

# **International Conference on a Decade of Progress after Fukushima-Daiichi**

**Building on the Lessons Learned to Further  
Strengthen Nuclear Safety**

**8-12 November 2021**

## **PROGRAMME**

Organized by the

**International Atomic Energy Agency (IAEA)**

In cooperation with the

**Food and Agriculture Organization of the United Nations  
(FAO)**

**International Labour Organization (ILO)**

**Organisation for Economic Co-operation and**

**Development/ Nuclear Energy Agency (OECD/NEA)**

**Preparatory Commission for the Comprehensive Nuclear-  
Test-Ban Treaty Organization (CTBTO)**

**United Nations Scientific Committee on the Effects of  
Atomic Radiation (UNSCEAR)**

**World Health Organization (WHO)**

**World Meteorological Organization (WMO)**

IAEA Headquarters Vienna, Austria



**Special Experts Committee:**

A. Gonzalez (Argentina)  
G. Hirth (Australia)  
R. Velshi (Canada)  
D. Drabova (Czech Republic)  
L. Evrard (France)  
J.-L. Lachaume (France)  
J. Regaldo (France)  
A. K. Dutta (India)  
S. Kaneko (Japan)  
F. Aparkin (Russia)  
C. Viktorsson (United Arab Emirates)  
M. Weightman (United Kingdom)  
C. Hanson (United States of America)  
K. Svinicki (United States of America)

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**IAEA Secretariat:**

Scientific Secretary: G. Caruso, Department of Nuclear Safety and Security

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**Location of the Event:** International Atomic Energy Agency  
Vienna International Centre (VIC)  
Building M, Board Room B/M1  
Wagramer Strasse 5  
A-1400 Vienna, Austria  
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**Working Language:** English

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**Resolutions:**

No resolutions may be submitted for consideration on any subject; no votes will be taken.

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## TIMETABLE

### MONDAY, 8 NOVEMBER 2021

Time	Session/ Panel	Session Title / Break	Venue
09:00–10:00		Opening Session	Board Room B/M1

#### **PART I – INTERNATIONAL ORGANIZATIONS PERSPECTIVE**

10:00–12:00	Session A	Contribution of International Organizations to Global Safety	
12:00–14:00		<i>Lunch Break</i>	

#### **PART II – LEARNING LESSONS**

14:00–15:30	Session B	Ensuring the Safety of Nuclear Installations	
15:30–16:00		<i>Coffee/Tea Break</i>	
16:00–17:30	Panel 1	Ensuring the Safety of Nuclear Installations – Minimizing the Possibility of Serious Off-Site Radioactive Releases	

### TUESDAY, 9 NOVEMBER 2021

Time	Session/ Panel	Session Title / Break	Venue
09:00–10:30	Session C	Preparing and Responding to a Potential Nuclear Emergency	Board Room B/M1
10:30–11:00		<i>Coffee/Tea Break</i>	
11:00–12:30	Panel 2	Preparing and Responding to a Potential Nuclear Emergency – Robust Preparedness Arrangements	
12:30–14:00		<i>Lunch Break</i>	
14:00–15:30	Session D	Protecting People Against Radiation Exposure	
15:30–16:00		<i>Coffee/Tea Break</i>	
16:00–17:30	Panel 3	Protecting People Against Radiation Exposure – Attributing Health Effects to Ionizing Radiation Exposure and Inferring Risks	

### WEDNESDAY, 10 NOVEMBER 2021

Time	Session/ Panel	Session Title / Break	Venue
09:00–10:30	Session E	Recovering from a Nuclear Emergency	Board Room B/M1
10:30–11:00		<i>Coffee/Tea Break</i>	
11:00–12:30	Panel 4	International Cooperation	
12:30–13:30		<i>Lunch Break</i>	

Time	Session/ Panel	Session Title / Break	Venue
13:30–14:30	Side Event	Performing Nuclear Safeguards at Fukushima	Boardroom B/M1
14:30–15:00		<i>Coffee/Tea Break</i>	
15:00–17:00	DG Special Session	Safety Related Aspects of Handling ALPS Treated Waters at the Fukushima Daiichi NPP	
17:00–18:30	Panel 5	Special Youth Panel – Youth and the Nuclear Industry	

## THURSDAY, 11 NOVEMBER 2021

Time	Session/ Panel	Session Title / Break	Venue
<b>PART III – PATH FORWARD</b>			
09:00–10:30	Panel 6	Safety for Nuclear Development	Board Room B/M1
10:30–11:00		<i>Coffee/Tea Break</i>	
11:00–12:30	Panel 7	Building Inclusive Safety Leadership	
12:30–14:00		<i>Lunch Break</i>	
14:00–15:30	Panel 8	International Legal Instruments	
15:30–16:00		<i>Coffee/Tea Break</i>	
16:00–17:30	Panel 9	Communication, Engagement and Trust Building	

## FRIDAY, 12 NOVEMBER 2021

Time	Session/ Panel	Session Title / Break	Venue
09:00–10:30	Panel 10	Facing New Challenges	Board Room B/M1
10:30–11:00		<i>Coffee/Tea Break</i>	
11:00–12:30	Panel 11	Call for Actions – Maintaining the Momentum	
12:30–14:00		<i>Lunch Break</i>	
14:00–15:30	Closing Session	Summary and Conclusions Closing remarks	

# MONDAY, 8 NOVEMBER 2021

09:00-10:00 OPENING SESSION

Boardroom B/M1

Time	Name	Designating Member State/Organization
	<b>Naga Munchetty</b>	<i>Moderator</i>
09:00–9:10	<b>Rafael Mariano Grossi</b>	IAEA Director General
9:10–9:20	<b>Takeshi Hikihara</b>	Ambassador of Japan
9:20–9:30	<b>Mike Weightman</b>	Conference President (United Kingdom)
9:30–9:40	<b>Lydie Evrard</b>	IAEA Deputy Director General and Head of the Department of Nuclear Safety and Security
9:40–9:50	<b>Gustavo Caruso</b>	Scientific Secretary
<b>Keynote speaker</b>		
9:50–10:00	<b>Hajimu Yamana</b>	Japan Nuclear Damage Compensation and Decommissioning Facilitation Corporation

## PART I - INTERNATIONAL ORGANIZATIONS PERSPECTIVE

10:00-12:00 SESSION A - CONTRIBUTION OF INTERNATIONAL ORGANIZATIONS TO GLOBAL SAFETY

Board Room B/M1

Time	Name	Designating Member State/Organization
	<b>Mike Weightman</b>	<i>Session Chairperson United Kingdom/Conference President</i>
10:00–10:12	<b>William Magwood</b>	Organisation for Economic Co-operation and Development/Nuclear Energy Agency (OECD/NEA)
10:12–10:24	<b>Ingemar Engkvist</b>	World Association of Nuclear Operators (WANO)
10:24–10:36	<b>Gustavo Caruso</b>	IAEA/Department of Nuclear Safety and Security
10:36–10:48	<b>Gillian Hirth</b>	United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)
10:48–11:00	<b>Gerhard Graham</b>	Preparatory Commission for the Comprehensive Nuclear Test Ban Treaty Organization (CTBTO)
11:00–11:12	<b>Gerd Dercon</b>	Food and Agriculture Organization of the United Nations (FAO)
	<b>Carl Blackburn</b>	Food and Agriculture Organization of the United Nations (FAO)
11:12–11:24	<b>Joaquim Pinto Nunes</b>	International Labour Organization (ILO)
11:22–11:36	<b>Lars Peter Riishojgaard</b>	World Meteorological Organization (WMO)
11:34–11:48	<b>Maria Neira</b>	World Health Organization (WHO)



Time	Name	Designating Member State/Organization
11:48–12:00	<b>Mike Weightman</b>	Session wrap-up

## PART II - LEARNING LESSONS

**14:00-15:30 SESSION B - ENSURING THE SAFETY OF NUCLEAR INSTALLATIONS Board Room B/M1**

Time	Name	Designating Member State/Organization
	<b>Rumina Velshi</b>	<i>Session Chairperson</i> Canada/Canadian Nuclear Safety Commission
14:00–14:10	<b>Keiichi Watanabe</b>	Japan/Nuclear Regulation Authority
14:10–14:20	<b>Fedor Aparkin</b>	Russia/ROSATOM State Atomic Energy Corporation
14:20–14:30	<b>Petteri Tippana</b>	Finland/Radiation and Nuclear Safety Authority
14:30–14:40	<b>Anne Pelle</b>	France/Électricité de France
14:40-15:30	<b>Q&amp;A</b>	

**16:00-17:30 PANEL 1 - ENSURING THE SAFETY OF NUCLEAR INSTALLATIONS – MINIMIZING THE POSSIBILITY OF SERIOUS OFF-SITE RADIOACTIVE RELEASES Board Room B/M1**

Name	Designating Member State/Organization
<b>Naga Munchetty</b>	<i>Panel Moderator</i>
<b>Mark Foy</b>	United Kingdom/Office for Nuclear Regulation
<b>Michael Franovich</b>	United States of America/Nuclear Regulatory Commission
<b>Jinho Lee</b>	Korea/Korea Institute of Nuclear Safety
<b>Jean Christophe Niel</b>	France/Institut de Radioprotection et de Sûreté Nucléaire
<b>Rosa Sardella</b>	Switzerland/Swiss Federal Nuclear Safety Inspectorate

## TUESDAY, 9 NOVEMBER 2021

**09:00-10:30 SESSION C - PREPARING AND RESPONDING TO A POTENTIAL NUCLEAR EMERGENCY Board Room B/M1**

Time	Name	Designating Member State/Organization
	<b>Christopher Hanson</b>	<i>Session Chairperson</i> United States of America/Nuclear Regulatory Commission
9:00–9:10	<b>Tomohiko Makino</b>	Japan/ Nuclear Disaster Management Bureau
9:10–9:20	<b>Catarina Danestig Sjogren</b>	Sweden/Swedish Radiation Safety Authority

Time	Name	Designating Member State/Organization
9:20–9:30	<b>Hessa Almarzooqi</b>	United Arab Emirates/Federal Authority for Nuclear Regulation
9:30–9:40	<b>Tasos Zodiates</b>	International Labour Organization
9:40–09:50	<b>Marcus Grzechnik</b>	Australia/Australian Radiation Protection and Nuclear Safety Agency
09:50–10:30	<b>Q&amp;A</b>	
10:30–11:00	<i>Coffee/Tea Break</i>	

**11:00-12:30 PANEL 2 – PREPARING AND RESPONDING TO A POTENTIAL NUCLEAR EMERGENCY—ROBUST PREPAREDNESS ARRANGEMENTS Board Room B/M1**

Name	Designating Member State/Organization
<b><i>Naga Munchetty</i></b>	<i>Panel Moderator</i>
<b>Kajal Kumar De</b>	India/Nuclear Power Corporation of India
<b>Tomohiko Makino</b>	Japan/Nuclear Disaster Management Bureau
<b>Susan Perkins</b>	United States of America/Nuclear Energy Institute
<b>Patricia Wieland</b>	Brazil/Brazilian Association for the Nuclear Activities Development

**14:00-15:30 SESSION D – PROTECTING PEOPLE AGAINST RADIATION EXPOSURE Board Room B/M1**

Time	Name	Designating Member State/Organization
	<b><i>Nobuhiko Ban</i></b>	<i>Session Chairperson</i> <i>Japan/Nuclear Regulation Authority</i>
14:00–14:10	<b>Abel Gonzalez</b>	Argentina/Argentine Regulatory Authority
14:10–14:20	<b>Evgeny Metlyaev</b>	Russia/The Federal Medical and Biological Agency
14:20–14:30	<b>Todd Smith</b>	United States of America/Nuclear Regulatory Commission
14:30–14:40	<b>Gerry Thomas</b>	United Kingdom/Imperial College London
14:40–14:50	<b>Zhanat Carr</b>	World Health Organization
14:50–15:00	<b>Jacqueline Garnier-Laplace</b>	Organisation for Economic Co-operation and Development/Nuclear Energy Agency
15:00-15:30	<b>Q&amp;A</b>	

**16:00-17:30 PANEL 3 – PROTECTING PEOPLE AGAINST RADIATION EXPOSURE—ATTRIBUTING HEALTH EFFECTS TO IONIZING RADIATION EXPOSURE AND INFERRING RISKS Boardroom B/M1**

Name	Designating Member State/Organization
<i>Melinda Crane</i>	<i>Panel Moderator</i>
<b>Trevor Boal</b>	Australia
<b>Christopher Clement</b>	International Commission on Radiological Protection
<b>Michiaki Kai</b>	Japan/Nippon Bunri University
<b>Wolfgang Mueller</b>	Germany/German Commission on Radiological Protection
<b>Masaharu Tsubokura</b>	Japan/Fukushima Medical University
<b>Shang Zhaorong</b>	China/Nuclear and Radiation Safety Centre

**WEDNESDAY, 10 NOVEMBER 2021**

**09:00-10:30 SESSION E – RECOVERING FROM A NUCLEAR EMERGENCY Board Room B/M1**

Time	Name	Designating Member State/Organization
	<i>Carl-Magnus Larsson</i>	<i>Session Chairperson Australia/ Australian Radiation Protection and Nuclear Safety Agency</i>
9:00–9:10	<b>Akira Ono</b>	Japan/Tokyo Electric Power Company
9:10–9:20	<b>Keiichi Yumoto</b>	Japan/Ministry of Economy, Trade and Industry
9:20–9:30	<b>Tatsuro Sagawa</b>	Japan/Ministry of the Environment
9:30–9:40	<b>Masaharu Tsubokura</b>	Japan/Fukushima Medical University
9:40–9:50	<b>Oleksandr Novikov</b>	Ukraine/Special State Enterprise Chornobyl Nuclear Power Plant
9:50–10:00	<b>Analia Canoba</b>	Argentina/Argentine Regulatory Authority
10:00-10:30	<b>Q&amp;A</b>	
10:30–11:00	<i>Coffee/Tea Break</i>	

**11:00-12:30 PANEL 4 – INTERNATIONAL COOPERATION Board Room B/M1**

Name	Designating Member State/Organization
<i>Hannah Vaughan Jones</i>	<i>Panel Moderator</i>
<b>Alfredo De Los Reyes</b>	Spain/Nuclear Safety Council
<b>Massimo Garribba</b>	European Union/European Commission

Name	Designating Member State/Organization
<b>Christine Georges</b>	France/French Alternative Energies and Atomic Energy Commission
<b>Olga Lugovskaya</b>	Belarus/Gosatombadzor
<b>Khammar Mrabit</b>	Morocco/Agence Marocaine de Sûreté et de Sécurité Nucléaires et Radiologiques
<b>Suchin Udomsomporn</b>	Thailand/Office of Atoms for Peace
<b>Rebecca Weston</b>	United Kingdom/Sellafield Ltd

**13:30-14:30 SIDE EVENT – PERFORMING NUCLEAR SAFEGUARDS AT FUKUSHIMA Board Room B/M1**

*14:30–15:00 Coffee/Tea Break*

**15:00-17:00 DG SPECIAL SESSION –SAFETY RELATED ASPECTS OF HANDLING ALPS TREATED WATERS AT THE FUKUSHIMA DAIICHI NPP**

Time	Name	Designating Member State/Organization
	<i>Melinda Crane</i>	<i>Moderator</i>
15:00-15:15	<b>Rafael Mariano Grossi</b>	IAEA Director General
15:15-15:18	<b>Koichi Hagiuda</b>	Japan/Ministry of Economy, Trade and Industry
15:18-15:30	<b>Keiichi Yumoto</b>	Japan/Nuclear Accident Disaster Response
15:30-15:50	<b>Junichi Matsumoto</b>	Japan/Tokyo Electric Power Company
15:50-16:10	<b>Nobuhiko Ban</b>	Japan/Nuclear Regulation Authority
16:10-16:40	<b>Gustavo Caruso</b>	IAEA/Department of Nuclear Safety and Security
16:40-17:00	<b>Q&amp;A</b>	

**17:00-18:30 PANEL 5 – SPECIAL YOUTH PANEL—YOUTH AND THE NUCLEAR INDUSTRY Board Room B/M1**

Name	Designating Member State/Organization
<b>Rafael Mariano Grossi</b>	IAEA Director General
<i>Ilieva Illizastigui Arisso</i>	<i>Panel Moderator</i>
<i>Hayden Rogers Page</i>	<i>Panel Moderator</i>
<b>Daiane Dantas Sardinha</b>	Brazil
<b>Kate Graham-Shaw</b>	United Kingdom

Name	Designating Member State/Organization
<b>Doovaraha Maheswarasarma</b>	Sri Lanka
<b>Ilia Menailo</b>	Russia
<b>Natchapon Promprasert</b>	Thailand
<b>Travis Scott Smith</b>	United States of America

**THURSDAY, 11 NOVEMBER 2021**

**PART III – PATH FORWARD**

**09:00-10:30 PANEL 6 – SAFETY FOR NUCLEAR DEVELOPMENT Board Room B/M1**

Name	Designating Member State/Organization
<b>Melinda Crane</b>	<i>Panel Moderator</i>
<b>Alexander Bolgarov</b>	Russia/ROSATOM State Atomic Energy Corporation
<b>Fred Dermarkar</b>	Canada/CANDU Owners Group
<b>Satyajit Ghose</b>	Bangladesh/Bangladesh Atomic Energy Regulatory Authority
<b>Lei Ma</b>	China/National Nuclear Safety Administration
<b>Lukasz Mlynarkiewicz</b>	Poland/National Atomic Energy Agency
<b>Samy Shaaban Ata-Allah Soliman</b>	Egypt/Egyptian and Radiological Regulatory Authority

**10:30–11:00 Coffee/Tea Break**

**11:00-12:30 PANEL 7 – BUILDING INCLUSIVE SAFETY LEADERSHIP Board Room B/M1**

Name	Designating Member State/Organization
<b>Hannah Vaughan Jones</b>	<i>Panel Moderator</i>
<b>Grote Gudela</b>	Switzerland/Eidgenössische Technische Hochschule Zürich
<b>Maria Lecal</b>	United States of America/Palo Verde Generating Station for Arizona Public Service Company
<b>Naveed Maqbul</b>	Pakistan/Pakistan Nuclear Regulatory Authority
<b>Elvira Romera</b>	Spain/Nuclear Safety Council
<b>Christer Viktorsson</b>	United Arab Emirates/ Federal Authority for Nuclear Regulation

Name	Designating Member State/Organization
<b>Bohdan Zronek</b>	Czech Republic/ČEZ Group

**14:00-15:30 PANEL 8 – INTERNATIONAL LEGAL INSTRUMENTS Boardroom B/M1**

Name	Designating Member State/Organization
<b>Melinda Crane</b>	<i>Panel Moderator</i>
<b>Dan Dorman</b>	United States of America/Nuclear Regulatory Commission
<b>Dana Drabova</b>	Czech Republic/State Office for Nuclear Safety
<b>Naoto Ichii</b>	Japan/Nuclear Regulation Authority
<b>Ramzi Jammal</b>	Canada/Canadian Nuclear Safety Commission
<b>Annatina Müller-Germanà</b>	Switzerland/Swiss Federal Nuclear Safety Inspectorate
<b>Bismark Tyobeka</b>	South Africa/National Nuclear Regulator

**16:00-17:30 PANEL 9 – COMMUNICATION, ENGAGEMENT, AND TRUST BUILDING Board Room B/M1**

Name	Designating Member State/Organization
<b>Hannah Vaughan Jones</b>	<i>Panel Moderator</i>
<b>Sama Bilbao y Leon</b>	World Nuclear Association
<b>Penelope Harvey</b>	United Kingdom/University of Manchester
<b>Jean-Luc Lachaume</b>	France/Nuclear Safety Authority
<b>Pilar Lucio</b>	Spain/Nuclear Safety Council
<b>Liane Sauer</b>	Canada/Canadian Nuclear Safety Commission
<b>Vadim Titov</b>	Russia/ROSATOM State Atomic Energy Corporation

**FRIDAY, 12 NOVEMBER 2021**

**09:00-10:30 PANEL 10 – FACING NEW CHALLENGES Board Room B/M1**

Name	Designating Member State/Organization
<b>Melinda Crane</b>	<i>Panel Moderator</i>
<b>Asok Kumar Dutta</b>	India/Nuclear Power Corporation of India
<b>Alexey Ferapontov</b>	Russia/Rostechнадзор
<b>Darrell Roberts</b>	United States of America/Nuclear Regulatory Commission

Name	Designating Member State/Organization
<b>Uwe Stoll</b>	Germany/Gesellschaft für Anlagen- und Reaktorsicherheit GmbH
<b>Sun Zaozhan</b>	China/Nuclear and Radiation Safety Centre
<b>Marta Ziakova</b>	Slovakia/Nuclear Regulatory Authority

**11:00-12:30** **PANEL 11 – CALL FOR ACTIONS—MAINTAINING THE MOMENTUM** **Board Room B/M1**

Name	Designating Member State/Organization
<b>Mike Weightman</b>	United Kingdom/ Conference President and Chair Session A
<b>Rumina Velshi</b>	Canada/Chair Session B
<b>Dan Dorman</b>	United States of America/Session C
<b>Nobuhiko Ban</b>	Japan/Chair Session D
<b>Carl-Magnus Larsson</b>	Australia/Chair Session E
<b>Lydie Evrard</b>	IAEA Deputy Director General and Head of the Department of Nuclear Safety and Security

12:30–  
14:00 *Lunch Break*

**14:00-15:00** **CLOSING SESSION** **Board Room B/M1**

Name	Designating Member State/Organization
<b>Mike Weightman</b>	Conference President
<b>Gustavo Caruso</b>	Scientific Secretary
<b>Rafael Mariano Grossi</b>	IAEA Director General

## **Session A**

### **CONTRIBUTION OF INTERNATIONAL ORGANIZATIONS TO GLOBAL SAFETY**

In the aftermath of the Fukushima Daiichi NPP accident, multiple international organizations contributed to the global response, underscoring their ongoing and important role in supporting nuclear safety. The IAEA adopted the IAEA Action Plan on Nuclear Safety which included reviewing and revising relevant safety standards, strengthening peer review services, and enhancing efforts to assist Member States in building capacity for safety. Other international organizations provided support through the promotion of stress tests, new research and development activities, monitoring of post-event health effects, and enhanced cooperation and exchange of experience and information. These activities and findings were subsequently captured in the reports of international organizations, complementing the actions by countries to review and enhance their national safety approaches. The purpose of this session is to provide an opportunity for international organizations who contributed to global efforts during and after the accident to share their work and demonstrate that the peaceful uses of nuclear energy are safer now than ever before.

## **Session B**

### **ENSURING THE SAFETY OF NUCLEAR INSTALLATIONS**

The Fukushima Daiichi NPP accident emphasized the importance of continuously challenging the existing assumptions regarding nuclear safety to prevent future accidents. The attention of the nuclear industry refocused on safety improvements in the existing nuclear installations and enhanced safety considerations for new projects and designs. Specifically, countries reviewed and reinforced, as necessary, nuclear installations' capability to withstand or control possible accidents originating from extreme conditions external events to minimize risk. In support of these activities, the IAEA and the Member States reviewed and revised their safety frameworks, including updates to the safety standards, to ensure that the lessons identified are incorporated at the national level to ensure global nuclear safety. During the session, speakers will summarize the lessons and associated actions from the accident and highlight the different approaches and decisions that were taken to enhance nuclear safety and face emerging challenges.

#### **Panel 1**

### **ENSURING THE SAFETY OF NUCLEAR INSTALLATIONS-- MINIMIZING THE POSSIBILITY OF SERIOUS OFF-SITE RADIOACTIVE RELEASES**

Findings from the Fukushima Daiichi NPP accident have shown that a drive towards continuous safety improvement leaves no place for complacency. Technical, organizational and regulatory measures taken to enhance safety further reduce the likelihood of occurrence of accidents with significant radioactive releases. On the other hand, as such an accident might still occur, the nuclear industry and regulatory bodies need to be prepared for the unexpected.

The panel will discuss measures that can be taken to ensure that serious accidents are very unlikely and to highlight actions to ensure that serious off-site radioactive releases will be avoided or minimized, in line with the principles of the Vienna Declaration. The panel will also investigate the potential of advanced reactor technologies to practically eliminate the risk of off-site releases. Panellists will discuss where a questioning attitude contributes to safety and where strict implementation is a prerequisite for the safe operation of nuclear installations.



## **Session C**

### **PREPARING AND RESPONDING TO A POTENTIAL NUCLEAR EMERGENCY**

An integrated and coordinated emergency management system for preparedness and response for a nuclear emergency should be in place at the national level. The Fukushima Daiichi NPP accident has shown that these arrangements should cover the case of responding simultaneously to a nuclear emergency and a natural disaster. In a nuclear emergency, protective actions have to be implemented in an effective and timely manner and do more good than harm. As these actions can be extremely disruptive for normal life, a comprehensive approach to decision making has to be followed to ensure balance between potential radiological consequences, non-radiological consequences, and health hazards, with special consideration to sensitive population groups. IAEA requirements and generic criteria address the termination of a nuclear emergency and the subsequent transition to an existing exposure situation; however, the Fukushima Daiichi NPP accident highlighted that further guidance is needed. In this session experiences will be shared on various aspects of managing emergency response, including protecting emergency workers and helpers and justifying protective actions.

#### **Panel 2**

### **PREPARING AND RESPONDING TO A POTENTIAL NUCLEAR EMERGENCY - ROBUST PREPAREDNESS**

Robust preparedness arrangements need to be in place for responding to an emergency at a nuclear power plant that might occur simultaneously with a natural disaster. The response to a nuclear emergency involves many national organizations, as well as international organizations and, therefore, has to be coordinated and effective. This panel will discuss the importance of infrastructural elements for emergency preparedness and response, including regulatory requirements; clearly defined roles and responsibilities; pre-established plans and procedures; tools, equipment and facilities; training, drills and exercises; and a management system.

## **Session D**

### **PROTECTING PEOPLE AGAINST RADIATION EXPOSURE**

An important lesson from the Fukushima Daiichi NPP accident refers to the difficulties for non-specialists to understand the international system of radiation safety, including the principles and criteria for radiation protection. It is important to communicate the rationale behind the judgement as to whether and how radiation doses to the public should be averted and to make clear that justification of protective measures and actions is based not solely on science but on consideration of the overall benefits and detriments to society and the individual. Furthermore, guidance on monitoring doses to the public in the aftermath of an accident can be limited and this potential lack of information might create public anxiety. The public is particularly concerned about the protection of children and pregnant women after a nuclear accident. This session will discuss challenges and successful approaches for protecting the public against radiation exposure and for ensuring timely and effective communication to the public.

### **Panel 3**

#### **PROTECTING PEOPLE AGAINST RADIATION EXPOSURE – ATTRIBUTING HEALTH EFFECTS TO IONIZING RADIATION EXPOSURE AND INFERRING RISKS**

In the aftermath of the Fukushima Daiichi NPP accident, the radiation risk coefficients used for radiation protection purposes were not properly interpreted by the media and members of the public. While such coefficients derive from conjectures on potential nominal risks, they were used to make theoretical calculations of nominal effects that were attributed to the low radiation exposure situations resulting from the accident. At an international level, there were overestimations of the doses received by members of the public, which might have contributed to causing anxiety to the public.

The limitations for attributing radiation effects following low level radiation exposures need to be discussed and clearly explained. The purpose of this panel is to discuss these perceived inconsistencies vis-a-vis the latest UNSCEAR estimates on attribution of effects and inference of risk, which became available after the Fukushima Daiichi NPP accident.

### **Session E**

#### **RECOVERING FROM A NUCLEAR EMERGENCY**

The nuclear industry exists in a broader context; therefore, recovering from a nuclear emergency is a complex process and requires coordination among a wide range of stakeholders and consideration of technical and societal aspects. This session will discuss topics including the role of technology and innovation, the involvement of the public in remediation efforts, and the identification of challenges that can inform future planning. Speakers will share their experiences from the perspective of international organizations, government authorities, and local and regional leaders involved in the recovery operations from the Fukushima Daiichi NPP accident.

### **Panel 4**

#### **INTERNATIONAL COOPERATION**

The Fukushima Daiichi NPP accident emphasized the importance of international cooperation in safety related areas, including safe operation, emergency preparedness and response and regulatory effectiveness, and of incorporating lessons from the accident into national programmes to build capacity for more resilient systems.

Institutional networks for safety, such as regional networks, knowledge networks and regulatory forums, provide a platform for information exchange and help to optimize resources, compare processes, procedures and policies, identify good practices, identify and address existing gaps and needs. The panellists will share different perspectives on how international cooperation contributes to establishing an international framework and global commitment for nuclear safety.

## Side Event

### **SAFEGUARDS IN A CHALLENGING LOCATION: HOW THE IAEA IMPLEMENTS NUCLEAR MATERIAL VERIFICATION AT FUKUSHIMA DAIICHI**

Through a set of technical measures, the IAEA verifies that States are honouring their international legal obligations to use nuclear material and technology for peaceful purposes only.

To support the drawing of safeguards conclusions, the IAEA Department of Safeguards relies heavily on the timely access of inspectors to nuclear material and facilities. The conditions on the Fukushima Daiichi site after the impact of the 2011 Great Tohoku Earthquake and tsunami posed unprecedented and continuously evolving challenges in fulfilling this mandate. To overcome these challenges, the IAEA developed innovative measures that support the IAEA's mission, with close cooperation from the Japan Safeguards Office (JSGO) of the Japan Nuclear Regulation Authority and the Tokyo Electric Power Company (TEPCO). These innovations have combined technological advances and adaptations to the safeguards approach to the site.

This side event discusses the safeguards activities undertaken by the IAEA at the site in the 10 years since the accident, from the post-accident response until the current situation, the progress made in re-verifying the nuclear material that was left inaccessible by the accident, and the innovative technologies developed in response to the challenges on the site.

## Special Session by DG

### **SAFETY RELATED ASPECTS OF HANDLING ALPS TREATED WATERS AT THE FUKUSHIMA DAIICHI NPP**

In April 2021, the Government of Japan announced its plan to release ALPS (advanced liquid processing system) treated water from the Fukushima Daiichi Nuclear Power Station into the sea through controlled discharges. The Government of Japan requested the assistance of the IAEA to ensure that the discharge takes place in a safe and transparent manner. Rafael Mariano Grossi, Director General of the IAEA, committed to support the Government of Japan before, during, and after the water discharge, and the IAEA Secretariat has started initial planning and implementation activities associated with its review. A Task Force comprised of the IAEA Secretariat, as well as international experts, has been established and will review the Government of Japan's activities related to the treated water discharge. The purpose of this Special Session is to hear from key officials from the IAEA and Japan, about recent progress and to share information about future activities.

## Panel 5 – Special Youth Panel

### **YOUTH AND THE NUCLEAR INDUSTRY**

The IAEA invited students and early career professionals up to 30 years of age to submit essays on selected topics related to the themes of the conference. The aim of the essay competition was to promote creative and innovative thinking and highlight the critical role that the next generation will play in sustaining and ensuring a safe future for the peaceful uses of nuclear technology in areas such as nuclear power, food and agriculture, water management, and human health. The essay competition attracted 250 submissions from 60 countries. Finalists were selected through a blind evaluation process and will attend the Conference and participate in this special youth panel. The themes from winning essays, as well as the discussions during this panel, will be considered during the development of the Call for Action.

## **Panel 6**

### **SAFETY FOR NUCLEAR DEVELOPMENT**

IAEA and Member States have a shared responsibility to ensure sharing nuclear technology is done in a way that adheres to the highest standards of nuclear safety, security, and non-proliferation. Currently, several countries are embarking on new nuclear power programmes, while others are expanding their existing uses of nuclear or radioactive material for industrial, medical, and research purposes. This panel will examine how vendors, recipients, and international organizations can all play a role in ensuring that nuclear safety remains a global priority and will highlight the role of a robust nuclear safety infrastructure in enabling future nuclear development.

## **Panel 7**

### **BUILDING INCLUSIVE SAFETY LEADERSHIP**

Global and national labour markets are changing. Personnel with different mindsets, different expectations and different competencies are joining the nuclear sector. Nuclear operations represent a complex and dynamic sociotechnical system that benefit from a systemic approach to safety and proactive leadership and management to assure safe performance. Reliability of human resources and availability of competence for safety depends on multiple factors. "Effective leadership and management for safety must be established and sustained in organizations concerned with facilities and activities that give rise to, radiation risks" – is stated as Principle 3 of the IAEA Fundamental Safety Principles. The purpose of the panel is to draw attention to the changing workforce demographics in operating organizations, regulatory bodies, as well as technical support and research organizations. Panellists will discuss strategies to address potential challenges and exchange how nuclear sector practices are keeping pace with other industries to have an inclusive workforce and safety leadership in the mid-21st century.

## **Panel 8**

### **INTERNATIONAL LEGAL INSTRUMENTS**

Over the past four decades, several important international conventions and other international legal instruments have been adopted and progressively strengthened to achieve and maintain a high level of nuclear safety worldwide. International conventions are complemented by national policies for safety and regional agreements. Other initiatives also form part of the ongoing international effort to strengthen nuclear safety, such as the Vienna Declaration on Nuclear Safety that was unanimously adopted by the Contracting Parties to the Convention on Nuclear Safety. The IAEA plays a critical role in maintaining the international legal framework for nuclear safety. The establishment of the IAEA Safety Standards through an international consensus process assists in the harmonization of nuclear regulations and helps States to comply with existing international legal instruments. This panel will discuss how the effectiveness of the international legal instruments for safety can be further enhanced.

## **Panel 9**

### **COMMUNICATION, ENGAGEMENT AND TRUST BUILDING**

Safe operation of nuclear facilities is ensured through the cooperation of multiple stakeholders, including operating organizations, regulatory authorities and technical support organizations. Interfacing with decision makers and professional organizations, as well as communication with the public through local communities and the media needs to be transparent and clear. Availability of information from different sources and access to new formats of communication present opportunities but also challenges for conveying accurate and reliable information to decision makers, the media and the general public during both normal operation and emergency situations.

This panel will discuss how information can be shared accurately and in a timely manner in a way that is understandable to the target audience and builds trust with the public.

## **Panel 10**

### **FACING NEW CHALLENGES**

The rapidly changing world inevitably reflects on the nuclear energy landscape. Considering this changing environment and new technologies, enhancing safety in the next years remains a key task for governments, regulatory bodies and operating organizations. Natural phenomena, economic trends and social expectations are difficult to foresee. New technologies impact energy demand and supply, and shape life. Events, such as pandemics, impact mobility of people and goods and affect nuclear supply chains. During the panel, participants will discuss trends and global developments that have a direct impact on nuclear power in its current format. Opportunities to enhance safety under new circumstances will also be discussed.

## **Panel 11**

### **CALL FOR ACTIONS – MAINTAINING THE MOMENTUM**

Recognizing that discussion is not enough to defend against complacency and demonstrate the safety of the nuclear industry, this panel will propose actions for moving forward. Panellists will use the key messages from the conference coupled with insights from speakers throughout the week to identify where future efforts and momentum are most beneficial. The outcomes from this panel will be incorporated into the President's summary demonstrating a clear call to action to help shape the future of nuclear safety in the 21st century.

## IAEA PUBLICATIONS RELATED TO THE SUBJECT OF THE EVENT

2021

Format and Content of the Safety Analysis Report for Nuclear Power Plants

Level 1 Probabilistic Safety Assessment Practices for Nuclear Power Plants with CANDU-Type Reactors

2020

Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency

Design of Auxiliary Systems and Supporting Systems for Nuclear Power Plants

Establishing the Safety Infrastructure for a Nuclear Power Programme

Design of the Reactor Coolant System and Associated Systems for Nuclear Power Plants

Implementation and Effectiveness of Actions Taken at Nuclear Power Plants following the Fukushima Daiichi Accident

Environmental Transfer of Radionuclides in Japan following the Accident at the Fukushima Daiichi Nuclear Power Plant

Developments in the Analysis and Management of Combustible Gases in Severe Accidents in Water Cooled Reactors following the Fukushima Daiichi Accident

Methodologies for Seismic Safety Evaluation of Existing Nuclear Installations

Storage of Spent Nuclear Fuel

Strategies and Practices in the Remediation of Radioactive Contamination in Agriculture

2019

Technical Approach to Probabilistic Safety Assessment for Multiple Reactor Units

Decommissioning after a Nuclear Accident: Approaches, Techniques, Practices and Implementation Considerations

Approaches to Safety Evaluation of New and Existing Research Reactor Facilities in Relation to External Events

Deterministic Safety Analysis for Nuclear Power Plants

Fuel Modelling in Accident Conditions (FUMAC)

Modelling of Marine Dispersion and Transfer of Radionuclides Accidentally Released from Land Based Facilities

**2018**

International Conference on Operational Safety

**2017**

Assessment of Vulnerabilities of Operating Nuclear Power Plants to Extreme External Events

Site Evaluation for Nuclear Installations

Safety Assessment for Facilities and Activities

**2016**

Safety of Nuclear Power Plants: Commissioning and Operation

Safety of Nuclear Power Plants: Design

Governmental, Legal and Regulatory Framework for Safety

Safety of Nuclear Power Plants: Commissioning and Operation

## **PARTICIPATION IN IAEA SCIENTIFIC CONFERENCES**

Governments of Member States and those organizations whose activities are relevant to the conference subject matter are invited to designate participants. In addition, the IAEA itself may invite a limited number of scientists as invited speakers. Only participants designated or invited in this way are entitled to present papers and take part in the discussions.

Scientists interested in participating in any of the IAEA conferences should request information from the Government authorities of their own countries, in most cases the Ministry of Foreign Affairs or national atomic energy authority.

## **PUBLICATIONS**

All IAEA publications may be ordered directly from the Sales and Promotion Unit, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna, Austria.

Fax: (+43 1) 2600-29302

Email: [sales\\_publications@iaea.org](mailto:sales_publications@iaea.org)

Internet: <http://www.iaea.org/books>



## **FORTHCOMING SCIENTIFIC CONFERENCES SCHEDULED BY THE IAEA**

### **2021**

International Conference on the Safe and Secure Transport of Nuclear and Radioactive Materials, 13-17 December, Vienna, Austria

### **2022**

First International Conference on Nuclear Law: The Global Debate, 7-11 February, Vienna, Austria

International Conference on Accelerators for Research and Sustainable Development: from Good Practices towards Socioeconomic Impact, 23-27 May, Vienna, Austria

International Conference on Nuclear Knowledge Management and Human Resource Development Challenges and Opportunities, 13-16 June, Moscow, Russia

International Conference on the Safety and Security of Radioactive Sources, 20-24 June, Vienna, Austria

For information on forthcoming scientific meetings, please consult the IAEA web site:

<http://www.iaea.org/events>