reasons for urgent action on nuclear weapons - and why we should focus on their risks and their humanitarian consequences. Austria wants strong international rules on nuclear weapons: a strong NPT and the CTBT in force. But most of all we want to see a new momentum for concrete progress on global nuclear disarmament. In the follow-up of the conferences in Norway and in Mexico we hope that our discussions in Vienna will contribute to this aim.

Ladies and gentlemen, we all agree that the world would be a better one without nuclear weapons. This objective has been stated over and over again, in legally binding treaties, in the UN, in countless policy statements over the past decades. It is high time to move from words to real action! We need to challenge old thinking, we need to take in the knowledge of experts, the voices of civil society and we need much more global awareness. I look forward to our discussions and would wish that this conference can be a step leading to a world without nuclear weapons.

Thank you for your attention.
Ban Ki-moon

Statement on Behalf of United Nations Secretary-General Ban Ki-moon

Delivered by Angela Kane, High Representative for Disarmament Affairs

I am pleased to send my greetings to the Third Conference on the Humanitarian Impact of Nuclear Weapons.

I commend the Government of Austria for hosting this event, which builds upon the widely attended and pioneering conferences held in Norway and Mexico.

This initiative has brought humanitarian considerations to the forefront of nuclear disarmament. It has energised civil society and Governments alike. It has compelled us to keep in mind the horrific consequences that would result from any use of nuclear weapons.

This perspective is essential in confronting those who view nuclear weapons as a rational response to growing international tensions or as a symbol of national prestige. It underscores the senselessness of pouring funds into modernising the means for our mutual destruction while we are failing to meet the challenges posed by poverty, climate change, extremism and the destabilising accumulation of conventional arms.

We are about to enter the 70th year of the nuclear age. History has taught us many lessons about the dangers inherent in nuclear weapons.

Possession does not prevent international disputes from occurring, but it makes conflicts more dangerous. Maintaining forces on alert does not provide safety, but it increases the likelihood of accidents. Upholding doctrines of nuclear deterrence does not counter proliferation, but it makes the weapons more desirable. Growing ranks of nuclear-armed States does not ensure global stability, but instead undermines it.

These conferences have deepened our knowledge of the risks of use and the fundamental inability of our emergency response system to cope. The more we understand about the humanitarian impacts, the more it becomes clear that we must pursue disarmament as an urgent imperative.

No country disputes the desirability of achieving a nuclear-weapon-free world. After all, this was the very first objective identified by the United Nations General Assembly. The universal acceptance of this goal led the International Court of Justice to determine that the disarmament obligation transcends any treaty and is a requirement under customary international law.

I hope all participants come away with new resolve to pursue effective measures for the achievement of nuclear disarmament.

Please accept my best wishes for a successful conference.
There has been a fundamental change in the debate about nuclear weapons. After decades of focusing on nuclear weapons primarily in technical-military terms and as symbols of power, States have finally engaged in a long overdue discussion of what they would mean for people and the environment, indeed for humanity. Intergovernmental meetings over the past two years have come face to face with the catastrophic consequences that the use of these weapons had on the people of Hiroshima and Nagasaki, on the suffering they continue to inflict on survivors and their children, and the absence, nearly 70 years later, of any adequate international capacity to assist victims of nuclear detonations. They have also highlighted the enduring human costs of nuclear testing. New scientific evidence has been put before us on the impact that even limited use of nuclear weapons would have on global temperatures, food production, public health, and the world economy. In light of what has been learned, it is now difficult to deny that the impact of nuclear weapon use would be catastrophic, long lasting and unacceptable in humanitarian terms.

For the International Committee of the Red Cross (ICRC), the testimony we have heard in recent years has renewed the memory of the unspeakable suffering that we witnessed in Hiroshima and Nagasaki and of our efforts, together with the Japanese Red Cross, to aid those injured by the heat, blast and radiological effects of the atomic bombs dropped on those cities. At the time we could not have imagined that Japanese Red Cross hospitals would still be treating victims of cancer and leukemia attributable to radiation from the atomic blasts – today, 70 years after the use of these weapons.

The information presented at these meetings has increased the ICRC's concern about the challenges facing humanitarian organisations whose duty it would be to assist the victims of nuclear weapons. As I stated last year, the ICRC has concluded that an effective means of assisting a substantial portion of survivors in the immediate aftermath of a nuclear detonation, while adequately protecting those delivering assistance, is not available and not feasible at the international level. A more recent study focusing on the capacity of UN agencies has confirmed our conclusions and reinforced our concern about the use of a weapon for which there is no adequate international humanitarian response capacity.

The global and long-term humanitarian consequences of nuclear weapons, which we have heard about at the Oslo and Nayarit meetings, raise profound questions about the limits of warfare and the capacity of the human species to prevent foreseeable catastrophic events. The most universally accepted limits are contained in international humanitarian law. In the view of the ICRC, the information presented over the past 2 years has significant implications for the assessment of nuclear weapons under fundamental rules of international humanitarian law and other fields of international law. Because much of the scientific information on the human costs and environmental impacts, and on the absence of adequate assistance capacities was not previously available this information should trigger a reassessment of these weapons by States in both legal and policy terms.

It has been nearly seven decades since the world witnessed the detonation of a nuclear weapon in a populated area. Yet we have been reminded that each day we face a very real risk that such an event will occur. Accidents, malfunctions, mishaps, false alarms and misinterpreted information have nearly led to the detonation of nuclear weapons on numerous occasions since 1945. Given that the destructive capacity of many nuclear weapons is far greater than those used in 1945, the consequences in humanitarian terms would likely be even more far-reaching and long lasting. It is also disturbing that an estimated 1800 nuclear warheads remain on “high alert” status; ready to be launched within minutes.

The fact that nuclear weapons have not been used in an armed conflict since 1945 provides little assurance that the world will not witness their horrific consequences once again.

Many steps have already been taken to reduce the dangers posed by nuclear weapons. There has been a significant reduction in the number of warheads possessed by nuclear-armed States with the largest stockpiles since the end of the Cold War. Steps have also been taken to increase nuclear security and Nuclear-Weapon-Free Zones (NWFZ) have been established in many parts of the world. However, indications that the pace of reductions has slowed significantly in
recent years and that arsenals are being modernised are issues of serious concern.

Far more needs to be done to ensure that neither humanity as a whole nor any country, people or future generation will again suffer the consequences of nuclear weapons, whether through intentional use, accidental detonation or the effects of nuclear testing. In 2011, the Council of Delegates of the International Red Cross and Red Crescent Movement appealed to all States to ensure that nuclear weapons are never again used and to prohibit the use of and completely eliminate nuclear weapons based existing commitments and international obligations. What we have learned in the past three years has further strengthened our resolve to pursue these goals.

Achieving these goals will also require concerted action by governments. All nuclear-armed States must fulfil their existing international commitments to nuclear disarmament. We are well aware that this is not an easy task, particularly in light of the current international security challenges and the lack of trust amongst powers. It is thus a responsibility of all States to help create conditions under which nuclear disarmament becomes possible.

At the same time, there is a broad sense of urgency to act: The catastrophic humanitarian consequences that we are now well aware of are too serious to ignore. If we fail to prevent these, current challenges may pale in comparison. In the short term, more must be done to fulfil commitments to diminish the role and significance of nuclear weapons in military plans, doctrines and policies and to reduce the operational status of nuclear weapons systems. There must also be urgent action to reduce the risk of accidental use of nuclear weapons. It is also imperative that the nearly 70 year history of non-use of nuclear weapons be continued indefinitely. In our view, the only way to ensure this is to enshrine the non-use and complete elimination of nuclear weapons in a legally binding international agreement.

Nuclear weapons are often viewed as a tool of security, particularly during times of international instability. But weapons that risk catastrophic and irreversible humanitarian consequences cannot seriously be viewed as protecting civilians or humanity as a whole. We know now as never before that the risks are high, the dangers real. It is time for States, and all those in a position to influence them, to seize with urgency and determination the unique opportunity at hand to bring the era of nuclear weapons to an end.
It is a great pleasure for me to welcome you all. I am honoured to be invited to this Third Conference on the Humanitarian Impact of Nuclear Weapons, and to have this opportunity to share a little of my childhood experience of the atomic bombing of Hiroshima. To the Government of Austria, on behalf of all survivors of Hiroshima and Nagasaki, I would like to express my deep gratitude and respect for hosting this extremely important follow-up conference to the Oslo and Nayarit conferences. Deep thanks also to ICAN whose inspiration has brought us together, and to the ICRC and citizen groups from all over the world, working with governments to call for the total elimination of nuclear weapons. It gives me great satisfaction that these conferences have renewed the focus on the humanitarian dimension of nuclear weapons, the fundamental issue, yet long neglected by the shifting of the world’s attention to the doctrine of deterrence in the name of national and international security.

As a 13-year-old schoolgirl I witnessed my city of Hiroshima blinded by the flash, flattened by the hurricane-like blast, burned in the heat of 4000 degrees Celsius and contaminated by the radiation of one atomic bomb. A bright summer morning turned to dark twilight with smoke and dust rising in the mushroom cloud, dead and injured covering the ground, begging desperately for water and receiving no medical care at all. The spreading firestorm and the foul stench of burnt flesh filled the air.

Miraculously, I was rescued from the rubble of a collapsed building, about 1.8 km from ground zero. Most of my classmates in the same room were burned alive. I can still hear their voices calling their mothers and God for help. As I escaped with two other surviving girls we saw a procession of ghostly figures slowly shuffling from the centre of the city. Grotesquely wounded people, whose clothes were tattered, or who were made naked by the blast. They were bleeding, burnt, blackened and swollen. Parts of their bodies were missing, flesh and skin hanging from their bones, some with their eyeballs hanging in their hands, and some with their stomachs burst open, with their intestines hanging out.

Within that single flash of light, my beloved Hiroshima became a place of desolation, with heaps of rubble, skeletons and blackened corpses everywhere. Of a population of 360,000 – largely non-combatant women, children and elderly – most became victims of the indiscriminate massacre of the atomic bombing. As of now, over 250,000 victims have perished in Hiroshima from the effects of the blast, heat and radiation. Today, 69 years later people are still dying from the delayed effects of one atomic bomb: considered crude by today’s standard for mass destruction.

Through months and years of struggle for survival, rebuilding lives out of the ashes, we Hibakusha, or ‘survivors’, became convinced that no human being should ever have to repeat our experience of the inhumane, immoral, and cruel atomic bombing, and that our mission is to warn the world about the reality of the nuclear threat and to help people understand the illegality and ultimate evil of nuclear weapons. We believe that, “Humanity and nuclear weapons cannot coexist indefinitely.” Thus, we have a moral imperative to abolish nuclear arsenals, in order to ensure a safe, clean, and just world for future generations. With this conviction we have been speaking out around the world for the past several decades for the total abolition of nuclear weapons.

Yet, Hibakusha are increasingly frustrated, just as all of us here are, by the lack of tangible progress toward nuclear disarmament. This, in spite of our baring our souls with painful memories over the past 69 years to warn people about the hell on earth we experienced in Hiroshima and Nagasaki.

How much longer can we allow the nuclear weapon States to continue threatening all life on earth? At Nayarit we declared that the time has come for action to establish a legally binding framework to ban nuclear weapons. Here in Vienna let us move forward, courageously, by concretising our vision so that we can make the 70th anniversary of the atomic bombing of Hiroshima and Nagasaki the appropriate milestone to achieve our goal: to prohibit and eliminate nuclear weapons. Let us start this process, beginning with negotiations on a ban treaty, here and now in Vienna.
Pope Francis

Statement on Behalf of His Holiness Pope Francis
Delivered by Archbishop Silvano Maria Tomasi, Apostolic Nuncio, Permanent Observer of Holy See to the United Nations in Geneva

I am pleased to greet you, Mr President, and all the representatives from various nations and international organisations, as well as civil society, who are participating in the Vienna Conference on the Humanitarian Impact of Nuclear Weapons.

Nuclear weapons are a global problem, affecting all nations, and impacting future generations and the planet that is our home. A global ethic is needed if we are to reduce the nuclear threat and work towards nuclear disarmament. Now, more than ever, technological, social and political interdependence urgently calls for an ethic of solidarity (cf. John Paul II, Sollicitudo Rei Socialis, 38), which encourages peoples to work together for a more secure world, and a future that is increasingly rooted in moral values and responsibility on a global scale.

The humanitarian consequences of nuclear weapons are predictable and planetary. While the focus is often placed on nuclear weapons’ potential for mass killing, more attention must be given to the “unnecessary suffering” brought on by their use. Military codes and international law, among others, have long banned peoples from inflicting unnecessary suffering. If such suffering is banned in the waging of conventional war, then it should all the more be banned in nuclear conflict. There are those among us who are victims of these weapons; they warn us not to commit the same irreparable mistakes which have devastated populations and creation. I extend warm greetings to the Hibakusha, as well as other victims of nuclear weapons testing who are present at this meeting. I encourage them all to be prophetic voices, calling the human family to a deeper appreciation of cooperation and fraternity, while reminding the world of the risks of nuclear weapons which have the potential to destroy us and civilisation.

Nuclear deterrence and the threat of mutually assured destruction cannot be the basis for an ethics of fraternity and peaceful coexistence among peoples and states. The youth of today and tomorrow deserve far more. They deserve a peaceful world order based on the unity of the human family, grounded on respect, cooperation, solidarity and compassion. Now is the time to counter the logic of fear with the ethic of responsibility, and so foster a climate of trust and sincere dialogue.

Spending on nuclear weapons squanders the wealth of nations. To prioritise such spending is a mistake and a misallocation of resources which would be far better invested in the areas of integral human development, education, health and the fight against extreme poverty. When these resources are squandered, the poor and the weak living on the margins of society pay the price.

The desire for peace, security and stability is one of the deepest longings of the human heart. It is rooted in the Creator who makes all people members of the one human family. This desire can never be satisfied by military means alone, much less the possession of nuclear weapons and other weapons of mass destruction. Peace cannot “be reduced solely to maintaining a balance of power between enemies; nor is it brought about by dictatorship” (Gaudium et Spes, 78). Peace must be built on justice, socio-economic development, freedom, respect for fundamental human rights, the participation of all in public affairs and the building of trust between peoples. Pope Paul VI stated this succinctly in his Encyclical Populorum Progressio: “Development is the new name for peace” (76). It is incumbent on us to adopt concrete actions which promote peace and security, while remaining always aware of the limitation of short-sighted approaches to problems of national and international security. We must be profoundly committed to strengthening mutual trust, for only through such trust can true and lasting peace among nations be established (cf. John XXIII, Pacem in Terris, 113).

In the context of this Conference, I wish to encourage sincere and open dialogue between parties internal to each nuclear state, between various nuclear states, and between nuclear states and non-nuclear states. This dialogue must be inclusive, involving international organisations, religious communities and civil society, and oriented towards the common good and not the protection of vested interests. “A world without nuclear weapons” is a goal shared by all nations and echoed by world leaders, as well as the aspiration of millions of men and women. The future and the survival of the human family hinges on moving beyond this ideal and ensuring that it becomes a reality.
I am convinced that the desire for peace and fratern-ity planted deep in the human heart will bear fruit in concrete ways to ensure that nuclear weapons are banned once and for all, to the benefit of our common home. The security of our own future depends on guaranteeing the peaceful security of others, for if peace, security and stability are not established globally, they will not be enjoyed at all. Individually and collectively, we are responsible for the present and future well-being of our brothers and sisters. It is my great hope that this responsibility will inform our efforts in favour of nuclear disarmament, for a world without nuclear weapons is truly possible.
Session 1a
Impact of Nuclear Weapons Explosions

This session addressed the short- and long-term consequences of nuclear weapons explosions, especially in the areas of health, environment, climate, food security, and infrastructure, and the potential interaction of these consequences.

Co-Chairs

Libran N. Cabactulan, Ambassador and Permanent Representative of the Republic of the Philippines to the United Nations in New York

Alexander Marschik, Ambassador and Permanent Representative of Austria to the Political and Security Policy Committee of the European Union
War of Human Consequences: 
Health Consequences of the Use of Nuclear Weapons

Mary Olson, Senior Radioactive Waste Policy Specialist with Nuclear Information and Resource Service (NIRS)

A referenced summary of findings on medical consequences of nuclear weapons use was presented with respect to immediate, short-term, mid-term and extended timeframes including thermal, climatic, radiological, and general public health consequences. Focus on radiological impacts includes disproportionate harm to juveniles, females in particular; as well as disproportionate impact to females from ionising radiation exposure across the lifespan.

Energy profile of a nuclear explosion

- The energy generated by a nuclear explosion consists of 50% blast energy, 35% thermal energy and 15% nuclear radiation.
- All three have immediate and longer term impacts.

Immediate medical consequences

- **Blast:** The shockwave generates pressure waves which form in living tissue. The lungs and other membranes rupture; internal bleeding and embolisms cause death.

- **Thermal Energy:** At ground zero, temperatures are as hot as the surface of the sun (7000°F / 3800°C), resulting in immolation, asphyxiation and burns (Fig. 2). The resulting winds of 160-500 mph / 250-800 kph level people, homes and vegetation. The immediate updraft of the mushroom cloud (Fig. 1) carries particulate to the atmosphere.

- **Acute High-Dose Ionising Radiation:** A dose of ionising radiation of greater than 4.5 grays is considered lethal: these levels far exceed that (Fig. 3). If not shielded, flesh is literally cooked. In the human body, systemic failure comes in three forms. (Fig. 4)

- **Community infrastructure gone:** In Hiroshima, 270 of 300 Doctors perished in initial blast and also 1654 of 1780 nurses.

Long-term Impact: Ionising Radiation

- All regulatory agencies acknowledge that every exposure to ionising radiation carries risk of harm. There is no “safe” dose of ionising radiation.
- Radiation is invisible but we see damage to chromosomes. When reproductive cells are harmed, deformation is one outcome for all babies – plants, animals, humans.

- Radiation can lead to loss of fertility, spontaneous abortion and miscarriage, heritable mutations, and avoidance of reproduction due to uncertainty.

- Cancer is the most-studied consequence of non-lethal exposures to radiation. Sometimes the body can repair damage, but sometimes damage to the body can wait for years or even decades before causing death. In general, more radiation entails a higher risk of cancer but even a dose so small it cannot be measured can cause death.

- People aged 5 or under in 1945 had the most cancer; girls were twice as likely to get cancer.

- Of adults exposed to the bombs, there were 50% more deaths from cancer among women than men.
Immediate fatalities

<table>
<thead>
<tr>
<th>City</th>
<th>Estimated Population at the time of the bombing</th>
<th>Estimated number of acute deaths (within 2—4 months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiroshima</td>
<td>340,000—350,000</td>
<td>90,000—166,000</td>
</tr>
<tr>
<td>Nagasaki</td>
<td>250,000—270,000</td>
<td>60,000—80,000</td>
</tr>
</tbody>
</table>

Immediate Air Radiation levels: Lethal if not shielded

**Hiroshima:**
- Gamma rays: 10,300 rads / 103 Gy
- Estimated neutrons: 14,100 rads / 141 Gy

**Nagasaki:**
- Gamma rays: 25,100 rads / 251 Gy
- Estimated neutrons: 3,900 rads / 39 Gy

Lethal level ~ 4.5 Gy

Acute High-Dose Ionizing Radiation: Immediate Medical Consequences

In the human body systemic failure is in three forms:

1. (> 30 Gy whole body) Cerebrovascular syndrome
2. (6 to 30 Gy whole body) Gastro-Intestinal syndrome
3. (1 to 6 Gy whole body) Hematopoietic syndrome

Fig. 1

Fig. 2

Fig. 3

Fig. 4
A limited, regional nuclear war in which India and Pakistan each use about half of their current arsenal of small nuclear weapons would produce firestorms in modern megacities that would build for hours after the explosion. Studies indicate that the firestorms following the explosion of 100 Hiroshima-sized weapons in cities on the subcontinent would produce 5 million tonnes of black carbon smoke. Studies using three independent climate models have shown that nearly all of this smoke would be heated by sunlight, and would rise into the stratosphere, where it would be immune to removal by precipitation. Simulations indicate that the smoke would remain in the stratosphere for 10 to 25 years, absorbing sunlight, producing a sudden drop in surface temperatures and intense heating of the stratosphere. Calculations show that global ozone losses of 20-50% over populated areas, levels unprecedented in human history, would accompany the coldest average surface temperatures in the last 1,000 years. Calculated summer enhancements in UV indices of 30-80% over Mid-Latitudes suggest widespread damage to human health, agriculture, and terrestrial and aquatic ecosystems. Killing frosts would reduce growing seasons by 10-40 days per year for 5 years. Surface temperatures would be reduced for more than 25 years, due to thermal inertia and albedo effects in the ocean and expanded sea ice. Crop model simulations indicate that the combined cooling and enhanced UV would put significant pressures on global food supplies and could trigger a global food crisis and put a billion people at risk of famine. Knowledge of the impacts of 100 small nuclear weapons should motivate the elimination of the more than 17,000 nuclear weapons that exist today.

Studies referenced


**Black carbon mass mixing ratio**

![Black carbon mass mixing ratio diagram](image)

**Troposphere**

**Stratosphere**

**Mesosphere**

**Latitude**

- South pole
- 60°S
- 30°S
- Equator
- 30°N
- North pole

**Day 1**

Sooty smoke plume

**kg BC per 10^9 kg air**

**Global climate response to regional war**

![Global climate response graph](image)

- **Soory Smoke**
- **Sunlight**
- **Temperature**
- **Precipitation**

**GISS Model E**

- Full ocean
- No chemistry response

**SOCOL**

- Ozone chemistry
- Shallow ocean

**CESM/WACCM**

- Ozone chemistry
- Full ocean, sea ice, land


**Sooty Smoke**

Sunlight

Temperature

Precipitation

**Change in growing season (days), years 2-6 average**

![Change in growing season graph](image)

**NH**

- More than 1 month
- Nearly 1 month

**SH**

- Nearly 1 month
- More than 1 month

**Mills et al., Multidecadal global cooling and unprecedented ozone loss following a regional nuclear conflict, Earth’s Future, 2014.**

**Following a nuclear war between India and Pakistan, reduced global temperatures, precipitation, and sunlight reduce food production globally**

<table>
<thead>
<tr>
<th></th>
<th>First 5 years</th>
<th>Second 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>US maize</td>
<td>-20%</td>
<td>-10%</td>
</tr>
<tr>
<td>US soybeans</td>
<td>-15%</td>
<td>-10%</td>
</tr>
<tr>
<td>China maize</td>
<td>-20%</td>
<td>-15%</td>
</tr>
<tr>
<td>China middle season rice</td>
<td>-20%</td>
<td>-15%</td>
</tr>
<tr>
<td>China spring wheat</td>
<td>-35%</td>
<td>-25%</td>
</tr>
<tr>
<td>China winter wheat</td>
<td>-40%</td>
<td>-25%</td>
</tr>
</tbody>
</table>

**Climate consequences of a US-Russia war using New START arsenals would be catastrophic**

Temperature (°C) in Ukraine

- **Normal temperature**
- **Agriculture eliminated at mid-latitudes for more than a decade, leading to mass starvation.**

**Post-nuclear temperature**

Below freezing for years; nuclear winter

**Fig. 5:** The impact of the firestorms on the black carbon mass mixing ratio.

**Fig. 6:** Three independent climate models demonstrating the impact of sooty smoke on sunlight, temperature and precipitation.

**Fig. 7:** A regional nuclear war would have a devastating impact on global agriculture.

**Fig. 8:** Global food production would be decimated.

**Fig. 9:** The climate consequences of a regional war between India and Pakistan would be dwarfed by the consequences of a nuclear war between the US and Russia.
Calculating the Effects of a Nuclear Explosion at a European Military Base

Matthew McKinzie Ph.D., Natural Resources Defense Council (NRDC)

Nuclear weapons effects are calculated for a hypothetical explosion of a 200 kiloton thermo-nuclear weapon at a military base with a ground zero in Europe, approximately 60 km outside of the Austrian border. This scenario assumed the weapon detonated at the surface of the earth, and that the nuclear explosive yield consisted of 75% fission and 25% fusion nuclear reactions. Prompt nuclear weapons effects were determined for: crater formation; initial (gamma and neutron) radiation; thermal radiation; shock wave overpressure and dynamic pressure; and electromagnetic pulse. Delayed fallout was computed and contrasted using two very different atmospheric transport models: the U.S. Department of Defense code Hazard Prediction and Assessment Capability (HPAC); and the “FLEXible PARTicle” dispersion model (FLEXPART), initially developed by the Institute of Meteorology, University of Natural Resources and Applied Life Science, Vienna, Austria. The scenario examines a range of ambient weather conditions that influence the shape, extent and intensity of the resulting fallout patterns. In this analysis the authors present the time sequence of nuclear weapons effects and corresponding events, and assess: damage to building structures; human casualties; and environmental and trans-boundary contamination by radionuclides transported in the fallout cloud.

- Open-source information can be used to calculate the effects of a nuclear explosion in terms of crater, blast, thermal, initial radiation and fallout effects.
- Military targeting requirements for destruction of hardened objects involves surface or near-surface bursts, maximising fallout.
- For a 200kt nuclear explosion, the prompt nuclear weapons effects are far more localised than the fallout effect, which were shown to extend across international boundaries for this hypothetical scenario.
- Variations on fallout patterns with weather conditions are a motivation for non-nuclear weapon states to develop a capability to model nuclear explosive effects to mitigate humanitarian impacts of nuclear conflict.
- Humanitarian impacts of nuclear war continue to be relevant to our societies, given the large nuclear arsenals retained decades after the end of the Cold War, and new nuclear weapons development in many states.

Authors

Matthew McKinzie, Ph.D., Natural Resources Defense Council (NRDC) with Delia Arnold, Ph.D., Zentralanstalt für Meteorologie und Geodynamik (ZAMG); Christian Maurer (ZAMG); and Gerhard Wotawa, Ph.D. (ZAMG)
Session I b
Impact of Nuclear Testing

This part of the session put a specific focus on the impacts of nuclear tests.

Co-Chairs

Christine Stix-Hackl, Ambassador and Permanent Representative of Austria to the United Nations Office in Vienna

Alfredo Labbé Villa, Ambassador, Director General for Foreign Policy at the Ministry for External Relations of Chile
Overview of the History of Nuclear Testing
1945 until today

Martin Kalinowski Ph.D., Chief, Capacity Building and Training Section, International Data Centre Division, CTBTO Preparatory Commission

The annual number of nuclear test explosions above ground and underground are presented for 1945 till 2013. Further, the geographic distribution of nuclear test locations is shown. The historic development is put into perspective with the Partial Test Ban Treaty (PTBT) of 1963 and the Comprehensive Nuclear-Test-Ban Treaty (CTBT).

![Nuclear Tests 1945 - today](Fig. 17)

![Sites of nuclear explosions](Fig. 18)

![2000+ nuclear explosions](Fig. 19)

![Scale comparison](Fig. 20)
Timeline of International Treaties Pertaining to Nuclear Testing

1962 Antarctic Treaty
1963 Partial Test Ban Treaty
1967 Outer Space Treaty
1974 Threshold Test Ban Treaty (TTBT)
1976 Peaceful Nuclear Explosions Treaty (PNET)

The Comprehensive Nuclear-Test-Ban Treaty (CTBT)

- Opened for signature on 24 September 1996.
- All five nuclear weapons States, including the United States, China and Russia, signed on the first day.

Elements of the CTBT Verfication Regime

- Confidence-building measures
- International monitoring system
- Consultation and clarification
- On-site inspection
Human Consequences: Testimonials on the Health, Environmental, Socio-Economic and Cultural Impact of Nuclear Tests

Abacca Anjain-Maddison, Republic of the Marshall Islands, Sue Coleman-Haseldine, Australia, Michelle Thomas, HEAL Utah, U.S.A.

Abacca Anjain-Maddison

- Between 1946 and 1958, the US tested 67 atomic and hydrogen bombs. Bikini Atoll was used as ground zero.
- March 1st, 1954: Bravo test, the strongest ever hydrogen bomb, was detonated. This was 1000 times more powerful than Hiroshima, which translates to 1.5 Hiroshima bombs every day for 12 years.
- My cousin, 13 years old at the time, thought that the powder falling from the sky was snow. She and all her friends were playing with the flakes, catching them and rubbing them on their skin and hair, and eating them. Later, all the people on the island, 87 of them, were very sick, vomiting, suffered from severe diarrhoea, headaches and nausea, especially the children. My uncle, the magistrate at the time, said, “We did not know that there was going to be a bomb exploded 300 miles away, we did not have a word for bomb, we do not have a word for contamination even – we call it poison.”
- We did not know that the water that tasted so bitter was contaminated. Nobody came to evacuate us or warn us.
- While the islanders were used as guinea pigs, the women had numerous miscarriages, they gave birth to jellyfish- and monster-like babies; they suffered from thyroid cancer, liver cancer and all types of radiogenic cancerous illnesses. A report from the National Cancer Institute shows that there will be more Marshallese people to suffer and die from cancer in the years to come.
- Our government is unfairly forced to take responsibility for health problems, including finding ways for the Nuclear Claims Tribunal, whose funds have been exhausted, owing more than $15 million, including land damage claims.

Sue Coleman-Haseldine

- I was born on Koonibba Aboriginal Mission in 1951. Atomic bomb tests began in the desert areas north of my birthplace in 1953 when I was two years old.
- Our land is the basis of our culture. It is our supermarket for our food, our pharmacy for our medicine, our school and our church.
- Aboriginal people have special places throughout Australia, including in the vast arid areas. Looking after these places is our religion.
- There were still Aboriginal people living and travelling this way in the Emu Field and Maralinga region when the bomb tests started. The government was no good at ensuring everyone was safe.
- The first atomic bomb called “Totem 1” spread far and wide and there are lots of stories about the “black mist” it created, which killed, blinded and made people very sick.
- These tests contaminated a huge area and everything in it but people hundreds of kilometres away were also impacted.
- There is a cemetery at Woomera which we call the children’s cemetery. It is filled with children who died around the time of the tests. And these were just the
non-Aboriginal children. There is no record of how many Aboriginal children died.
- I also learnt that uranium mined in Australia was used in these weapons of destruction. To know that uranium from our country was devastating other countries and people was a horrible lesson for me.
- Cancer is the big one but it is also common for people to suffer from thyroid conditions. This is the case for myself and one of my granddaughters.
- Fertility problems, still births, birth defects became more common at the time of the testing.
- There are many Aboriginal people who cannot go back to their ancestral lands and their children and their children’s children and so on will never know the special religious places it contains.
- Having whole displaced communities has also created confusion and conflict between Aboriginal groups.
- If you love your own children and care for the children of the world, you will find the courage to stand up and say “enough”. Always keep in mind that the future forever belongs to the next generation.

Michelle Thomas

- I will turn 63 this March, and I will be a survivor of the Cold War. I was drafted into service while I was yet in my mother’s womb. The nuclear test bombs in America were designed to give the US government some idea of what they might do, should Soviet bombs come to us.
- The bombs would go off early in the morning – mother never ever believed the propaganda put forth by the government that the tests are safe. Imagine the dissonance of being asked to build bomb shelters in your homes to protect yourself from Kruschev’s air raids, while your own country is bombing out the hell of you, day after day after day, one hundred miles away from my home, with mushroom clouds visible from my backyard.
- I’m amazed that the mind-set was so blindly patriotic; I don’t know that that would happen in this day and age. Cynicism is a virtue.
- I grew up playing on the playgrounds of our school, and while we were being taught duck and cover to protect ourselves from Kruschev, we would frolic outside in the ‘snow’. We would write our names in the slide and the merry-go-round with the snow outside. It did not snow often in St George, being in the desert, so this is the closest we got.
- My mother was the first activist I ever knew. She said to me that it was my generation that is being so adversely impacted by these atomic tests.
- We became victims, veterans of the Cold War who were never recognised.
- My mother would say America is killing us, not the Russians. As she stacked cans of green beans in our cellar, which served as our bomb shelter, my fear was being locked in that room with my two brothers. The irony was that it was odd that we were not getting in every day to protect us from what we were experiencing from our own government.
- When we were small there was a table with doctors behind it; they would hand us a little cup of water, and say “Sip, hold, swallow.” While doing so, they would have their hands around our necks, feeling for enlarged thyroid nodules. This was because we drank our milk from the local diary, and it was laced heavily with Iodine 131, which heads straight to the thyroid.
- Memos from the government circled the town St George, Utah, as “Fallout City”. They knew exactly what was happening; they termed us as an under-utilised population, a low-use segment of the population. We don’t see ourselves that way.
- I began experiencing health problems very young in life. My mother kept a chart with a three-block radius from our home, and she recorded what we called “cluster-birth babies” on it, along with spontaneous abortions, child deaths, child leukaemia. A lot of children’s hair would fall out. We were encouraged to go out and watch the clouds, because we were part of history – in fact, we were history.
- I wanted to make peace with my country and say that they did not know what they were doing. But they knew what they did. They have already practised; they had Japan.
- My mother led a group known as Downwinders – and that is what we are known as. She instigated litigation demanding compensation for people’s lives and illnesses; it was little.
- One of my friends who took care of me and was supportive during my cancer appointments died last week, and I missed her funeral to come here. It doesn’t matter – I can go to funerals every day in my home town. Babies are still being born with their organs on the exterior; we still have too much Down’s syndrome, so many young people being diagnosed with cancers and lymphoma. It’s not just cancer – our immune systems are all different.
- We all have the right to live in a healthy environment.
Assessing the Harm from Nuclear Weapons Testing and Production

Arjun Makhijani Ph.D., Institute for Energy and Environmental Research

People have been harmed from the very first uranium production for nuclear weapons to each step in the long processing and fabrication process to nuclear weapons testing and management of the resultant radioactive and toxic wastes. That harm continues. It has been perpetrated by nuclear weapon states on their own people as well as on the people of countries that do not have nuclear weapons – generally without informed consent. For the most part, accountability is still lacking. Radiation doses from testing in the twentieth century are, by themselves, estimated to produce hundreds of thousands of cancers through the end of the twenty first century. Full transparency and accountability is an essential part of the nuclear disarmament process. A truth commission on the health and environmental impact of nuclear weapons production would be one way to shine a light on the harm done by the nuclear weapons era – harm that still continues since production still continues.

- Impact begins with uranium mining, both in nuclear weapons and non-nuclear weapons states, e.g. Democratic Republic of Congo, Namibia, then-Czechoslovakia, then-East Germany, Canada, Australia.
- Test Baker, July 1946 at Bikini – first underwater test. Led to a large amount of contaminated water.
- Lake Karachay has lethal dosages of radiation due to plutonium discharges into the lake from the Mayak nuclear facility. Waste was also discharged directly into the Techay River. The local people were not told at the time.
- Surface burst at Mayak – high-level waste tank explosion in 1957: 22 villages were evacuated, farming was abandoned and there was a significant dosage of radiation. The CIA became aware of the incident in 1959 but did not publicise it - a kind of “Cold War solidarity”.
- Trinity Test Joint Chief of Staff’s evaluation: “We can form no adequate mental picture of the multiple disaster which would befall a modern city, blasted by one or more bombs and enveloped by radioactive mists. Of the survivors in the contaminated areas, some would be doomed by radiation sickness in hours, some in days, some in years. But, these areas, irregular in size and shape, as wind and topography might form them, would have no visible boundaries. No survivor could be certain he was not among the doomed, and so added to every terror of the moment, thousands would be stricken with a fear of death and the uncertainty of the time of its arrival.”
- Every nuclear weapon state has harmed the health of its own people and its environment in the name of national security and usually without informed consent or open discussion of the risks.
- Every state that has had atmospheric testing has contaminated the world, notably the Northern Hemisphere and the non-nuclear uranium mining countries.
- Thousands of sites were contaminated: many severely, some irretrievably.
- Millions of workers were involved (the US and UK have compensation programs).
- Human experiments, in the US, including plutonium injections, radioactive cereal fed to children, irradiation of prisoners up to early 1970s. US established official inquiry in 1994. But others?
- Much is still unknown and deeply secret, though variable across nuclear weapon states. Those not parties to the NPT have been the most closed.
- Danger is not passed: liquid high-level waste at many sites, buried plutonium-containing waste, deep injection into aquifers (Krasnoyarsk, Idaho). For example, Hanford projected to contaminate groundwater to more than drinking water limit for thousands of years AFTER cleanup.
Interventions from the floor following the Session

- Interventions made by States: United States of America, Japan and Mexico.
  - Japan noted that there is need for more research on the effects of alpha- und beta-radiation on the population with regard to food and water supply.
  - Mexico asked which effects the electro-impulse of a nuclear bomb has on satellites and the communication system, as well as whether the effects of nuclear testing on neighbouring countries are studies by the US government.
Session II
Video Message from Stanislav Petrov

In 1983, Stanislav Petrov, then duty officer in the Soviet nuclear command, received an alarm that the Soviet Union was under nuclear attack from the United States. Against instructions, he judged the situation to be a false alarm and decided not to initiate the procedure that would most likely have resulted in a Soviet counter attack – thus averting what might have become a full-fledged nuclear war. Mr. Petrov, in a video message, expressed hope that his story might serve as a prudential reminder of the importance of peaceful coexistence. One should bear in mind that in this story, only the courage and judgement of one single person stood between humanity and a nuclear catastrophe.
When nuclear weapons are fully assembled, they are the most dangerous machines on earth. And that danger is inherent in the technology. No machine ever invented is foolproof. It is impossible for fallible human beings to create anything infallible. The failure of commonplace technologies—like computer software, commercial airliners, automobiles—may have harmful effects. But none of them approach the catastrophic impact that would be produced by the accidental or inadvertent detonation of a nuclear weapon. Accident theorists have long warned of the hidden flaws within all complex technological systems. That warning applies to nuclear command and control systems, as well. Although the odds of an unintended nuclear detonation may be low, the consequences would be unimaginably high. Low probability events occur all the time. And an unfortunate truth is too often forgotten in the management of nuclear arsenals: when the odds of something happening are greater than zero that means it will definitely happen someday.

- Nuclear weapons technology has not been fully under control since its inception. In 1945 as the United States was preparing to detonate the first nuclear device, the scientists were not certain if the earth’s atmosphere would be set on fire and all life on earth would be killed by the first nuclear detonation.

- There was also a concern about having nuclear weapons that would never detonate by accident, that could never be stolen, that could never be used by someone without authorisation. So in designing nuclear weapons there were two fundamentally different design goals: always versus never; and the kinds of mechanisms that you need to guarantee a weapon will always detonate are often very different from the mechanisms you need to ensure it will never detonate by accident.

- While the Pentagon has released an official list of 32 “Broken Arrows” - nuclear weapons accidents – a list obtained through the Freedom of Information Act lists more than thousand accidents involving American nuclear weapons just from 1950 to 1968. We don’t know about the accidents in other countries.

- Nuclear weapons are machines, manmade machines, designed by human beings, maintained by human beings and the reason that that is important is that all machines eventually go wrong. It is hard to think of a machine ever invented made by mankind that hasn’t gone wrong eventually. Toasters catch on fire, microphones don’t work, cars crash.

- We were lucky to get out of the Cold War without a nuclear detonation. The problem with luck is that eventually it runs out.

- As long as nuclear weapons exist fully assembled, there will be a risk of catastrophic accident; every single country that possesses nuclear weapons endangers its own citizens by having them.
Risk from Nuclear Weapons Use: A System's Perspective

Reinhard Mechler, International Institute for Applied Systems Analysis and Vienna University of Economics

The concept of risk has recently received strong emphasis in discussions pertaining to the impacts of nuclear weapons use. This presentation adds a systems’ analysis perspective to the risk framing in order to help understand critical issues such as the propagation of consequences across social and natural systems, irreversibility and the role of feedbacks. The presentation raised three points: (i) A broad-based review of the available anecdotal and analytical evidence indeed suggests that the consequences of weapons use can be large-scale, systemic and potentially irreversible. (ii) Although the likelihood of deliberate or inadvertent weapons use is often considered small, it is associated with high uncertainty, particularly due to the potential for human error and any responses leading to retaliation. (iii) Given assessments of potential consequences and likelihood, risks from deliberate or inadvertent nuclear weapons use can be considered to fall into the intolerable risk space, for which the proper risk management strategy would be risk avoidance, i.e. further efforts towards nuclear disarmament.

- Across all scenarios – from a single exchange or act of terrorism, over a limited exchange to a global exchange scenario – resilience to deal with any of these is very limited across climate, agro-ecological, health and social systems.

- There are narrow limits for building resilience against nuclear warfare risk.

- The scope and degree of indirect and persistent impacts of these scenarios shows we are dealing with unacceptable risk.
Cyber Risks in Securing Nuclear Weapons from Unauthorised or Inadvertent Use

Camille M. Francois, Harvard Law School Berkman Center for Internet & Society and Columbia University Arnold A. Saltzman Institute for War and Peace Studies

Nowadays, cyber-threats of various kinds are occurring in an international environment in which there are currently few rules in place to avoid conflicts and conflict escalation. This also has a bearing on the risks of use of nuclear weapons, as nuclear weapons-related facilities are by their nature vulnerable to cyber-attacks: they may be prime targets in view of their strategic importance, and they are heavily computerised systems. It is not sufficient to simply take such facilities off the network (to “air gap” them) in order to protect them. There are lessons to learn from past cyber-attacks on nuclear-related facilities, such as Stuxnet. They underline the importance of taking all measures to avoid humanitarian catastrophe from the use of nuclear weapons. Finally, cyber-threats of various kinds are occurring in an international environment in which there are currently few rules in place to avoid conflicts and conflict escalation. This also has a bearing on the risks of use of nuclear weapons.

Nuclear assets are particularly vulnerable to cyber attacks:
- because they are complex and heavily computerised systems and
- because nuclear assets remain prime strategic targets.

Nuclear assets are particularly difficult to secure
- Stuxnet lesson shows that nuclear assets can be vulnerable to cyber attacks even if they are completely disconnected from the Internet.

“The fifth domain of war”
- State actors are heavily investing in cyber weaponry and are seeing it as a new battlefield.
- There are fears that terrorist groups would one day develop such capabilities, notably by reusing and studying code from cyber weapons developed by States.

Cyber weaponry and offensive cyber operations are growing unchecked. This creates concern for two reasons:
- One, there is something about the nature of cyber weaponry that is particularly worrisome: it spreads;
- and two, the rules of the road for States to engage in cyber operations are very unclear.

The cyber domain dramatically lacks norms to avoid conflict escalation
- It is the easiest domain to circumvent other norms that are crafted to create peace and stability
Lowering the Nuclear Threshold: The Dangerous Evolution of World Nuclear Arsenals toward Far-Flung Dispersal, Hair-Trigger Launch Readiness, and First Use Doctrines

Bruce Blair, Global Zero and Princeton University research faculty in the Program on Science and Global Security

The extensive expansion, diversification, and modernisation of nuclear arsenals underway around the world and the doctrines guiding their use in conflict are increasing the risks of their intentional and unintentional use. We are witnessing an overall increase in the operational launch readiness, geographic dispersal, and forward deployment of these arsenals, as well as an overall increase in reliance on their early first use. New types of nuclear weapons are also in the pipeline for deployment in the near future. As a consequence, nuclear-armed States are steadily lowering the nuclear threshold and increasing the risks that nuclear weapons will be used deliberately or as a result of loss of control, unauthorised acts, hasty decision-making, miscalculation, and escalation. The growing dispersion of nuclear weapons also carries increased risks of their capture and use by terrorists.

- All nine countries possessing nuclear weapons are in fact preparing for the unthinkable. And in preparing for it they risk causing it—by miscalculation or accident, inadvertent escalation, or without authorisation.

A self-fulfilling prophecy?
- The danger that nuclear war planning becomes a self-fulfilling prophecy is most evident in the hair-trigger readiness of U.S. and Russian strategic missiles. Hundreds of them, armed with nearly two thousand warheads, can be launched in seconds or minutes.
- The go-code from higher U.S. authority triggering such a launch comes as a message that is the length of a tweet. Tweet in hand, U.S. underground crews can then fire all of their missiles in sixty seconds.

Nuclear Roulette?
- Believers in nuclear deterrence argue that leaders ought to behave very cautiously indeed in the face of such risks of losing control, and in the face of apocalyptic threats to their homeland. But deterrence requires players to scare the others; its influence stems from taking and manipulating existential risk. This is the opposite of acting extremely cautiously; it involves acting incautiously, as happened repeatedly during past nuclear crises. This means that we are playing nuclear roulette with nine players in the game, each of whom is counting on a forever perfect run of good luck for its survival.
- Nuclear deterrence should be rejected as the basis of collective security: the only way to prevent a humanitarian calamity is to dismantle and eliminate the arsenals of every country.
What is the Risk of Nuclear War?

Seth Baum, Global Catastrophic Risk Institute

It is wrong to assume that just because nuclear war has never happened before, the probability of nuclear war is insignificant. To the contrary, risk analysis shows that deterrence can fail and nuclear war could occur. Furthermore, even if the probability of nuclear war is low, the consequences of it happening would be so severe that it makes for a significant risk. The risk also increases over time. Taken together, this underlines the urgency of actions to reduce the possibility, especially as humanity may never get a second chance if nuclear war occurs.

- Risk analysis can help us identify which risks are most important and what the best opportunities are to reduce risks. It is measured as the probability of that bad thing happening multiplied by the severity of the consequences if it does.

- The consequences of a nuclear war can neither be coped with, nor reduced. I work on nuclear war risk, because this is one of the largest risks and has some of the best opportunities to reduce risk.

- Each of us is on average more likely to die from nuclear war than from car crashes. And this is just the risk to the present generation. The risk to future generations from nuclear war is much larger, because only nuclear war threatens the existence of future generations. That is why nuclear war is the much larger risk.

- The risk of nuclear war however can easily be addressed – much more so than car crash risk for instance. While car crash risk comes from millions of drivers scattered all over the world, only a handful of countries have nuclear weapons.

- The longer we wait, the more likely nuclear war is to occur. While we can learn from car crashes, nuclear war is a matter of life and death for all of us: there might be no second chance.

Inadvertent Nuclear War

9 November 1979
USA/NORAD training tapes appeared to show real Soviet strike

3 June 1980
USA/SAC faulty computer chip shows Soviet missile launches

26 September 1983 – Stanislav Petrov incident
Sunlight reflects off clouds towards Soviet monitoring satellite

25 January 1995 – Norwegian rocket incident
Russia detects USA/Norway scientific rocket launch off Norway coast

http://sethbaum.com/ac/2013_NuclearWar.html

Fig. 31

Fig. 32
Interventions from the floor following the Session

• The International Federation of the Red Cross and Red Crescent Societies and Costa Rica asked how risks could be reduced and how resilience increased.

• The European Leadership Network noted that the current deterioration of relations would increase the risk of miscalculation. They drew attention to the fact that 40 incidents of encounters involving the armed forces of NATO and its partners, and the Russian Federation were recorded between March and October this year and emphasised the necessity to de-escalate the current crisis.

• Finland proposed to focus on human security rather than national security to calculate the actual risk of nuclear war.
Session III
Scenarios, Challenges and Capabilities regarding Nuclear Weapons Use and Other Events

This session addressed possible scenarios of nuclear weapons use/explosions, as well as explosions of radiological devices. Response plans and challenges of the international system as and implications for States were discussed.

Co-Chairs

Taous Feroukhi, Ambassador, Director General of Political Affairs and International Security, Ministry for Foreign Affairs of Algeria

Alexander Kmentt, Ambassador, Director for Disarmament, Arms Control and Non-Proliferation, Ministry for Europe, Integration and Foreign Affairs of Austria
Nuclear war strategies

USA
• Has adopted a diversified approach since the Cold War – this had previously been integrated.
• It now consists of a “family of plans” applicable in a wider range of scenarios to deal with numerous actors.
• The strategy is directed against six adversaries: Russia, China, North Korea, Iran, and a 9/11-type WMD scenario.
• The Nuclear Employment Strategy does not rely only on counter-value or minimum deterrence policy; it rejects the “sole purpose” role of deterring only nuclear attack, but “reiterates intention to work towards that goal over time”; it rejects the explicit targeting of civilians (i.e. city-busting).

Russia
• Removed no-first-use policy.
• Planning focuses less on a counterforce approach and instead more on counter-value targets.
• ICBM levels are declining but more of the remaining warheads are on mobile launchers; increase in sea-based warheads.
• 2010: Doctrine repeats the potential use of nuclear weapons: in response to use of nuclear weapons or other WMD against Russia or its allies, or in response to conventional aggression “in situations critical for the national security of Russia and its allies.” There are rumours about preemptive use but not included in public version.

Other nuclear-weapons states
• Minimal deterrence postures based on smaller arsenals

Three levels of nuclear targeting

Non-strategic targets
• e.g. Troop formations, military garrisons, conventional naval bases, nuclear weapons production facilities
• Escalation; potential for fallout on population centres

Targeting of strategic nuclear weapons deterrent base targets
• Command, control and communications targets
• Severe escalation targets in cities

Targeting of cities directly
• Example of India and Pakistan demonstrates that the public are not aware of the risks individual cities face; the decision-making process in this regard must be made much more transparent.
• There are still important outstanding questions on nuclear force modernisation, prompt launch and delegation.
• Nuclear weapons states, through modernising their arsenals, display a mentality in their security doctrines that has not progressed much out of Cold War-style thinking.
Nuclear Targeting Level 1: Non-Strategic Targets

Fig. 33

Nuclear Targeting Level 2: Strategic Targets

Fig. 35

Nuclear Targeting Level 3: Cities

Population Data Model: CIESIN

Fig. 37
Estimate of the consequences of a hypothetical 10kt explosion in downtown Washington, DC

- 45,000 people would die immediately.
- 100,000 people would be at risk of death.
- 320,000 people would be likely to be seriously injured.
- 175,000 people would have minor injuries.

Preventing a nuclear weapons event

- Work to secure, reduce, and eliminate warheads and weapons-useable material.
- Seek to disrupt illicit production and smuggling of weapons materials and components, and to reduce the recruitment of people who want to perpetrate such acts.
- No prevention programme is perfect, so we also prepare to respond.

Preparing for a nuclear weapons event

- Thousands of lives can be saved by informed planning and decision-making prior to and following an attack.
- Planning guidance separates the region into different zones: Severe Damage Zone, Medium Damage Zone and Light Damage Zone, plus a Dangerous Fallout Zone and a Hot Zone (Fig. 39).
- Building exteriors can shield from blast and heat in regions other than the Severe Damage Zone.
- Being in different locations within buildings can reduce immediate radiation exposure (Fig. 40).
- It is important to know where the most severe damage will have occurred and where survivors might be.
- The first few hours are the most dangerous for fallout due to rapid decay. If there is adequate shelter then survival is possible.
- Evacuation is recommended 12-24 hours after the explosion, but people need to know where to go, so zones need to be mapped out.
Even in our best-prepared cities, we would not be able to do this well:

- There is uncertainty regarding the ability to communicate in the aftermath of the event.
- Movement in severe and moderate damage zones would be profoundly difficult.
- We do not know to what extent infrastructure would still be effective.

The best preparation would be all-hazard preparedness:

- No-notice communication, mass casualty care, evacuation.
- Overlay this with specialised capabilities such as radiation monitoring.
- Cooperative assistance is used for large-scale emergencies. This assistance is more effective if it is regularly exercised.
- All sectors are needed: government, commercial businesses and their charitable arms, non-governmental organisations, international partners, and intergovernmental organisations. Cooperation between these sectors should be developed with practical steps.
Responding to the Humanitarian Consequences of Nuclear Weapon Use in Populated Areas

Rudolph Müller, Office for the Coordination of Humanitarian Affairs, Geneva

Building on OCHA's contributions to previous conferences on the humanitarian impacts of nuclear weapons, this presentation elaborated on the challenges to coordinating relief response to nuclear weapon detonation events in populated areas. The United Nations Emergency Relief Coordinator welcomed research into these challenges for the humanitarian system in a recent study by UNIDIR. The study has contributed to efforts within the system to begin to plan for how it could better respond, even if response would inevitably be inadequate in view of the instantaneous blast, heat and radiation effects of a nuclear weapon explosion. Opportunities in this respect include the humanitarian system's Inter-Agency Standing Committee Work, and the 2016 World Humanitarian Summit. Notwithstanding such efforts, prevention is seen as key.

Why does the international humanitarian community need to consider the risk of and the response to a nuclear weapons detonation?

- The humanitarian system has not undertaken any recent analysis of the possibility of a response to a nuclear weapons detonation.

- Since nuclear weapons exist, the risk of their detonation, deliberately or inadvertently, is real.

- Nuclear weapons detonations are different in important respects from civil nuclear emergencies, not to mention humanitarian crises resulting from conventional armed conflict and natural disasters.

- A nuclear weapons detonation in a highly populated area would be a humanitarian disaster. Moreover, it could blow large amounts of radioactive material into the atmosphere, which would travel long distances and endanger human health.

- According to the UNIDIR study, current humanitarian response plans would be far from sufficient even for one detonation event, let alone several. Responding to a nuclear weapons detonation would be anything but “business as usual”.

- Even the most specialised military radiological and nuclear units are mostly oriented for force protection rather than humanitarian assistance.

Are there any steps the international humanitarian community can take given the many immediate priorities facing the coordinated UN system?

- A clearer, self-directed evaluation of the humanitarian system’s capacities would constitute a starting point for an in-depth analysis of internal decision-making, risk assessment and practical delivery of assistance.

- In the immediate aftermath there is perhaps little that could be done, but the overall level of suffering resulting from nuclear fallout and the displacement of people could be reduced.

- The risk needs to be eliminated at source, i.e. by eliminating nuclear weapons.

- The United Nations has long supported the achievement of a world free of nuclear weapons. It is not difficult to see that nuclear weapons use would disrupt the achievement of broader global goals in development, public health and human well-being.

- The UNIDIR Study’s findings could be discussed at the Inter-Agency Standing Committee, which is the primary inter-agency mechanism for the coordination of humanitarian assistance.

Study cited

South Africa’s National Response Capabilities in Managing Significant and Major Events

Mark Pillay, Colonel in the South African Police Service

Col. Pillay could not attend the Conference at short notice. A shortened version of his presentation was presented by the delegation of South Africa.

South Africa’s capability and capacity of managing major events and catastrophic incidents including a possible nuclear weapon detonation were presented with a short focus on the planning and hosting of the 2010 Soccer World Cup. The presentation highlighted new measures and contingencies put in place but also underscored certain weaknesses in dealing with other risks.

In 2010, South Africa drew up contingency plans for any chemical, biological or radiological event

- Acquired & developed new systems for detection
- Procured new technology
- Integrated procedures with Disaster Management, Fire Services, EMRS, Local hospitals

Preparing and planning for a nuclear detonation

- would basically have been useless, as the response capacity would be largely wiped that South Africa could not respond adequately to such an event

The sheer magnitude of such an explosion

- would overwhelm all first response capabilities,
- would paralyse health, emergency response systems and infrastructure

A privileged African country with good infrastructure

- would be unable to effectively or adequately respond to a nuclear weapon detonation
- Accordingly, no plans were drawn up for a nuclear weapons detonation

The only effective measure and adequate response to deal with this threat is

- the total elimination of all nuclear weapons and the legally binding assurance that they will never be produced again

It is an anomaly that reasonable response capacities for chemical, biological and radiological attacks can be developed but not for nuclear weapons attacks which are the most inhumane, indiscriminate and destructive weapons.

Interventions from the floor following the Session

Questions were asked by Norway, the IAEA, Nicaragua, India, Ireland, the IFRC, Japan, Mexico and Switzerland. These highlighted a number of issues, including the impact of a nuclear weapon detonation on third countries, specifically who would take responsibility for the consequences on third countries. Additionally, the question of the duty of care of governments to their citizens was raised, and how citizens would respond were nuclear war plans made available to them.

Questions on concrete plans to follow up on this research, to deal with detonations larger than 10 kT and to build up response capacity on the part of states and international organisations were also raised. It was emphasised that any nuclear weapons use anywhere, no matter by whom, would be catastrophic.
Session IV
A “Bird’s-Eye View” on International Norms and the Humanitarian Impact of Nuclear Weapons

This session provided an overview of the norms under existing international law pertaining to the humanitarian consequences of nuclear weapons explosions, in particular regarding the environment and health, as well as a discussion of international humanitarian law and the humanitarian dimension in existing disarmament, arms control and non-proliferation instruments.

Co-Chairs

Dell Higgie, Ambassador for Disarmament of New Zealand.

Helmut Tichy, Ambassador, Legal Advisor, Ministry for Europe, Integration and Foreign Affairs of Austria.
Nuclear Weapons and International Environmental Law

Dr. Jorge Vinuales, University of Cambridge

The panel addressed the extent to which international environmental treaties remain applicable in armed conflict, and the subsequent implications for the legality of nuclear weapons. Findings are that the environmental law arguably regulates not only to the potential use of nuclear weapons, but also the testing and the entire life cycle of nuclear weapons, from their production to their disposal.

Applicability of International Environmental Law (IEL) applies in the case of armed conflict

According to the International Law Commission’s 2011 Draft Articles on the Effect of Armed Conflicts on Treaties:

• The outbreak of conflict does not automatically suspend existing treaties.

• There is the presumption of the continued operation of treaties, including environmental protection.

How does IEL apply in case of nuclear weapon detonation?

• Several environmental treaties provide for participation rights.

• IEL applies beyond protection of humans. Environmental norms are interstate norms that protect the environment as such.

• IEL regulates the entire life cycle of nuclear weapons as a pollutant from production to disposal.

• Three important principles of IEL of customary nature that would be relevant to nuclear weapons:
  - Prevention (Principle 2 of the Rio Declaration)
  - Cooperation (Principles 7, 18, 19, 27 of the Rio Declaration)
  - Environmental Impact Assessments (Principle 17 of the Rio Declaration)

IEL largely applies to different aspects of nuclear weapons as a legal object and deserves more careful consideration when considering the legality of nuclear weapons overall.
Nuclear Weapons and International Health Law

Steven A. Solomon, Acting Legal Counsel at the World Health Organization (WHO) in Geneva

The WHO International Health Regulations (2005) are relevant in case of nuclear weapons detonations, to the extent they apply to diseases, defined as illness or medical condition, irrespective of origin or source, that presents or could present significant harm to humans. The panel discussed to what extent, and how, these regulations would pertain to consequences of nuclear weapons use.

- The International Health Regulations (IHR) cover diseases like influenza and polio and ebola. Can the health effects of a nuclear blast be considered a disease? The answer is yes.

- Overall, the IHR would provide a framework for confirming and coordinating the public health response in case of a nuclear detonation.

- This process involving the WHO, its Director-General, the IAEA and a specially convened organ called the Emergency Committee, would assess whether the situation can be characterised as a “public health emergency of international concern” (PHEIC).

- The Director-General of the WHO could take temporary recommendations in order to address a wide range of issues. These recommendations are non-binding, but would be considered as authoritative by the States Parties to the WHO.

- Faced with the recent Ebola outbreak’s challenges, this procedure could soon be reviewed and strengthened even further.
The Use of Nuclear Weapons and International Humanitarian Law

Dr. Helen Durham, International Committee of the Red Cross

The International Red Cross and Red Crescent Movement has concluded that it finds it difficult to envisage how any use of nuclear weapons in armed conflict could be compatible with the rules of international humanitarian law (IHL), the body of law that seeks to limit the effects of armed conflict. This presentation discussed the problems raised by the use of nuclear weapons under the rules of distinction, proportionality and precautions in attack, as well as the rule prohibiting the use of weapons of a nature to cause superfluous injury or unnecessary suffering, which are found in Protocol I (1977) additional to the Geneva Conventions.

IHL prohibition of indiscriminate attacks outlaws attacks that are of a nature to strike military objectives and civilians or civilian objects without distinction.

- Use of a nuclear weapon results in high heat dispersion, blast effects and radiation over wide areas, which would continue long after the weapon was used. Such consequences are clearly foreseeable given existing knowledge about nuclear weapons.

IHL rule of proportionality requires that, for an attack to proceed, the concrete and direct military advantage anticipated outweighs the foreseeable incidental impact on civilians and civilian objects.

- The assessment requires taking into account the immediate civilian deaths and injuries and damage to civilian objects and the foreseeable long-term effects of exposure to radiation and other foreseeable long-term repercussions. These include damaged or destroyed water and electrical supply systems and other critical infrastructure supporting services essential for the survival of the civilian population, including health services.

IHL rule of precautions in attack requires that constant care be taken to spare the civilian population, civilians and civilian objects and that feasible precautions be taken to avoid and in any event minimize incidental civilian casualties and damage to civilian objects.

IHL prohibits the use of weapons of a nature to cause civilians unnecessary suffering.

- The use of nuclear weapons generates high doses of radiation which have devastating immediate and long-term consequences to the health of exposed individuals.

Rule on the protection of the natural environment under customary international law rule:

- All means and methods of warfare must be employed with due regard to the protection and preservation of the natural environment and all feasible precautions must be taken to avoid, and in any event minimise, incidental damage to the environment.

Even the use of a nuclear weapon far from civilian settlements would raise questions of compatibility with IHL and would raise significant concerns about the eventual spread of radiation to civilian areas and the radiological contamination of the environment and the impact of radiation on combatants.

The new evidence that has emerged about the humanitarian impact of nuclear weapons casts further doubt on whether these weapons could ever be used in accordance with the rules of customary IHL.
Humanitarian considerations as a basis for regulating means of warfare is not a new phenomenon. Over the past 150 years, concerns about the humanitarian impact of various weapons have motivated the development of international law and especially law regulating means of warfare. The panel discussed the humanitarian basis for disarmament and non-proliferation treaties, including the NPT.

- In 1868, several states gathered in St. Petersburg to discuss the prohibition of a particular type of exploding ammunition of less than 400 grams of weight: “...the only legitimate object which states should endeavour to accomplish during war is to weaken the military forces of the enemy”, and “this object would be exceeded by the employment of arms which uselessly aggravate the sufferings of disabled men, or render their death inevitable.”

- In 1899, dum-dum bullets, which also caused unnecessarily horrible wounds, were on the political agenda during diplomatic discussions in The Hague.

- In 1925, the Gas protocol was adopted. In its preamble, the parties to the protocol stated that the use of poisonous gas in war: “has been justly condemned by the general opinion of the civilised world”.

- The legal frameworks for the weapons of mass destruction, in particular, are based on humanitarian imperatives, both because of these weapons’ inability to distinguish between civilians and combatants but also because of their terrible effects as weapons.

- Both the Biological Weapons Convention of 1972 and the Chemical Weapons Convention of 1997 contain unconditional prohibitions on these weapons. One cannot use them, even in defence against attacks by these weapons, because the humanitarian cost will be too high.

- The NPT, in spite of the fact that nuclear weapons pose an even graver humanitarian risk, does not prohibit use. This may be seen as something of an international law paradox.
The Fundamental Ethical and Moral Principles on Which International Legal Regulations of Nuclear Weapons Are Based

Nobuo Hayashi, University of Oslo

This panel explored the ethical, moral and philosophical challenges faced in relation to nuclear weapons. The debate has for a long time revolved around competing, and ultimately insoluble, utilitarian claims regarding nuclear weapons’ role in the maintenance of peace and security on the one hand, and the threat their very existence poses to the survival of humankind on the other.

From consequentialism to deontology or from an ethics of outcome to an ethics of conduct:

- Consequentialism asks whether the outcome justifies the use of certain means. Whether for or against nuclear weapons, both views are built on an ethics of outcome that asks whether the end justifies the means. Nevertheless, both the deterrence and escalation theories ultimately entrench our thoughts into a fruitless and paralysing stalemate.

- Deontology considers the intrinsic moral status of an act rather than the moral status of its consequences. Certain behaviour is wrongful per se. Crucially, it remains inherently wrongful, however likely it may otherwise be to achieve desired goals, or no matter how weighty such goals may otherwise be. This reasoning asserts that the end in itself need not – indeed, it does not – justify the means. Rather, the means must be defended independently, on its own terms.

- From a deontological perspective, those who advocate the weapons’ moral acceptability would have to respond with a deontological argument of their own. It is they who carry the onus to show that nuclear weapons are not so terrible after all.

- This shift has occurred for torture for instance: a certain behaviour is considered wrong per se, it remains inherently immoral, however likely it may otherwise be to achieve its goals.
Interventions from the floor following the Session

Questions that were raised by Togo, Mexico, and ICAN pertained to the apparent legal gap surrounding nuclear weapons in contrast to biological and chemical weapons frameworks, and enquired whether deterrence could be construed as a threat of use of force under current international humanitarian law.

While there is no explicit prohibition of nuclear weapons, provisions of international humanitarian law do apply. A reason for this gap could be that the existence of the NPT might have been perceived as a sufficient legal framework by some actors. It could also be explained by nuclear weapons complacency, as people have been less aware and frightened of nuclear weapons in the last decades.
Messages to the Vienna Conference
Message by 118 Former Senior Military, Political and Diplomatic Leaders

“[…] As members of global leadership networks developed in cooperation with the U.S.-based Nuclear Threat Initiative (NTI), we believe it is essential for governments and interested parties to state emphatically that the use of a nuclear weapon, by a state or non-state actor, anywhere on the planet would have catastrophic human consequences.

“Our global networks – comprised of former senior political, military and diplomatic leaders from across five continents – share many of the concerns represented on the conference agenda. In Vienna and beyond, in addition, we see an opportunity for all states, whether they possess nuclear weapons or not, to work together in a joint enterprise to identify, understand, prevent, manage and eliminate the risks associated with these indiscriminate and inhumane weapons.

“Specifically, we have agreed to collaborate across regions on the following four-point agenda for action and to work to shine a light on the risks posed by nuclear weapons. As we approach the 70th anniversary of the detonations over Hiroshima and Nagasaki, we pledge our support and partnership to all governments and members of civil society who wish to join our effort.

“Identifying Risk: We believe the risks posed by nuclear weapons and the international dynamics that could lead to nuclear weapons being used are underestimated or insufficiently understood by world leaders.

“[…] Reducing Risk: We believe insufficient action is being taken to prevent nuclear weapons use, and we urge conference delegates to consider how best to develop a comprehensive package of measures to reduce the risk of nuclear weapons use.

“[…] [A]ll states should re-double efforts to work toward a world without nuclear weapons.

“Raising Public Awareness: We believe the world needs to know more about the devastating consequences of nuclear weapons use.

“Improving Readiness: The Conference and the ongoing Humanitarian Impacts Initiative must ask what more the world can do to be prepared for the worst.”

Signatories include 2 former Presidents, 6 former Prime Ministers, 37 former Foreign or Defence Ministers, 6 former United Nations Undersecretary Generals for Disarmament and 1 former NATO Secretary General

Message from Nobel Peace Laureate Dr. Mohamed Elbaradei

“[…] Violence continues to ravage our planet: senseless, destructive, dehumanizing conflicts. What is worse, due to the annihilating weapons at our disposal, there is an increasing danger of sleep walking into self-destruction.

“Our policies and international institutions are still designed for times past. The latter are highly polarized and increasingly paralyzed. They suffer from structural deficiencies and lack of authority and resources. One result is a dysfunctional system of collective security.

“[…] Nuclear weapons loom large as a legacy of the cold war. But a quarter of a century after the end of that war, it borders on insanity that we still have more than 16,000 nuclear weapons and around 2,000 of them on alert. The abolition of nuclear weapons is alarmingly, no longer a fashionable topic since the conclusion of New START in 2011.

“Yet it is evident that with nuclear weapons technology out of the box, and as long as some countries choose to rely on nuclear weapons, directly or through bilateral or multilateral alliances such as NATO, others will eventually seek to acquire them. A security concept based on “some are more equal than others”, and on a system of deterrence that is irrelevant to extremists with no return address, is unsustainable and almost naïve.

“[…] It is of course imperative that no more countries acquire nuclear weapons. But to that end it is equally imperative that the Weapon States divest themselves of these weapons.

“Under the Non-Proliferation Treaty (NPT), the Weapon States not only have an obligation to negotiate in good faith towards nuclear disarmament, but equally in the words of the International Court of Justice (ICJ) ‘the obligation to achieve a precise result: nuclear disarmament in all its aspects’. However, after more than four decades of undertaking these obligations, nuclear-weapon states are moving in the opposite direction. Nuclear weapon modernization programmes continue and will assure that these inhumane weapons will haunt us until the end of the century.

“In 2009, President Obama made a clear commitment ‘to seek the peace and security of a world without nuclear weapons’, and to ‘reduce the role of nuclear weapons in (US) national security strategy’. Yet, in 2014 the US is planning to spend up to a trillion dollars to modernize its nuclear weapons arsenal.

“[…] But with all these forewarnings, have we put our money where our mouths are? Have we seriously tried
to drastically reduce the number of weapons in existence when no limit was set under the New START on the number of operationally inactive nuclear warheads?

"Have we seriously tried to alter the nuclear launch warning systems? Have we seriously tried to reduce our reliance on nuclear weapons in national security strategy? Have we seriously started thinking about the security architecture in a nuclear-weapon free world, including the need to deter and defeat possible cheats? This, in my view, is a dismal record and raises the question whether our commitment to nuclear disarmament is genuine.

"[...] What we need is an environment based on equity, trust, mutual respect and dialogue and not on double standards, polarization, humiliation and dictates. And it should be a mindset that understands that in our globalized world we will either succeed together or fail separately. [...]"

Message by Nicola Sturgeon MSP, First Minister of Scotland

"The Scottish Government fully supports the aims of the 3rd Global Conference on the Humanitarian Dimension of Nuclear Weapons, held in Vienna [...]"

"At the present the entirety of the United Kingdom’s fleet of Trident nuclear submarines and their missiles and warheads are stationed at Faslane Naval Base on the West coast of Scotland - a situation opposed by the Scottish Parliament and Government. In votes taken in the last and present Scottish Parliaments there has been a clear opposition to the continuance and replacement of Trident. Civic society in Scotland is overwhelmingly against the stationing of nuclear weapons systems on our land or waters.

"The Scottish Government is firmly opposed to the possession, threat or use of nuclear weapons anywhere in the world as a goal shared by all humanity, and to that end supports the removal of Trident nuclear weapons from Scotland. [...]"

Message from the Hiroshima Prefectural Government

"Sixty-nine years ago on August 6, an atomic bomb, the first nuclear weapon used in human history, was dropped. The scorching flash and blast waves caused by the bomb instantly destroyed the city of Hiroshima, took away many precious lives, and left countless people injured.

"Remembering the devastation and suffering that atomic bomb survivors still feel today, Hiroshima has tirelessly tried to appeal to the world for the realization of a peaceful international community free from nuclear weapons.

"155 countries signed on to the ‘Joint Statement on the Humanitarian Consequences of Nuclear Weapons’ at the UN General Assembly First Committee in October. The statement is part of a steadily growing global awareness of the horror and inhumanity of nuclear weapons; an awareness which Hiroshima has long persisted in spreading.

"If political leaders of the world visit Hiroshima and develop a deep understanding of what the atomic bomb actually brought about, it would offer hope to people around the world that ‘a world without nuclear weapons’ can be a reality."

Message by the Parliamentarians for Nuclear Nonproliferation and Disarmament

"[...] PNND has therefore welcomed the revived international attention to the humanitarian dimension of nuclear weapons. Our members have promoted this in their parliaments, in public events and in regional and international parliamentary forums.

"[...] We were honoured that you invited one of our inaugural co-presidents, former Senator Abacca Anjain-Maddison to be one of these panelists. The sad experience of the Marshall Islands from nuclear tests was very influential in the ICJ’s decision in 1996. The Marshall Islands has a follow-up case currently in the ICJ pressing the nuclear-armed States to implement their nuclear disarmament obligations, and this was one of the initiatives discussed in the roundtable in the Austrian parliament.

"[...] We were pleased that both the summary and pledge recognised the importance of the role of parliamentarians to work in cooperation with States, civil society organisations and the Red Cross/Red Crescent network in order to translate ‘the widespread concerns about the risks and consequences associated with nuclear weapons into concerted steps to achieve a world without these armaments.’

"[...] PNND welcomes the call made by Austria for States to ‘identify and pursue effective measures to fill the legal gap for the prohibition and elimination of nuclear weapons’ and the pledge by Austria ‘to cooperate with all stakeholders to achieve this goal.’ [...]"
Message from Amnesty International and the International Campaign to Abolish Nuclear Weapons (ICAN)

“ [...] The discussions on the humanitarian impact of nuclear weapons, which started in Oslo, Norway, and continued in Nayarit, Mexico, have represented an important turning point in the international nuclear weapons debate. The alarming evidence presented by physicians, physicists, climate scientists, human rights organisations, humanitarian agencies, and survivors have been successful in changing the nuclear weapons discourse, and opened space for greater engagement from civil society, international organisations, and states.

"Amnesty International and ICAN oppose the use, possession, production and transfer of nuclear weapons, given their indiscriminate nature. We are opposed to the possession of nuclear weapons by any country, including permanent members of the UN Security Council. Nuclear weapons stand alone in terms of their extreme potential to be indiscriminate. The destructive power of nuclear weapons at the time of detonation is so great as to almost necessarily impact on civilians and soldiers alike. They affect the environment for years to come presenting a long-term hazard for civilians. The only time nuclear weapons were used in war (at Hiroshima and Nagasaki) they killed tens of thousands of civilians, and those two bombs were relatively small by today’s standards.

“The discussions in Vienna will open a window of opportunity for an important next step towards the elimination of nuclear weapons. It is clear to us and to a growing number of states that the logical conclusion of these evidence-based gatherings will lead to a diplomatic process to prohibit nuclear weapons. This diplomatic process should proceed with all those states ready to participate. Launching such a process will require strong leadership, and we believe Austria is well placed to take a leading role in this endeavour.

“As we move ahead, we believe it is important to keep in mind that prohibiting nuclear weapons is not a controversial proposal. An international prohibition on nuclear weapons, particularly given their inherently indiscriminate nature, is the only logical outcome. We have confidence that the overwhelming majority of states will join this process, and look forward to playing a supportive and constructive role."
Speakers' Biographies
Seth Baum

is Executive Director of the Global Catastrophic Risk Institute (gcrinstitute.org), a nonprofit think tank that Baum co-founded in 2011. Baum’s research focuses on risk, ethics, and policy questions for major threats to human civilization including nuclear war, global warming, and emerging technologies. He is based in New York City.

Bruce Blair

is a member of the Princeton University research faculty in the Program on Science and Global Security. He is the co-founder of Global Zero, the international movement for the elimination of nuclear weapons. Bruce serves on the Secretary of State’s International Security Advisory Board and is frequently called upon to testify before Congress as an expert on nuclear weapons. He was awarded a MacArthur Fellowship Prize for his work and leadership on de-alerting nuclear forces in 1999. Bruce has taught at Yale and Princeton universities and produced the PBS television series “Foreign Exchange with Fareed Zakaria” as well as numerous documentary films including “Countdown to Zero”, a feature film about nuclear danger. He holds a Ph.D. in Operations Research from Yale University.

Dr. Helen Durham

is the Director of International Law and Policy with the International Committee of the Red Cross (ICRC) in Geneva. She holds a PhD in international law (with a focus on IHL and international criminal law) and an Arts degree majoring in international politics. Dr Durham has previously been Director of International Law and Strategy at Australian Red Cross, Head of the ICRC Office in Sydney and legal adviser to the ICRC regional delegation in the Pacific. Dr Durham has completed a number of short missions with ICRC in Myanmar, Aceh, Philippines and for over three years engaged widely with governments and authorities in the Pacific Islands on matters relating to IHL implementation.

Camille François

is a fellow at the Harvard Law School Berkman Center for Internet & Society and a Visiting Scholar at the Columbia University Arnold A. Saltzman Institute for War and Peace Studies. She is a researcher and lecturer on cybersecurity policy, cyberwar and the building of norms for cyber-peace. On these topics, Camille François has worked as a consultant with organizations such as the U.S. Defense Advanced Research Projects Agency (DARPA), the Mozilla Foundation or the French-American Foundation. Ms. François is a Fulbright Fellow, holds a Master’s degree in International Public Management from Sciences-Po Paris, and a Master’s degree in International Security from the Columbia School of Public and International Affairs.

Nobuo Hayashi

is a Researcher at PluriCourts, University of Oslo Law Faculty. He specialises in international criminal law, especially war crimes and modes of liability; international humanitarian law (jus in bello), particularly the fundamental principles, conduct of hostilities, and protection of victims; and public international law, including recourse to force (jus ad bellum) and state responsibility. He regularly teaches post-graduate students in law and political science, as well as commissioned officers, military lawyers, judges, prosecutors, defence counsel, diplomats, government officials, humanitarian relief specialists, and NGO representatives. He previously worked, inter alia, at the Peace Research Institute Oslo, the Norwegian Centre for Human Rights, and the Office of the Prosecutor, International Criminal Tribunal for the Former Yugoslavia.

Martin B. Kalinowski

is Chief, Capacity Building and Training Section in the International Data Centre (IDC) Division of the Provisional Technical Secretariat of the CTBTO Preparatory Commission. He was a scientific assistant for a decade in the Interdisciplinary Research Group on Science, Technology, and Security (IANUS) at the Darmstadt University of Technology. He co-founded the International Network of Scientists and Engineers Against Proliferation (INESAP) and acted as its Scientific Coordinator. Later, he was Professor for Science and Peace Research at the University of Hamburg, Germany, where he also acted as the director of the Carl Friedrich von Weizsäcker Center for Science and Peace Research until he went on leave to re-join the PTS.

Micah Lowenthal

is the director of Committee on International Security and Arms Control (CISAC) at the National Academy of Sciences (NAS), where he oversees CISAC’s long-standing nuclear and bio security dialogues with counterparts in Russia, China, and India, as well as projects on terrorism, cybersecurity, and preparedness and response to international chemical, biological, radiological, and nuclear events. In 1996, he was an Environmental Science and Engineering Fellow of the American Association for the Advancement of Science. He currently serves as elected chair of the Forum on Physics and Society in the American Physical
Society. Dr. Lowenthal holds an A.B. degree in physics and a Ph.D. degree in nuclear engineering from U.C. Berkeley.

Arjun Makhijani

is President of the Institute for Energy and Environmental Research in Takoma Park, Maryland. He earned his Ph.D. from the University of California, Berkeley in 1972, specializing in nuclear fusion. He was the principal editor and co-author of Nuclear Wastelands: A Global Guide to Nuclear Weapons Production and Their Health and Environmental Effects, which MIT Press nominated for a Pulitzer Prize. He has many published articles in journals including The Bulletin of the Atomic Scientists and newspapers, including the Washington Post. Dr. Makhijani has testified before U.S. Congress, and has appeared on ABC World News Tonight, the CBS Evening News, CBS 60 Minutes, NPR, CNN, and BBC, among others.

Dr. Matthew McKinzie

directs the Nuclear Program at the Natural Resources Defense Council (NRDC) in Washington, DC. As a graduate student performing research at Los Alamos National Laboratory, Matthew first became interested in finding solutions to the problems posed by nuclear weapons. In 2012-2013, Matthew served a sabbatical appointment at the U.S. Department of Defense in the office of the Director, Training Readiness and Strategy, Office of the Deputy Assistant Secretary of Defense (Readiness), and Matthew has also worked as consultant to the U.S. Air Force, Human Rights Watch, Harvard University and the Washington Post. Matthew holds a Ph.D. in experimental nuclear physics from the University of Pennsylvania.

Reinhard Mechler

is a risk analyst with more than 15 years of experience working on the economics of disaster risk, risk modelling and climate change. He currently is deputy director of the ‘Risk, Policy, Vulnerability’ research program at the International Institute for Applied Systems Analysis (IIASA) and a senior lecturer at the University for Economics and Business in Vienna. He recently acted as a lead author on IPCC’s 5th assessment report and has been carrying out research projects and consultancies for many international and donor organizations.

Michael J. Mills, Ph.D.

Environmental Research Laboratories, National Center for Atmospheric Research, Boulder, Colorado, USA.

Dr. Mills is a project scientist at the National Center for Atmospheric Research in Boulder, CO. He serves as the community liaison for the Whole Atmosphere Community Climate Model (WACCM), a comprehensive numerical model spanning the range of altitude from the Earth’s surface to the thermosphere. His work has focused on modeling the chemistry and microphysics of the middle atmosphere, which affect the ozone layer and climate. He has participated in field measurement campaigns, which have taken him to Antarctica and above Arctic Circle. He has received the Marinus Smith Teaching Award from the University of Colorado Parents Association.

Rudolph Müller

Deputy Director and Chief, Emergency Services Branch, OCHA Geneva, served in the Austrian Army and as verification expert in the United Nations Special Commission for Iraq (for the verification of Chemical Weapons) before joining DHA in 1993. He was Chief of the Central Emergency Response Fund (CERF) Secretariat before he was appointed Deputy Director of the Coordination and Response Division (CRD) of OCHA. Rudolph Müller was deployed to Turkey and Jordan to set up the UN Monitoring Mechanism for UN cross border assistance into Syria. Rudolph Müller is Chief, Emergency Services Branch with OCHA in Geneva where he manages OCHA’s emergency tools and services, such as the UN Disaster Assessment and Coordination teams (UNDAC), Civil-Military Coordination, and Surge support.

Dr. juris Gro Nystuen

is Senior Partner at ILPI (International Law and Policy Institute) and Director of ILPI Center for International Humanitarian Law. She has worked in the Norwegian Ministry of Foreign Affairs (1991-2005) and has been Associate Professor at the University of Oslo and the Defence Staff University College (2005-2011). From 2004-2011, Nystuen was Chair of the Council on Ethics for the Norwegian Government Pension Fund – Global. Her publications include Nuclear Weapons under International Law (Ed.) CUP 2014, The Convention on Cluster Munitions – a Commentary (Ed.), OUP 2010, Human Rights, Corporate Complicity and Disinvestment (CUP) and Investment policies and arms production – experiences from the Norwegian Pension Fund – Global, Disarmament as Humanitarian Action, December 2006, Volume III.

Mary Olson

is Senior Radioactive Waste Policy Specialist with Nuclear Information and Resource Service (NIRS).
Olson joined the NIRS staff in 1991, and has worked primarily on highly radioactive spent nuclear fuel and plutonium policy, including the Yucca Mountain proposal in Nevada and the US Surplus Plutonium Disposition Mixed Oxide Fuel proposal. Olson is a frequent speaker including three times to the UN General Assembly, policy advocate and “stake holder” for civil-society organizations and facilitator for groups working on decisions and planning regarding radioactive waste and ionizing radiation. In 2012 Olson was featured in a new educational film The Ultimate Wish: Ending the Nuclear Age.

Mark Pillay

Mark Pillay is a Colonel in the South African Police Service with 23 years’ experience. He is the Section Commander of Bomb Disposal and is responsible for Bomb Disposal, EOD, CBRN, Major events and Operations involving explosives. Col. Pillay is a Law Graduate with a Masters in Law. He is a qualified expert with the OPCW and belongs to the IABTI (The International Association of Bomb Technicians and Investigators and the Nuclear International Technical Working Group (ITWG) amongst others.

Eric Schlosser

is the author of Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety.

Steve A. Solomon

is currently Acting Legal Counsel at the World Health Organization (WHO) in Geneva, Switzerland. He has served in the WHO Office of Legal Counsel since 2005 focusing on public international law issues, global public health negotiations and WHO governing body matters. Prior to joining WHO, Mr Solomon served as Deputy Legal Counsel at the United States Mission to the United Nations Organizations in Geneva. He was an Attorney-Adviser with the State Department for several years before that, where he worked on political military matters. After law school and a stint in private practice, he was a lawyer for the Arms Control and Disarmament Agency.

Prof. Dr. Jorge E. Viñuales

is the Harold Samuel Professor of Law and Environmental Policy at the University of Cambridge. He has worked on many cases under ICSID, UNCITRAL, ICC or LCIA rules, including several high profile inter-State, investor-State, and commercial disputes, and he regularly advises companies, governments, international organizations or major NGOs on different matters of environmental law, investment law, human rights and public international law at large. Professor Viñuales was educated in France (Doctorat - Sciences Po, Paris), the United States (LL.M. - Harvard Law School), Switzerland (Licence and Diplôme d’études approfondies in international relations - HEI; liz jur – Universität Freiburg; Licence and Diplôme d’études approfondies in political science – Université de Genève), and Argentina (Abogado – UNICEN).
Discussion / General Debate
117 statements were delivered by the participants of the Vienna Conference on the Humanitarian Impact of Nuclear Weapons:

Action of Citizens for Nuclear Disarmament (ACDN), Afghanistan, African Union, Alfred de Zayas, Algeria, Arms Control Association, ASEAN, Australia, Bangladesh, Belgium, Brazil, Bulgaria, Burundi, Canada, Chad, Chile, Colombia, Comoros, Congo, Costa Rica, Cuba, Czech Republic, Denmark, Djibouti, Dominican Republic, Dr David Lowry, Ecuador, Egypt, El Salvador, Estonia, Faith Communities, Finland, Germany, Ghana, Global Security Institute, Greece, Guatemala, Guinea Bissau, Holy See, Hungary, ICRC/IFRC, India, Indonesia, Indonesia for Non-Aligned Movement, Inter-Parliamentary Union (IPU), International Campaign to Abolish Nuclear Weapons (ICAN), Iran, Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Laos, Latvia, Lebanon, Lesotho, Libya, Liechtenstein, Lithuania, Malawi, Malaysia, Mali, Marshall Islands, Mayors for Peace, Mexico, Moldova, Mongolia, Morocco, Myanmar, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Nuclear Threat Initiative (NTI) message on behalf of 118 senior political and military diplomatic leaders, OPANAL, Pakistan, Parliamentarians for Nuclear Non-Proliferation and Disarmament (PNND), Peru, Philippines, Poland, Qatar, Republic of Korea, Saint Vincent and the Grenadines, Samoa, Senegal, Serbia, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Thailand, Timor Leste, Togo, Trinidad and Tobago, Turkey, Uganda, Ukraine, United Kingdom, United Religions Initiative, United States of America, Uruguay, Uzbekistan, Venezuela, Viet Nam, Wildfire, Yemen, Zambia, Zimbabwe.

Sample of quotes

**Algeria**

“Algeria is fully committed to the total elimination of nuclear weapons with the objective to free our planet from these lethal arms, starting with our region, Africa, which became NWFZ since July 2009 under the Pelindaba Treaty, as a contribution to achieving the common goal on nuclear disarmament that includes the establishment of a NWFZ in the Middle East.”

**Chile**

“Jurídicamente hablando no cabe duda que las armas nucleares contradicen principios centrales del Derecho Internacional Humanitario: causan un sufrimiento indescriptible, innecesario e indiscriminado y la detonación de un arma nuclear produciría un daño incalculable al medio ambiente. De tal contradicción jurídica sigue que estas armas inhumanas carecen de legitimidad, y que es necesario crear las condiciones para abrogarlas, o al menos prohibir su uso, mediante una Convención que complemente el Tratado de No Proliferación.”

**Costa Rica**

“Tras haber discutido en Oslo, en Nayarit y ahora en Viena, sobre las nefastas consecuencias de una detonación nuclear, como Estados, no podemos permanecer inactivos. Esta evidencia amerita una respuesta conjunta. Ha llegado el momento de iniciar un proceso diplomático para negociar un instrument legalmente vinculante que prohíba las armas nucleares, dentro de un marco en el que las discusiones sean abiertas a todos los Estados y no puedan ser obstruidas por ninguno. Un tratado que prohíba las armas nucleares establecería un fuerte marco legal en contra del uso, posesión y despliegue de las armas nucleares y representaría un paso significativo hacia la complete eliminación de este tipo de armas.”

**Guinea-Bissau**

“Aprés les tragédies historiques de Hiroshima et Nagasaki, après avoir écouté des témoignages émouvants des survivants des différentes tragédies nucléaires et les présentations faites par les experts ici hier, nous pensons qu’aucune autre considération politique ou d’ordre géostratégique justifient la possession de ces armes, car elles constituent non seulement une menace réelle pour ces propres pays détenteurs mais aussi il en est de la survie même de l’humanité.”

**Inter-Parliamentary Union (IPU)**

“Les ressources consacrées à la mise au point, à la modernisation ou à l’entretien des arsenaux nucléaires – quelque 100 milliards de dollars américains par an – continuent à avoir un énorme impact sur la sécurité humaine. En effet, ces ressources font cruellement défaut dans d’autres domaines : lutte contre les changements climatiques, réduction des risques de catastrophes, établissement de sociétés résilientes, recherche du développement durable par l’élimination
International Campaign to Abolish Nuclear Weapons (ICAN)

"The chair of the Nayarit conference concluded that, in light of the devastating immediate and long-term effects of nuclear detonations, the time has come to start a diplomatic process to negotiate a legally binding instrument prohibiting nuclear weapons. This is not a radical proposal. Indiscriminate weapons get banned. We have done it before with other weapon systems, including biological and chemical weapons."

Ireland

"Nuclear weapons cannot in our opinion be viewed as somehow more ‘necessary’ or ‘legitimate’ or ‘justifiable’ than other weapons of mass destruction. Why should they be? Is that because of a belief in their value as a deterrent? Then why has this deterrent failed to prevent conflicts breaking out in various regions in which the parties directly or indirectly involved have nuclear weapons in their arsenals? We do not accept the doctrine of nuclear deterrence and question whether these weapons have military utility or value."

Italy

"As long as nuclear weapons exist, many countries will continue to rely on nuclear deterrence to help prevent nuclear attack or coercion. This is why banning nuclear weapons by itself will not guarantee their elimination. Progress toward global zero will require States focusing on common ground and working together to prevent the use of nuclear weapons and their proliferation, thus promoting effective nuclear disarmament."

Japan

"States may differ on the means or sequencing for achieving a secure world free of nuclear weapons. However, the international community should focus not on differences but on common ground by identifying concrete and practical ‘building blocks’ that are multilateral, plurilateral, bilateral or unilateral measures going on in parallel."

Mayors for Peace

"Mayors for Peace encourages world leaders to come to Hiroshima and Nagasaki to witness in their own eyes the unimaginable sufferings inflicted upon fellow human beings by a single atomic bomb. They will understand for sure the reason why in the eyes of hibakusha, nuclear weapons are the most inhumane weapons and an absolute evil. We sincerely appeal to world leaders, in particular the leaders of nuclear weapons states, to face this reality as human beings."

Mongolia

"The Government of Mongolia actively supports UN Secretary-General’s five point disarmament proposals, in particular, his proposal to undertake negotiations on effective measures leading to nuclear disarmament. We consider that comprehensive discussions on the humanitarian impact of nuclear weapons should lead to commitments of states to start negotiating a legally binding instrument on this issue."

New Zealand

"What exactly does ‘taking account of the security dimension’ of nuclear weapons really mean? Is it meant to suggest that for the foreseeable future there can be no further move toward a special regime that would abolish nuclear weapons? This must suggest, then, that somehow Article VI of the Nuclear Non-Proliferation Treaty also got it wrong – having equally failed to take account of the security dimension of nuclear weapons?"

The Philippines

"For the Philippines, our discussions on the humanitarian impact of nuclear weapons must be two-pronged. Firstly, our discourse must aim to heighten global awareness on the detrimental and lasting effects of these weapons on human life and the environment. Secondly, but more importantly, this awareness must translate into action on how we can immediately and effectively ban and eliminate the world’s remaining nuclear weapons."

Samoa

"The fact that the Pacific was used as a nuclear testing ground has given us a shared point of reference that has shaped our perspectives when discussing nuclear disarmament and non-proliferation issues. That is why we believe that nuclear weapons by their very existence, for whatever principled reason or fundamental justification, pose ‘needless’ and ‘unintended’ threats especially to non-nuclear weapon island states like mine. […] In this regard, we hope to finalise a process by which States can begin negotiating a legally binding instrument on the prohibition of nuclear weapons."
Senegal

“Malgré l’existence d’instruments internationaux en la matière, le danger de l’utilisation de l’arme nucléaire demeure évident, et les récents événements qui se sont produits et ceux qui se déroulent actuellement dans certaines parties du monde justifient amplement l’inquiétude de la communauté internationale quant à une possible utilisation de ce type d’arme. Cette inquiétude partagée entraîne, par conséquent, la nécessité de réaliser un grand pas, suite à ceux qui ont abouti au Traité de Non-Prolifération Nucléaire (TNP) et au Traité d’Interdiction complète des Essais Nucléaires (TICEN). Toutefois, ces deux importants instruments portant respectivement sur la Non-Prolifération et sur l’Interdiction des Essais Nucléaires ne sont, à notre avis, pas suffisants, car n’interdisent pas tout bonnement les armes nucléaires SOUS TOUS LEURS ASPECTS.”

Singapore

“The ramifications of the use of nuclear weapons, whether by design or by accident, are so profound and far-reaching that no individual state can adequately deal with them on its own. Stronger international awareness and cooperation to prevent its use and its testing is therefore critical.”

South Africa

“We have noted that some States argue that security imperatives are equally important. We too believe that security imperatives must be factored into our deliberations, provided that they serve to guarantee increased security for all the world’s peoples – our collective security – which is precisely what the humanitarian dimension in all about. [...] The only way to guarantee the security that we all seek, is through the total elimination of nuclear weapons and their prohibition. [...] States possessing or relying on such weapons cannot promote the virtues of nuclear weapons as so-called instruments of security, while simultaneously assuming the moral high ground in promoting nuclear non-proliferation.”

United Religions Initiative

“We cannot hold life sacred and at the same time seek security by placing its entirety at risk. We cannot countenance the continued threat to the well-being of our own communities these devices pose nor do we want to threaten the lives of millions of others with such devastation.”

United States of America

“A critical key to progress is the creation of verification and monitoring tools that will help us reach our mutual goals. Verification will become increasingly complex at lower numbers of nuclear weapons, while requirements for accurately determining compliance will dramatically increase. Everyone here and around the world who shares our goal of a world free of nuclear weapons should join us in devoting ample time and energy to address this challenge right now.”
List of Participants

States

Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bangladesh, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cameroon, Canada, Central African Republic, Chad, Chile, Colombia, Comoros, Congo, Costa Rica, Côte D’Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Democratic Republic of the Congo, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Estonia, Ethiopia, Finland, Georgia, Germany, Ghana, Greece, Guatemala, Guinea Bissau, Holy See, Honduras, Hungary, Iceland, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Lao People’s Democratic Republic, Latvia, Lebanon, Lesotho, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritius, Mexico, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Republic of Moldova, Romania, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Saudi Arabia, Senegal, Serbia, Sierra Leone, Singapore, Slovakia, Slovenia, Somalia, South Africa, South Sudan, Spain, Sri Lanka, Sudan, Swaziland, Sweden, Switzerland, Syrian Arab Republic, Thailand, The former Yugoslav Republic of Macedonia, Timor-Leste, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay, Uzbekistan, Venezuela, Viet Nam, Yemen, Zambia, Zimbabwe

International Organisations


Civil Society Organisations

Acronym Institute for Disarmament Diplomacy, Action des Citoyens pour le Désarmement Nucléaire (ACDN), African Centre for Science and International Security, African Council of Religious Leaders – Religions for Peace (ACRL-RFP), American Friends Service Committee, Amnesty International Venezuela, Arms Control Association, Arms Control Association, Arms Control and Disarmament Association (CACDA), Colombian Campaign to Ban Landmines, Colón, Colombia, Campaign to Ban Landmines, Colonial des Pionniers de Développement (CPD), Department/Institute of International Law and International Relations, University of Graz, Department of Political Science, University of Innsbruck, Department of Political Science, University of Massachusetts, Deutsche Friedensgesellschaft - Vereinigte KriegsdienstgegnerInnen (DFG-VK), Diplomatic Academy Vienna, Dominican for Justice and Peace, ECPAT/Guatemala (End Trafficking and Exploitation of Children), Egyptian Council for Foreign Affairs & Egyptian Pugwash Association for Science & International Affairs, Egyptian Pugwash Association for Science & International Affairs, European Proliferation Information Centre (EPIC) London, Federation of American Scientists, Friedensakademie Linz, Friedenswerkstatt Mutlangen, Friedrich-Ebert-Stiftung, Fundação Getulio Vargas (FGV), FUNDIPAU (Fundación Internacional de las Personas con Discapacidad), Global Security Institute, Global Women’s Association against nuclear testing (GWANT), Global Zero, Green Cross International, Grupo de Prácticas en Dereitos Humanos e Derecho Internacional / UNIPAMPA, Hijinkyo (Japan Confederation of A- and H-Bomb Sufferers Organizations), Hiroshima Alliance for Nuclear Weapons Abolition, Human Survival
Project, IANSA Women's Network/Center for Peace Education, International Campaign to Abolish Nuclear Weapons (ICAN), International Council of Women (ICW), Indian Doctors for Peace and Development (IDPD), International Affairs and Foreign Policy Institute-Foundation (INCIPE), International Fellowship of Reconciliation (IFOR), International Institute for Peace (IIP), Austria, International Law and Policy Institute (ILPI), International Peace Bureau (IPB), International Physicians for the Prevention of Nuclear War (IPPNW), Inter Press Service (IPS), Institut für Friedensforschung und Sicherheitspolitik an der Universität Hamburg, Institute of International Relations Prague, Institute of International Studies, Universitas Gadjah Mada, Institute of Safety/Security and Risk Sciences, Institute for Security Studies (ISS), South Africa, Institut für Sicherheits- und Risikowissenschaften, Austria, Israeli Disarmament Movement, James Martin Center for Nonproliferation Studies, Monterey Institute of International Studies, Japan Council against Atomic and Hydrogen Bombs (Gensuikyo), Japan Association of Lawyers Against Nuclear Arms, Journalists for Human Rights, Kairos Nigeria, Lawyers Committee on Nuclear Policy, Le Mouvement de la Paix, Lop Nor Project, Los Alamos Study Group, Mayors for Peace, Medact, Meiji University, Tokyo, Mines Action Canada, NO DU Hiroshima Project (ICBUW Hiroshima Office), No to Nuclear Weapons, Norwegian Peoples Aid, Nuclear Age Peace Foundation (NAPF), Nuclear Innovation Collaborative, Nuclear Threat Initiative (NTI), Nukewatch/The Progressive Foundation, Österreichisches Institut für Internationale Politik (OIIIP), Panama for Disarmament, PAX, Pax Christi International, Pax Students & DWARS, Groenlinks youths, Peace Boat, Penguin USA, Ploughshares Fund, Polish Institute of International Affairs (PISM), Poverty and Associated Maladies Alleviation Initiatives (Pamai), PragueVision Institute for Sustainable Security, Project Ploughshares, Pugwash Conference on Science and World Affairs, Quaker United Nations Office, Queen Margaret University Institute of International Health, Religions for Peace, Rete Italiana per il Disarmo, Rissho Kosei-Kai, School for International Studies and Centre for Dialogue, Simon Fraser University, Vancouver, Canada, School of Political Science and International Studies, The University of Queensland, Australia, Scottish Campaign for Nuclear Disarmament, Scottish CND & ICAN, SCRAP (SOAS), Sierra Leone Action Network on Small Arms (SLANSA), Soka Gakkai International (SGI), South Asia Forum for Human Rights, New Delhi, India, South Asian Strategic Stability Institute, Stockholm International Peace Research Institute (SIPRI), Survivors Recovery and Rehabilitation Organization (SRaRO), Swedish League of Religious Socialists, Swedish Peace and Arbitration Society, Technical University Vienna, Atominstitut, Technische Universität Darmstadt, The Atom Project, The Simons Foundation, TIK Centre for Technology, Innovation and Culture at the University of Oslo, Tri-Valley CAREs, Tunisian Institute For Human Rights Studies, Uganda Landmine Survivors Association (ULSA), Union of Concerned Scientists, Universidad Autonoma de Baja California (UABC), University College London, University of Lausanne/International Law Association, University of Liège, Belgium, Department of Political Science, University of Natural Resources and Life Sciences Vienna, University of Vienna, Department of Political Science, United Religions Initiative, Verification Research, Training and Information Centre (VERTIC), Victoria University Melbourne, Hamel-Green Michael, Vienna Center for Disarmament and Non-Proliferation (VCDNP), Visions Solidaires, Western States Legal Foundation, Wildfire, Women's International League for Peace and Freedom (WILPF), World Conference of Religions for Peace, Japanese Committee, World Council of Churches, World Evangelical Alliance, World Future Council, Youth Arts New York/Hibakusha Stories, Youth Future Project e.V.
Keyword Analysis of Statements held during the Vienna Conference

**Prohibition**
A call for the prohibition, banning or outlawing of one or more aspects of nuclear weapons, including possession and use.

**Legally Binding Instrument**
A new instrument, such as a Convention, which would be binding on signatories under international law.

**Civil Society**
The role or engagement of civil society and NGOs in nuclear disarmament processes.

**Elimination**
The complete elimination of all existing nuclear weapons as a goal.

**Humanitarian Consequences**
The impact or consequences of nuclear weapons detonations and testing on human beings and humanity in general.

**Response Capacity**
The capacity or lack thereof of states, international organisations and the international community in general to respond adequately to a nuclear weapons detonation event.

**Step-by-step**
nuclear disarmament to be achieved by a framework of separate, mutually reinforcing instruments.

**Modernisation**
The modernisation, upgrading or renewal of existing nuclear weapons arsenals and nuclear weapons infrastructure by certain states.
Hiroshima and Nagasaki
The nuclear weapons detonations over Hiroshima and/or Nagasaki in 1945.

Testing
Nuclear weapons testing and the CTBT.

Nuclear detonation
A detonation or explosion of one or more nuclear weapons.

Consequences
The consequences of a nuclear weapons detonation event in general.

Risk
The risk or danger of a nuclear weapons detonation event or the risk such an event would pose to humans, states and humanity.

Moral Responsibility
The moral or ethical aspect of disarmament, the immorality of the possession and/or use of nuclear weapons, or the relation in which nuclear weapons stand to an individual or a group’s values.

International Humanitarian Law
The use of nuclear weapons under existing International Humanitarian Law.

Security
The role nuclear weapons play in states’ in the context of the global security environment.
Conference Programme

Monday 4 March

10:00 – 11:00 am
Opening

Espen Barth Eide, Minister of Foreign Affairs of Norway

Peter Maurer, President of the International Committee of the Red Cross (ICRC)

Antonio Guterres, the United Nations High Commissioner for Refugees (UNHCR)

Liv Tørres, Secretary General of Norwegian People’s Aid (NPA)

Rashid Khalikov, the Director of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) in Geneva

Video statement from Civil Society

11:00 – 1:00 pm
Working Session I - Immediate humanitarian impact of a nuclear weapon detonation

Co-chairs: Ambassador Christian Guillermet, Ministry of Foreign Affairs of Costa Rica and Ambassador Steffen Kongstad, Ministry of Foreign Affairs of Norway

The aim of the first working session is to provide the conference with concrete description of a nuclear weapon detonation and the current global status, and its immediate effects on people, health and infrastructure. The session will start with expert presentations, followed by a plenary discussion open to all delegations.

Nuclear weapons: How they work and what they would do to you
Dr. Patricia Lewis, Research Director, Chatham House, London

Immediate impact: Death, damage and medical needs
Sir Andy Haines, Professor, London School of Hygiene & Tropical Medicine

Medical effects of a nuclear weapon detonation
Dr. Masao Tomonaga, Director of the Japanese Red Cross Nagasaki Atomic Bomb Survivors Hospital

Scenario of a nuclear detonation
Norwegian Defence Research Establishment and Norwegian People’s Aid, Elin Enger, Senior Scientist, Norwegian Defence Research Establishment (FFI)

2:30 – 5:00 pm
Working session II - Wider impact and longer-term consequences

Co-chairs: Director General Nozipho Mxakato-Diseko, Ministry of International Relations and Cooperation of South Africa and Director General Aud Lise Norheim, Ministry of Foreign Affairs of Norway

The second session aims to provide the conference with an overview of some of the wider impacts and longer-term consequences of nuclear weapon detonations. The session will start with expert presentations on the damage and disruption testing and use of nuclear weapons can cause with regard to food security, public health and the environment. The presentations will be followed by a plenary discussion open to all delegations.

Social and economic impacts: Structural restoration of lives and livelihoods in and around affected areas
Neil Buhne, Director of the Bureau of Crisis Prevention and Recovery, United Nations Development Programme (UNDP BCPR)

The legacy of nuclear testing: The case of Kazakhstan
Kanat B. Saudabayev, Chairman of the Commission on non-proliferation of weapons of mass destruction under the President of the Republic of Kazakhstan, Director of the Nazarbayev Center

Food security and global consequences
Peter Scott-Bowden, Senior Emergency Advisor, UN World Food Programme

Wider humanitarian impact: The long-term effects on health, environment and development
Dr. Ira Helfand, International Campaign to Abolish Nuclear Weapons (ICAN)

6:30 – 8.30 pm
Reception with buffet in Oslo City Hall hosted by State Secretary Gry Larsen
Tuesday 5 March

10:00 am – 12:00 pm
Working session III – Humanitarian preparedness and response

Co-chairs: Ambassador Alexander Kmentt, Director for Disarmament, Arms Control and Non-proliferation, Ministry of Foreign Affairs of Austria and Director General Mona Juul, Ministry of Foreign Affairs of Norway

The final working session will present an overview of the state of preparedness and the needs for adequate humanitarian response to a nuclear weapon detonation. Experts from national protection and response authorities and humanitarian organisations will provide presentations to be followed by a plenary discussion open to all delegations.

Emergency Preparedness and Response in the Event of a Nuclear Detonation, the cases of Norway and Romania
Dr. Ole Harbitz, Director General, Norwegian Radiation Protection Authority (NRPA) and Dr. Adriana Baciu, The Nuclear Regulatory Authority in Romania (CNCAN)

Preparedness and response: The role of OCHA and the Inter Agency Standing Committee
Rashid Khalikov, the Director of OCHA in Geneva

Challenges in responding to the use of nuclear weapons
Dr. Gregor Malich, Head of NRBC Operational Response Project, ICRC

1:30 – 3:00 pm
Concluding remarks and chair’s summary
Gry Larsen, State Secretary at the Norwegian Ministry of Foreign Affairs, will chair the closing session. Following interventions from the floor by delegations, the Chair will present the chair’s summary.

Chair’s Summary

It is unlikely that any state or international body could address the immediate humanitarian emergency caused by a nuclear weapon detonation in an adequate manner and provide sufficient assistance to those affected*, said Minister of Foreign Affairs, Espen Barth Eide, in his summary.

The Conference on the Humanitarian Impact of Nuclear Weapons in Oslo 4–5 March 2013 has heard presentations from a wide range of experts on the various effects of nuclear weapon detonations. Presentations have covered preparedness and first-line response as well as the medium- and long-term humanitarian, developmental and environmental effects.

The objective has been to present a facts-based understanding of the humanitarian impacts of nuclear weapon detonations and to facilitate an informed discussion of these effects with stakeholders from states, the United Nations, other international organisations and civil society.

Delegations representing 127 States, the United Nations, the International Committee of the Red Cross, the Red Cross and Red Crescent movement and civil society participated in the conference. It is the chair’s view that this broad participation reflects the increasing global concern regarding the effects of nuclear weapons detonations, as well as the recognition that this is an issue of fundamental significance to us all. Some key points can be discerned from the presentations and the discussions:

It is unlikely that any State or international body could address the immediate humanitarian emergency caused by a nuclear weapons detonation in an adequate manner and provide sufficient assistance to those affected. Moreover, it might not be possible to establish such capacities, even if it were attempted.

The historical experience from the use and testing of nuclear weapons has demonstrated their devastating immediate and long-term effects. While political circumstances have changed, the destructive potential of nuclear weapons remains.

The effects of a nuclear weapon detonation, irrespective of cause, will not be constrained by national borders, and will affect States and people in significant ways, regionally as well as globally.

This conference aimed at presenting key aspects of the humanitarian consequences of a nuclear weapon detonation. During the discussions a number of States expressed an interest in further exploring this important issue in ways that ensure global participation. States expressed their interest in continuing the discussions, and to broaden the discourse on the humanitarian impact of nuclear weapons. The chair welcomes the offer from Mexico to host a follow-up meeting to this conference. The Chair also welcomes the intention expressed by other States to organise events on this subject.
Second Conference on the Humanitarian Impact of Nuclear Weapons

Nayarit, Mexico
13–14 February 2014

Conference Programme

Thursday 13 February

8:00 – 9:00 am
Registration of Participants

9:00 – 9:45 am
Opening Ceremony
Mr. José Trinidad Espinoza Vargas, Secretary General, Government of Nayarit
Mrs. Christine Beerli, Vice-president of the ICRC
Dr. José Antonio Meade Kuribreña, Minister of Foreign Affairs of Mexico

9:45 – 11:30 am
The Testimony of the Hibakusha
Nagasaki, 9.08.1945
Mr. Yasuaki Yamashita
Hiroshima, 6.08.1945
Ms. Setsuko Thurlow

Long term effect of a nuclear weapon detonation
Mr. Toshiki Fujimori
Intergenerational effects. A perspective from a third generation Hibakusha
Ms. Masaki Koyanagi
Social and psychological impact
Mr. Terumi Tanaka

Brief slot of time allocated for questions and answers. Participants are kindly encouraged to profit from the interactive format, and not to make statements of a general or political nature.

11:30 am – 12:30 pm
Working Session I: From Oslo to Nayarit
Overview of the Oslo Conference and milestones on the development of the considerations of the humanitarian impact of nuclear weapons.

2:15 – 4:15 pm
Working Session II: The Challenges of a Nuclear Weapon Detonation to National, Regional and Global Economic Growth and Sustainable Development
Possible immediate, long-term and global effects of a nuclear weapon detonation and testing on the environment, climate, infrastructure, as well as possible impact on related issues such as development, poverty, food security and famine.

Scenario of a nuclear weapon detonation in Mexico City: Analysis and Perspectives
Mr. Rogelio Rafael Conde García, National Council for Civilian Protection-Ministry of the Interior of Mexico

Impact of a nuclear weapon detonation on infrastructure and economy
Richard Moyes, Article 36

Consequences of Nuclear Conflict: Nuclear Winter Still a Threat
Prof. Alan Robock, IPPNW

Semipalatinsk Nuclear Testing: the Humanitarian Consequences
Dr. Roman Vakulchuk, NUPI

Challenges in addressing the longterm effects of nuclear explosions
Ms. Sara Sekkenes, Conflict Prevention and Recovery Adviser with UNDP in Geneva

Brief slot of time allocated for questions and answers. Participants are kindly encouraged to profit from the interactive format, and not to make statements of a general or political nature.

4:30 – 6:30 pm
Working Session III: The Impact of a Nuclear Weapon Detonation on Global Public Health
Overview of the medium and long-term consequences of a nuclear weapon detonation, vis-à-vis global public health.
The health risks of a nuclear detonation: short and long-term effects
Dr. Jaime Aguirre, National Commission of Nuclear Security and Safeguards-Ministry of Energy of Mexico

Health Impact of a nuclear detonation and global challenges for public health.
Dr. Zhanat Carr, WHO

If another 16 kiloton atomic bomb detonates on a modern city: A study based on Hiroshima/Nagasaki cases
Dr. Masao Tomonaga, President of the Japanese Red Cross. Nagasaki Atomic Bomb Hospital

Medical consequences of regional and large scale nuclear war
Dr. Ira Helfand, IPPNW

Brief slot of time allocated for questions and answers. Participants are kindly encouraged to profit from the interactive format, and not to make statements of a general or political nature.

11:45 am – 2:00 pm
Exchange of Views
Points of view, statements and possible conclusions from the floor.

4:30 – 6:30 pm
Closing Ceremony
The Chair will present his factual summary of the Conference and will formally close the proceedings

Chair’s Summary
Delegations representing 146 States, the United Nations, the International Committee of the Red Cross, the Red Cross and Red Crescent movement and civil society organisations, participated in the Second Conference on the Humanitarian Impact of Nuclear Weapons held in Nayarit, Mexico, on 13 and 14 February 2014, to discuss global and long-term consequences of any nuclear detonation, accidental or deliberate, from the perspective and concerns of the 21st century society, including areas such as public health, humanitarian assistance, the economy, development and environmental issues, climate change, food security and risk management, amongst others.

From the Chair’s view, the broad and active participation of States and civil society reflects the global concern regarding the effects of nuclear weapons, as well as the increasing recognition that this is an issue of the utmost importance to all peoples in the world.

The Nayarit Conference expresses its gratitude for the participation of the victims and survivors of the Hiroshima and Nagasaki attacks, as well as for the references made to the victims of nuclear tests.

The Nayarit Conference succeeded in presenting a facts-based approach to facilitate an informed discussion of these effects. Some key conclusions can be extracted from the presentations and discussion:

• The effects of a nuclear weapon detonation are not constrained by national borders – it is therefore an issue of deep concern shared by all.

• Beyond the immediate death and destruction caused by a detonation, socio-economic development will be hampered and the environment will be damaged. Suffering will be widespread, the poor and vulnerable being the most severely affected.
Reconstruction of infrastructure and regeneration of economic activities, trade, communications, health facilities, and schools would take several decades, causing profound social and political harm.

Radiation exposure could result in short- and long-term negative effects in every organ of the human body and would increase cancer risks and future hereditary pathologies.

Today the risk of nuclear weapons use is growing globally as a consequence of proliferation, the vulnerability of nuclear command and control networks to cyber-attacks and to human error, and potential access to nuclear weapons by non-state actors, in particular terrorist groups.

As more countries deploy more nuclear weapons on higher levels of combat readiness, the risks of accidental, mistaken, unauthorised or intentional use of these weapons grow significantly.

It is a fact that no State or international organisation has the capacity to address or provide the short- and long-term humanitarian assistance and protection needed in case of a nuclear weapon explosion. Moreover, it would not be possible to establish such capacities, even if attempted.

As the Nayarit Conference is a follow-up of the First Conference on the Humanitarian Impact of Nuclear Weapons (Oslo, March 2013), these conclusions build upon those reached in Oslo.

The wide range of damage and negative impact in the likelihood of a nuclear explosion, as well as the vast resources allocated to maintain and modernise nuclear arsenals, make the mere existence of these weapons absurd, question the arguments in their defense and ultimately are contrary to human dignity.

It is the Chair’s perception that awareness of the humanitarian impact of nuclear weapons is already changing the hearts and minds worldwide of those engaging in discussions concerning nuclear weapons.

Actions such as the entry into force of the Comprehensive Nuclear Test-Ban Treaty as a core element of the international nuclear disarmament and non-proliferation regime, and the achievement of a comprehensive outcome in the 2015 Nuclear Non-Proliferation Treaty (NPT) Review Conference, together with the discussions on the humanitarian impact of nuclear weapons, are mutually reinforcing processes.

When it comes to the total elimination of nuclear weapons, no efforts are small. In this regard, many delegations underscored the positive impulse provided by the United Nations General Assembly High-level Meeting on Disarmament held in 2013.

The Chair expresses its deep gratitude to civil society and its involvement and inputs to the Nayarit Conference, and calls on all governments to forge new and renewed multisectoral partnerships with civil society to work towards mutually beneficial objectives.

The Chair warmly welcomes the Austrian offer to host the Third Conference on the Humanitarian Impact of Nuclear Weapons. This offer has been received with great support from participants as a follow-up to Oslo and Nayarit, to deepen the momentum, anchor these conclusions and take them forward. As it was expressed by many delegations, the Conference reiterates the invitation to nuclear weapons States and States non-parties to the NPT to participate in the Third Conference, in Austria.

In doing so, we need to take into account that, in the past, weapons have been eliminated after they have been outlawed. We believe this is the path to achieve a world without nuclear weapons.

In our view, this is consistent with our obligations under international law, including those derived from the NPT as well as from Common Article 1 to the Geneva Conventions.

The broad-based and comprehensive discussions on the humanitarian impact of nuclear weapons should lead to the commitment of States and civil society to reach new international standards and norms, through a legally binding instrument.

It is the view of the Chair that the Nayarit Conference has shown that time has come to initiate a diplomatic process conducive to this goal. Our belief is that this process should comprise a specific timeframe, the definition of the most appropriate fora, and a clear and substantive framework, making the humanitarian impact of nuclear weapons the essence of disarmament efforts.

It is time to take action. The 70th anniversary of the Hiroshima and Nagasaki attacks is the appropriate milestone to achieve our goal. Nayarit is a point of no return.
Links

Official Website of the Vienna Conference
hinw14vienna.at

Official Website of the Oslo Conference
regjeringen.no

Official Website of the Nayarit Conference
mision.sre.gob.mx

Report on Parliamentary Roundtable in the Austrian Parliament
pnnd.org

UNIDIR - ILPI, Humanitarian Initiative Briefing Papers
unidir.ilpi.org

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