CN265

International Symposium on Communicating Nuclear and Radiological Emergencies to the Public

1-5 October 2018
Vienna, Austria

Symposium Report

Organized by

IAEA International Atomic Energy Agency

In co-operation with

CTBTO PREPARATORY COMMISSION | PUTTING AN END TO NUCLEAR EXPLOSIONS

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60th anniversary NEA NUCLEAR ENERGY AGENCY

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SYMPOSIUM PRESIDENT:

Jason Cameron
Vice-President and Chief Communications Officer
Canadian Nuclear Safety Commission
Canada

INTERNATIONAL SYMPOSIUM PROGRAMME COMMITTEE:

M. Bigot	France
D. Castelveter	USA
A. Gonzalez	Argentina
A. Heinrich	USA
T. Homma	Japan
S. Hueber	Switzerland
D. Owen	UK
K. Raitio	Finland
M. Ramerafe	South Africa
Z. Carr	WHO
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Scientific Secretaries:	E. Buglova, IEC S. Gas, OPIC
Symposium Organizers:	M. Neuhold, MTDS J. Dusimatov, MTDS
Scientific Support:	S. Harvey, IEC
Administrative Support:	J. Mayer Dipauli, IEC S. Mehan, IEC

LOCATION OF THE SYMPOSIUM:

International Atomic Energy Agency
Vienna International Centre (VIC)
M Building
Wargramer Strasse 5
A-1400 Vienna, Austria

REPORT ON
INTERNATIONAL SYMPOSIUM ON COMMUNICATING NUCLEAR AND RADIOLOGICAL EMERGENCIES TO THE PUBLIC

INTERNATIONAL ATOMIC ENERGY AGENCY
VIENNA, 2018

CONTENTS

INTRODUCTION

The 2018 *International Symposium on Communicating Nuclear and Radiological Emergencies to the Public* was organized by the International Atomic Energy Agency (IAEA) in cooperation with the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), the European Commission (EC), the Food and Agriculture Organization of the United Nations (FAO), the International Labour Organization (ILO), INTERPOL, the Nuclear Energy Agency of the Organisation for Economic Cooperation and Development (OECD NEA), the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), the World Meteorological Organization (WMO), and the International Federation of the Red Cross (IFRC). Its purpose was to provide an opportunity to exchange information and share experiences in public communication during emergencies and to discuss challenges and identify key priorities in further improving strategies for effectively communicating with the public before, during and after nuclear and radiological emergencies.

The Symposium took place at IAEA Headquarters in Vienna from 1 to 5 October 2018. The Symposium President was Mr Jason Cameron, Vice-President of the Regulatory Affairs Branch and the Chief Communications Officer at the Canadian Nuclear Safety Commission.

The Symposium provided a forum for networking and information exchange among practitioners in the areas of communication and EPR. It provided participants with an opportunity to present contemporary public communication solutions, including methods and tools; exchange information on national arrangements for public communication in a nuclear or radiological emergency; share experiences and good practices in public communication in a nuclear or radiological emergency; and discuss challenges and priorities in further strengthening public communication capabilities in the preparedness and the response stages of a nuclear or radiological emergency.

It also provided opportunities to deliberate on challenges and priorities in public communication during specialised panel sessions, experience the role of a spokesperson in a virtual reality press conference and visit the IAEA's Incident and Emergency Centre (IEC).

The symposium was attended by almost 400 participants from 74 Member States and 13 international organizations. Participants had the opportunity to visit 10 exhibitions prepared by Member States, international organizations and companies. Participation was 53% female and 47% male.

ALMOST **400** PARTICIPANTS

74 MEMBER STATES

13 INTERNATIONAL ORGANIZATIONS

A FIRST AT AN IAEA CONFERENCE

President's Recommendations

The Symposium President delivered his summary and recommendations during the final day of the Symposium (available in full in Appendix B). The recommendations are summarized as follows:

RECOMMENDATION 1
Achieving "one message, many voices" through principles and arrangements for effective public communication

RECOMMENDATION 2
Preparing and implementing practical communication arrangements in nuclear or radiological emergencies

RECOMMENDATION 3
Answering the question "Am I safe?" in an emergency

RECOMMENDATION 4
Incorporating innovative media in communication arrangements

RECOMMENDATION 5
Prioritizing communications in EPR events and other relevant activities

The structure of this report includes summaries of each session held. At the end of each summary, the key points have been compiled and each key point is assigned an icon related to the above recommendations so as to guide the reader on how the key points fed into the President's Summary at the end of the Symposium.

SCIENTIFIC PROGRAMME

The following areas formed the backbone of the Symposium: emergency preparedness and response (EPR), stakeholder engagement, public communication channels and tools in emergencies, social media, effective communication, psychology of communication, coordination of information, communicating in different types of emergencies, answering the question "Am I safe?" and lessons learned.

The International Symposium Programme Committee (ISPC) reviewed 142 abstracts and assigned 44 contributions as oral presentations, 12 as panel presentations and 40 as poster presentations.[1] In addition, 12 senior experts were invited as keynote speakers and 13 as invited speakers. In total, there were 130 presentations. The structure of the Symposium programme is shown in Figure 1 and an overview of the Symposium contributions is presented in Table 1.

FIGURE 1: SYMPOSIUM PROGRAMME

MONDAY 1 OCTOBER	TUESDAY 2 OCTOBER	WEDNESDAY 3 OCTOBER	THURSDAY 4 OCTOBER	FRIDAY 5 OCTOBER
Registration	PRESENTATION 3 How to prepare for communicating in an emergency	PRESENTATION 6 Lessons learned from communicating perceived or potential nuclear and radiological emergencies	PRESENTATION 8 How to answer the question "Am I safe?" in an emergency?	PRESENTATION 10 Tools and techniques: Innovation in emergency communication
Opening Session				
10:30 - 11:00 Coffee Break & E-Poster Session				
PRESENTATION 1 Communication in an emergency: why is it needed?	PANEL B Social media in an emergency: opportunity or obstacle?	PRESENTATION 7 Voice of local officials and first responders in communicating during an emergency	PANEL D Media Representatives	PANEL F What's next in emergency communication?
				Closing Session
13:00 - 14:00 Lunch Break & E-Poster Session				
PRESENTATION 2 Stakeholder engagement and multicultural needs in emergency communication	PRESENTATION 4 Language for effective communication	INTERACTIVE SESSION What are the top terms that cause challenges globally during a nuclear or radiological emergency?	PANEL E Young Innovative Communicators Competition	
15:30 - 16:00 Coffee Break & E-Poster Session				
PANEL A Emergency preparedness and response experts and Public Information Officers: coordinated actions	PRESENTATION 5 Public's perspective on communication during an emergency	PANEL C Practicing emergency communication in exercises: experiences and challenges	PRESENTATION 9 Lessons learned from communicating in nuclear and radiological emergencies of various origins	
Welcome Reception				

[1] *2 contributions were rejected; 46 contributions were later withdrawn.*

Overview of scientific programme

Presentation Sessions: The ten presentation sessions included introductory statements by the Chair, followed by a 20-minute keynote presentation. Speakers each then had seven minutes to present, which was followed by the questions from the Chair, Slido (see below) and the floor.

Panel Sessions: Six Panel Sessions were organized to promote further dialogue and discussion between participants about public communication in emergencies. With the exception of Panel E[2], Panel Sessions followed a similar structure to Presentation sessions; brief introductory statements by the Chair, a 20-minute keynote (Panel A and Panel C) and 5-minute presentations by each of the panellists. Panellists' presentations were followed by questions from the Chair, Slido and the audience.

Poster Sessions: Four stations for InterActive Presentations (IAPs), also referred to as e-posters, were set up for a total of 11 poster sessions. During these sessions, which took place during coffee and lunch breaks, the presenters showcased their posters to individual visitors. 40 posters were presented.

TABLE 1: OVERVIEW OF THE SYMPOSIUM CONTRIBUTIONS

Session	Topic	Keynotes	Speakers
Session 1	Communication in an emergency: why is it needed?	1	4
Session 2	Stakeholder engagement and multicultural needs in emergency communication	1	5
Panel A	Emergency preparedness and = response experts and Public Information Officers: coordinated actions	1	5
Session 3	How to prepare for communicating in an emergency	1	6
Panel B	Social media in an emergency: opportunity or obstacle	-	4
Session 4	Language for effective communication	1	5
Session 5	Public's perspective on communication during an emergency	1	5
Session 6	Lessons learned from communicating perceived or potential nuclear and radiological emergencies	1	6
Session 7	Voice of local officials and first responders in communicating during an emergency	1	5
	Interactive Session: What are the top terms that cause challenges globally during a nuclear or radiological emergency?	-	3
Panel C	Practicing emergency communication in exercises: experiences and challenges	1	5
Session 8	How to answer the question "Am I Safe?" in an emergency	1	5
Panel D	Media Representatives	-	3
Panel E	Young Innovative Communicators Competition	-	6
Session 9	Lessons learned from communicating in nuclear and radiological emergencies of various origins (e.g. Medical overexposure, nuclear security event, natural disasters, transport events)	1	5
Session 10	Tools and techniques: innovations in emergency communication	1	5
Panel F	What's next in emergency communication?	-	7

[1] *Panel E, the Young Innovative Communicators Competition, followed a different structure. See page X.*

Lists of session keynote, chairs and speakers are shown in Table 2, Table 3 and Table 4 respectively.

TABLE 2: TOPICS OF KEYNOTE PRESENTATIONS AND KEYNOTE SPEAKERS

Session	Keynote Topic	Keynote Speaker
Session 1	Planning is Everything	S. Burns
Session 2	Engagement with Cultural Difference during Emergencies: Some Observations from East Asia	C. Huang
Panel A	Role of Communication in the System of Protection	P. Tiippana
Session 3	Crisis Communication: Taking a Broad Approach for Better Preparedness	Y. Hah
Session 4	Risk Communication and Medical/Health Professional's Role in Fukushima	A. Kumagai
Session 5	Working with the Media to Save Lives in the Event of a Nuclear Detonation	B. Buddemeier
Session 6	The Opinion Generations: The Demographic Infrastructure of Risks and Crises	J. Beaudoin
Session 7	Communication Strategy during Crises and Radiological Incidents	Y. Vatikay
Panel C	Practising Emergency Communication: A National Perspective	K. Mrabit
Session 8	Miscommunication in Nuclear and Radiological Emergencies: Is Improper Language Not the Main Culprit?	A. Gonzalez
Session 9	Communication strategy and its dependence on Risk Perception	S. Banus
Session 10	Communicating Risk in 21st Century Emergencies – The Current Evidence for Best Practice	G. Gamhewage

TABLE 3: SESSION TOPICS AND SESSION CHAIRS

Session	Topic	Session Chair
Session 1	Communication in an emergency: why is it needed?	Jason Cameron, Canada
Session 2	Stakeholder engagement and multicultural needs in emergency communication	Ann Heinrich, USA
Panel A	Emergency Preparedness and Response experts and Public Information Officers: coordinated actions	David Owen, UK
Session 3	How to prepare for communicating in an emergency	Sebastian Hueber, Switzerland
Panel B	Social media in an emergency: opportunity or obstacle	Kasia Raitio, Finland
Session 4	Language for effective communication	David Owen, UK
Session 5	Public's perspective on communication during an emergency	Marie-Pierre Bigot, France
Session 6	Lessons learned from communicating perceived or potential nuclear and radiological emergencies	Carl Blackburn, FAO
Session 7	Voice of local officials and first responders in communicating during an emergency	David Castelveter, USA
	Interactive Session: What are the top terms that cause challenges globally during a nuclear or radiological emergency?	Jason Cameron, Canada

TABLE 3: SESSION TOPICS AND SESSION CHAIRS

Panel C	Practicing emergency communication in exercises: experiences and challenges	Mothusi Ramerafe, South Africa
Session 8	How to answer the question "Am I Safe?" in an emergency	Ann Heinrich, USA
Panel D	Media Representatives	Martin Nesirky, United Nations
Panel E	Young Innovative Communicators Competition	Jason Cameron, Canada
Session 9	Lessons learned from communicating in nuclear and radiological emergencies of various origins (e.g. Medical overexposure, nuclear security event, natural disasters, transport events)	David Castelveter, USA
Session 10	Tools and techniques: innovations in emergency communication	Kasia Raitio, Finland
Panel F	What's next in emergency communication?	Jason Cameron, Canada

TABLE 4: SESSION TOPICS AND LIST OF SPEAKERS

	Topic	Speakers
Session 1	Communication in an emergency: why is it needed?	C. Ardouin, T. Bieda, A. Shogren, H. Foy
Session 2	Stakeholder engagement and multicultural needs in emergency communication	J. Karniliyus, E. Dacus, C. McMahon, M. Sarfo, U. Yadav
Panel A	Emergency Preparedness and Response experts and Public Information Officers: coordinated actions	P. Mertens, W.P. Daeng Beta, P. Kaiser, S. Van Raad, D. Estes
Session 3	How to prepare for communicating in an emergency	L. Wolters, M.P. Hande, A. Abadie, U. Schulz, C. Li, S. Al Hashimi
Panel B	Social media in an emergency: opportunity or obstacle	N. Savic, N.M. Martinez, R. Agustyah, E. Meyer
Session 4	Language for effective communication	A. Ibrahim, M. Tschurlovits, C. Ruo, M. Duarte, D. Salama, H. Looney
Session 5	Public's perspective on communication during an emergency	M. Krottmayer, H. Usui, K. Raitio, K. Carera, E. Burtovaia
Session 6	Lessons learned from communicating perceived or potential nuclear and radiological emergencies	J. Wieder, A. Imtiaz, E. Bouchot, K. Tao, S. Midorikawa, V. Novitsky
Session 7	Voice of local officials and first responders in communicating during an emergency	T. Yamada, M. Thames, J. Lachaume, A. Holland, S. Senior
	Interactive Session: What are the top terms that cause challenges globally during a nuclear or radiological emergency?	A. Kelbie, J. Wieder, A. Cunha da Silva
Panel C	Practicing emergency communication in exercises: experiences and challenges	V. Tafili, L. Anderson, V. Siegel, S. Hakala, A. Gomes Lopes
Session 8	How to answer the question "Am I Safe?" in an emergency	E. Melikhova, H. Yasuda, M. Laver, A.R. Melo, S. Nestoroska Madjunarova
Panel D	Media Representatives	A. Maclachlan, P. Rickwood, J. Kuhs

TABLE 4: SESSION TOPICS AND LIST OF SPEAKERS

Panel E	Young Innovative Communicators Competition	S. Ward, E. Karima, P. Samonte, S. Ree, H. Muhammad, A. Cunha da Silva
Session 9	Lessons learned from communicating in nuclear and radiological emergencies of various origins (e.g. Medical overexposure, nuclear security event, natural disasters, transport events)	Y. Aoyama, M. Bigot, I. Choffel-De-Witte, A. Mayor, B. Ahier, V. Dricks
Session 10	Tools and techniques: innovations in emergency communication	B.G. Göktepe, A. Brown, C. Iddins, M. Maitre, I. Oceano
Panel F	What's next in emergency communication?	S. Gas, M. Nesirky, A. Gonzalez, B. Buddemeier, A. Kumagai, C. Huang, K. Mrabit

The list of posters can be found in Appendix C.

Audience Interaction

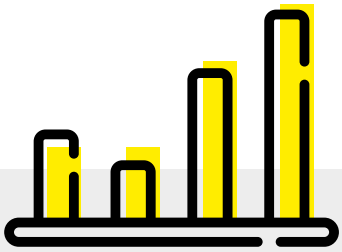
During the Symposium, the Chairpersons asked for participants' feedback and engagement at each session through an online tool named Slido (www.slido.com), a web-based platform for moderating polls and questions.

Questions were also elicited from an interactive wall adjacent to the IEC exhibit and through Twitter using the hashtag #CNREP2018.

531
ACTIVE USERS

441
QUESTIONS POSTED

3949
POLL VOTES



ON SLIDO

FIGURE 2: ANN HEINRICH, ISPC MEMBER, ADDS ANSWERS TO THE INTERACTIVE WALL

Virtual Reality Press Conference

50+ VR DISPLAY DEMOS

During the Symposium, participants were challenged to take part in a virtual reality press conference to test their skills in answering questions from the media. During this experience, the participants explored a simulated transport accident involving a vehicle carrying radiological material. They were able to visually explore the environment and afterwards they were virtually transported to a press conference. The press conference consisted of questions with multiple choice answers related to what they observed at the scene, specific concerns the public would have in such an event and additional information that was provided to the player before entering the virtual reality environment. Over 50 participants experienced the virtual reality exercise.

FIGURE 3: A SYMPOSIUM PARTICIPANT TRIES ON THE VIRTUAL REALITY SCENARIO

Technical Visits

3 IEC TOURS WITH 73 PARTICIPANTS

Three visits to the IEC were organized during lunch breaks. 73 participants toured the operational area and learned about the activities, infrastructure and communication procedures of the centre.

FIGURE 4: FLORIAN BACIU, RESPONSE SYSTEM COORDINATOR AT THE IEC, LED PARTICIPANTS THROUGH A TOUR OF THE IEC OPERATIONAL AREA

Exhibitions

There were ten exhibitions at the Symposium from the following Member States, international organizations and companies:

- Canada
- Institut de radioprotection et de sûreté nucléaire (IRSN), France
- United States of America

- Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO)
- International Federation of Red Cross and Red Crescent Societies (IFRC)

- SARAD GmbH
- Tracero

- IAEA Department of Nuclear Safety and Security
- IAEA Department of Technical Cooperation
- IAEA Incident and Emergency Centre

The IEC exhibition was designed with open panes, clear lines and bright colours to illustrate the fundamental concepts of effective communication with the public in the context of preparing for and responding to emergencies (Figure 6).

FIGURE 5: THE HIGHLIGHTER WAYFINDING AT THE CNREP 2018

FIGURE 6: THE IEC EXHIBIT

The Scientific Secretaries for the Symposium were Ms Elena Buglova, Head IEC, and Mr Serge Gas, Director, IAEA Office for Public Information and Communication (OPIC).

SYMPOSIUM OPENING

Symposium President and Chair of the Opening Session, Mr Cameron, welcomed the participants (see Appendix A) and delivered his opening statement. Mr. Cameron then invited the IAEA Deputy Director General and Head of the Department of Nuclear Safety and Security, Mr J. C. Lentijo to give his opening address (Appendix A). Mr. Cameron introduced each speaker and invited them to give their opening statements in the following order:

FIGURE 7: SYMPOSIUM PRESIDENT JASON CAMERON GIVES HIS REMARKS DURING THE OPENING SESSION ON 1 OCTOBER 2018

Ms. T. Taylor, Director, International Centre Division, CTBTO; Mr. M. Opriesnig, Deputy Secretary General, Austrian Red Cross, IFRC; Mr. D. Ledingham, Acting Assistant Director, CBRNE and Vulnerable Targets Sub-Directorate, INTERPOL; Mr. S. Niu, Senior Specialist on Occupational Health, LABADMIN/OSH Branch, ILO; Ms. Y. Hah, Head of the Division of Radiological Protection and Human Aspects of Nuclear Safety, OECD NEA; Ms. L. Heng, Head of Soil and Water Management and Crop Nutrition Section, Joint FAO/IAEA Programme, FAO; Mr. M. Huebel, Head of Unit D3: Radiation protection and nuclear safety, Directorate D: Nuclear Energy, Safety and ITER, European Commission; Ms. S. Castonguay, Acting Chief/Editor, Communications and Public Affairs, WMO; and Mr. R. Mueller, Interim Functional Lead, Coordination Division, UN OCHA (see Appendix A for opening statements).

At the end of the session, Mr Cameron asked Ms Buglova, Scientific Secretary, to provide an overview of the logistical and administrative arrangements for the Symposium.

SESSION 1

COMMUNICATION IN AN EMERGENCY: WHY IS IT NEEDED?

Session 1 dealt with the fundamental constraints and obligations faced by public information producers in governmental organizations in their efforts to communicate clearly, accurately, honestly, transparently and in an understandable manner with the public during nuclear or radiological emergencies. The outcome of their work should be actionable, credible communication that supports protective actions. The session included four presentations and a keynote address from a total of four Member States. The session was chaired by Mr. Jason Cameron, Canada, with technical support from Mr. Peter Kaiser, IAEA.

The keynote address gave insights into the communications efforts of the United States during past events and highlighted the need for a new approach to communication in an era of networked, ubiquitous communication channels that enjoy global reach with no, or very low, entry costs. Communicators are faced with an insurmountable challenge: they must communicate without verified information, while other communicators are issuing messages that are often inaccurate or misleading.

Presentations were made by speakers from New Zealand, Argentina, the USA and Ghana on the fundamental reasons public communication is essential in an emergency. The presenter from New Zealand, using the context of the February 2011 Christchurch earthquake, said the primary lesson was to prepare for such events by producing communication products that address the most common concerns. The speaker from Argentina explained that public communication efforts must be made in the preparedness phase to ensure flexible, scalable and consistent messaging for all relevant experts. The presentation covered the recent activities of the Global Initiative to Combat Nuclear Terrorism and concluded that their priority is to use the available international resources and mechanisms for sharing information to guarantee effective public messaging. The presentation from Ghana covered the major communication tools used for a radiological emergency in Africa.

The speaker from the USA covered the challenges in presenting radiation data when using expert terminology and measurement units that are unfamiliar to the public. Following the Fukushima Daiichi nuclear power plant accident, the United States Environmental Protection Agency redesigned its data for the public to ease accessibility, and to offer graphical displays that provide contextual information. In time an interactive and dynamic map of the USA will be publicly broadcast showing real-time exposure rates.

DISCUSSIONS

During the discussions it was underlined that public awareness around radiation must be elevated. In order to make it understandable, this information has to be given to the public in a relatable context by an expert. While public education is important, it is not necessary that the public should be experts. However, it should be ensured that they have a sufficient understanding upon which they can make informed actions.

First responders are often required to give information to the public, but they may have little experience in dealing with radiological issues, for example if they are members of the police or fire services. They may also have little or no experience with communication. Therefore, it is necessary to ensure that they have sufficient training.

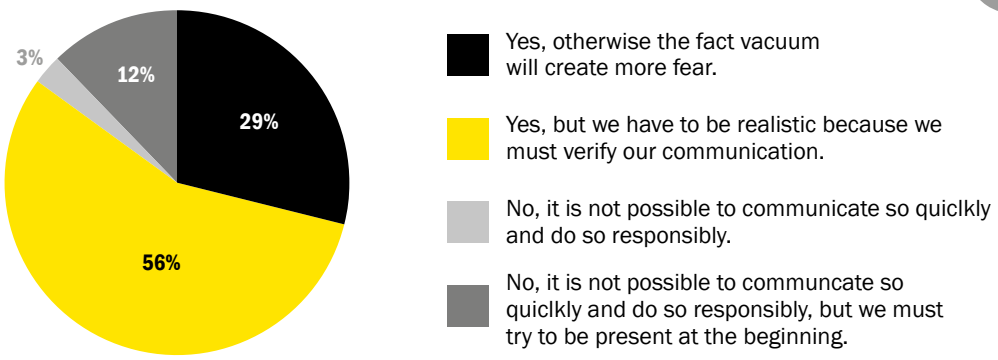
Participants discussed the appropriateness of defining audiences during the preparedness phase. With such a strategy, targeted messages can be given to different sectors of the population to efficiently educate on emergencies. However, during an emergency it would not be advised to give different messages, as the immediate priority would be crisis management and public safety, which is most effectively achieved with unified messaging. With regard to the need for immediate communication while ensuring accuracy, it was agreed that governments will not be able to outpace the media. Yet, it is essential for governments and relevant authorities to acknowledge that an incident has occurred and that further information will be provided when it is available and has been verified.

Speakers highlighted that each Member State has their own national arrangements for emergency management and communication. There was recognition among the speakers of the difference between Member States' internal organization and the necessity for streamlined coordinated action between authorities, in line with their defined roles and responsibilities.

SLIDO POLLS

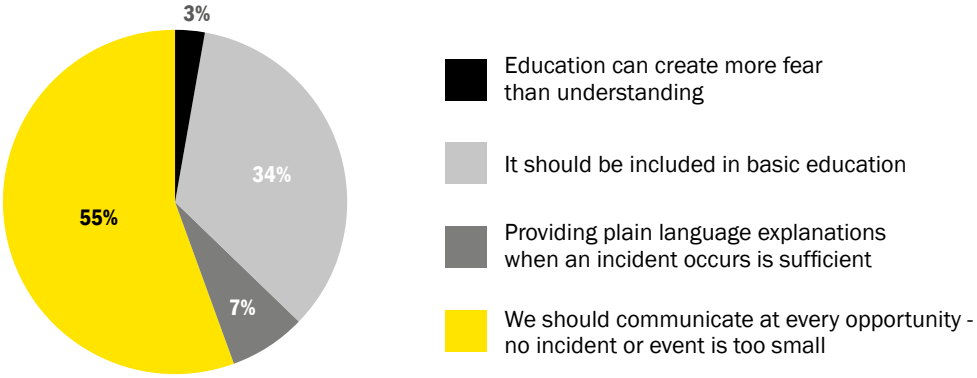
Is it important to try respond as quickly as the media?

125 USERS



How much "Radiation Awareness" is enough for the public? How much should the public know about radiation to support effective public communication and response?

137 USERS



KEY POINTS FROM SESSION 1:

The participants talked about the need for Member States to have national arrangements in place for effective communication with the public during nuclear or radiological emergencies.

In the discussion, participants underlined the important role the Agency plays in supporting Member States public communication in nuclear and radiological emergencies and encouraged Member States to request IAEA training and workshops on public communication in emergencies.

Speakers agreed on the need for prompt approval of the IAEA Safety Guide on Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency.

The participants agreed that a communication plan should include arrangements for immediate public communication in an emergency and that no event or incident is "too small" not to trigger a communications response.

While resource intensive, it was agreed that preparedness arrangements must include a public education component.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

SESSION 2

STAKEHOLDER ENGAGEMENT AND MULTICULTURAL NEEDS IN EMERGENCY COMMUNICATION

Session 2 covered a number of issues related to stakeholder engagement and multicultural needs in nuclear and radiological emergencies. The session included five presentations and a keynote address from a total of six Member States. The session was chaired by Ms. Ann Heinrich, USA, with technical support from Ms. Lisa Berthelot, IAEA.

The keynote address, delivered by a speaker from China, focused on the complexity of human thinking and reactions, as well as on the psychology of participation and engagement from the influence of culture. The keynote address summarized observations about engaging with populations and dealing with cultural differences during emergencies. This included the *quanxi* approach – a kinship based engagement tactic also defined as the dynamic in personalized social networks of influence or in the relationships individuals cultivate with others.

Presentations were delivered by speakers from Nigeria, the USA, Ireland, Ghana and India. The presentations delivered by participnats from Nigeria, Ireland, Ghana and India concentrated on the identification and engagement with stakeholders in their own countries. The speaker from Nigeria summarised the national arrangements for public communication in an emergency and discussed the activities undertaken to inclusively communicate with people in a diverse, multilingual society. The presenter underscored the need to design the public engagement strategy so the message, communicator and method of communication can be adjusted to the needs of specific stakeholders. The presenter from Ireland described the stakeholder engagement activities in a 'non-nuclear' country. The presenter talked about Ireland's stakeholder engagement panel, which brings together different government agencies and bodies in a comprehensive approach. The presentation also outlined how Ireland incorporated feedback from focus groups and other discussions to develop a robust strategy of methods to establish and maintain engagement, and to expand engagement between industries. The presenter from Ghana outlined the importance of identification of both internal and external stakeholders and summarized the internal and external chains of command in communication, the modes of communication and the routine engagements that are necessary to maintain a relationship with stakeholders.

The speaker from India emphasized that effective relationships with stakeholders, careful attention to the use of terminology, and employing a "listen-talk" approach are the keys to success for an EPR program. Suggestions for successful engagement with stakeholders included involving students and educational institutions by integrating information on radiation in curricula and encouraging the public to visit nuclear power plants and relevant exhibitions.

The presenter from the USA concentrated on the challenges for effective public communication arising from natural disasters. The presentation covered the different types of natural disasters, the impact of some recent natural disasters on nuclear power plants and the associated public communication efforts.

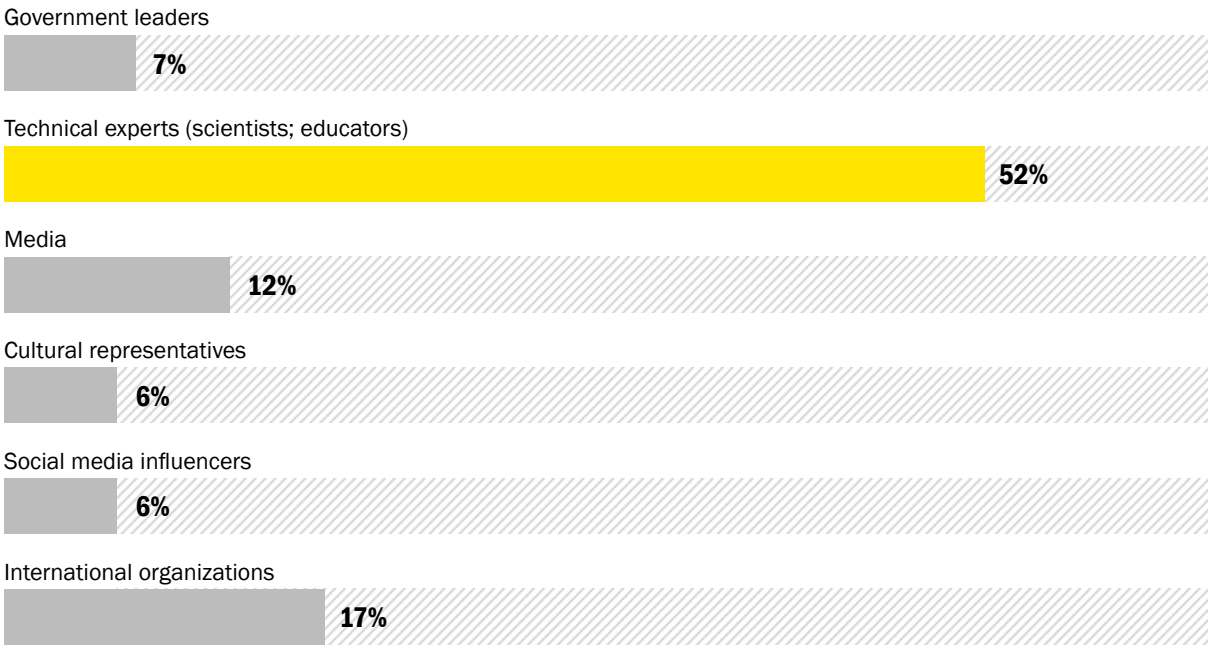
DISCUSSIONS

During the discussions, the presenters highlighted how important it is to identify the relevant stakeholders in order to engage them during routine communication, and not only in the preparedness and response to a nuclear or radiological emergency. It was also underlined that creating good cooperation with identified stakeholders can support efforts to communicate in a nuclear or radiological emergency. Presenters elaborated on their experiences, best practices, and strategies to engage with stakeholders and advance communication in multilingual societies.

SLIDO POLL

What information source is the most trusted by stakeholders in your country?

126 USERS



KEY POINTS FROM SESSION 2:

Participants encouraged public communicators in Member States to develop public communication plans that are tailored to the needs of stakeholders, including catering to their specific concerns and information needs.

Presenters described the need for a long-term strategy to engage stakeholders, noting that different approaches are needed for different groups.

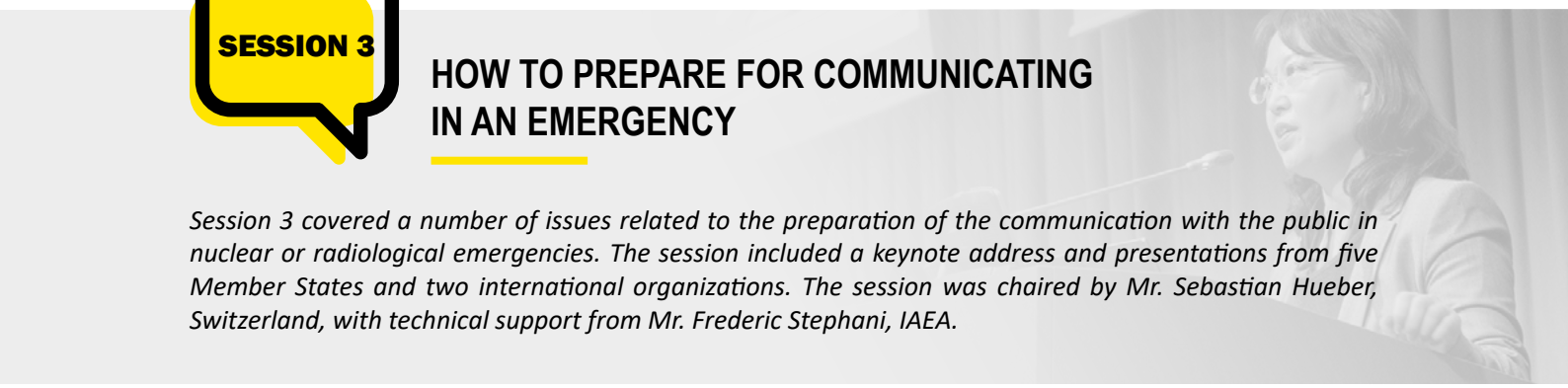
Engagement with stakeholders and addressing multilingual societies through a team approach is important to the success of EPR.

Stakeholder engagement requires the use of different forms of commuication for different audiences, therefore communicators need to be sensitive and alert to adjust strategies.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

SESSION 3

HOW TO PREPARE FOR COMMUNICATING IN AN EMERGENCY



Session 3 covered a number of issues related to the preparation of the communication with the public in nuclear or radiological emergencies. The session included a keynote address and presentations from five Member States and two international organizations. The session was chaired by Mr. Sebastian Hueber, Switzerland, with technical support from Mr. Frederic Stephani, IAEA.

The keynote address, delivered by a speaker from OECD NEA, looked at communication needs both immediately after and in the weeks following a crisis, and gave insights into the efforts required in the preparedness phase to meet those communication needs. Developing communication procedures and templates for the short and long term must be created with empathy for the audience and with a global communication approach. The presenter emphasized the need for an all-hazards approach and the importance of learning from non-nuclear crises.

Presentations were made by speakers from the Netherlands, Singapore, Argentina, the IAEA, China and the UAE. The presenters from the Netherlands and Singapore used examples of specific communication efforts in the preparedness phase. In October 2017, the Netherlands pre-distributed iodine tablets for 1.2 million people within a radius of 100 kilometres of five nuclear power plants. The distribution was supported by a communication campaign, using “on the doormat” communication and social media to respond to several thousand questions. The speaker from Singapore described the efforts undertaken by the University of Singapore to raise awareness of radiation among students. They offer a ‘Radiation and Society’ course that includes seminars with professionals and visits to nuclear installations. The presentation concluded that students can better understand the technology when they are exposed to knowledge in the field.

The presenter from Argentina provided recommendations on preparing for emergency communication based on case studies of communication strategies during the planning of a new nuclear power plant. They also looked at lessons learned from the Goiânia accident. Some recommendations included ensuring a constant flow of information, having one designated spokesperson and raising public awareness by educating school-aged children.

The speakers from China and the UAE gave summaries of the arrangements they have in place to better prepare the population for nuclear or radiological emergencies. The presenter from the UAE summarised their National Media and Communication Plan and described how they have built up public perception and awareness through identifying advance messages to be delivered, using the proper channels and conducting emergency exercises and drills. The presenter from China provided information on their efforts to establish an accident reporting system and an enhanced information release system, with the goal of creating a national platform for information exchange during a nuclear emergency.

The IAEA presentation covered the Agency’s collaboration with the Fukushima Medical University. The goal of the collaboration is to enhance understanding of the nuclear and radiological risks among all stakeholders: local residents, journalists, community advocates, technical experts, etc. To meet this goal, the Fukushima Medical University designs its curricula with science, technology and society modules that deal with various topics such as public risk communication, psychosocial consequences of radiation anxiety and decision making for radiation disasters.

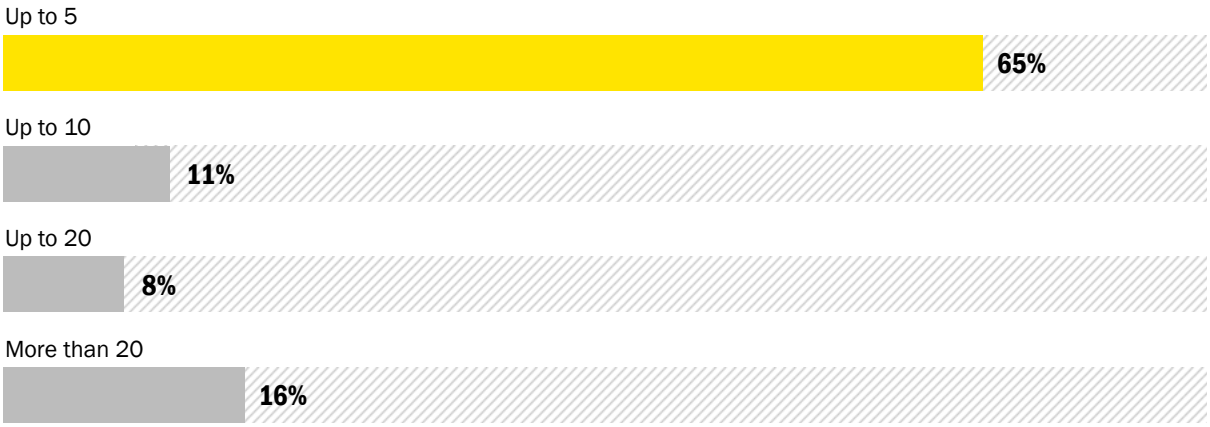
DISCUSSIONS

During the discussions, it was underlined that risk communication is an opportunity to engage with all stakeholders. In the preparedness phase, success in risk communication comes from good planning, good timing and the involvement of all stakeholders. A communication plan should be prepared not only by the operator or the regulator, but with the involvement of all actors. The panellists explained that the general public fears what it does not understand. Therefore, efforts have to be made in schools to provide learning opportunities to everyone from an early age.

SLIDO POLL

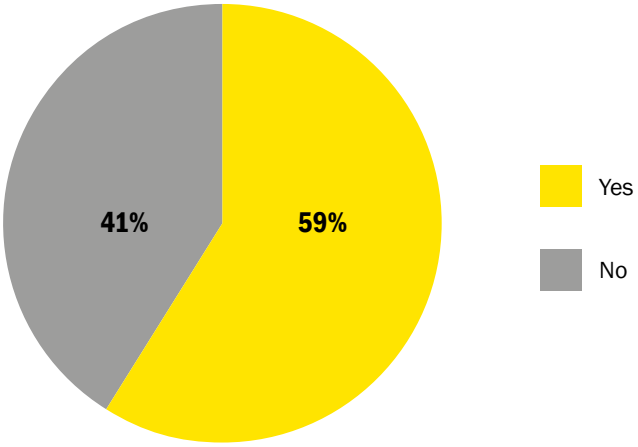
How many communication experts do you have within your organization to deal with an emergency?

120 USERS



Do you foresee Artificial Intelligence to take any role in crisis communication?

100 USERS



KEY POINTS FROM SESSION 3:

- Social media should be seen as a proper crisis communication tool.
- Good timing and involvement of all stakeholders are keys for success in being well prepared for crisis communication.
- Proper communication campaigns and training about radiation risks can reduce anxiety by enhancing a fact-based understanding about the risks presented by radiation exposure.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

SESSION 4

LANGUAGE FOR EFFECTIVE COMMUNICATION

Session 4 on language for effective communication covered a number of issues related to communication with the public in nuclear or radiological emergencies. The session included five presentations and one keynote address from a total of six Member States. The session was chaired by Mr. David Owen, UK, with technical support from Ms. Lenka Dojcanova, IAEA.

The keynote address, delivered by a speaker from Japan, focussed on risk communication and the role of the medical professionals. The speaker presented the results from the Fukushima Health Management Survey and discussed citizens' misunderstanding of radiation effects and public mistrust. The presentation touched upon the issues of communicating radiation risks to Fukushima citizens and the best ways to explain risks, including those that may arise from a significant change in lifestyle as a result of the Fukushima Daiichi Accident. The presenter also highlighted that medical professionals often do not feel confident in speaking about radiation and its effects and that this is a challenge that needs to be addressed.

Presentations were made by speakers from Nigeria, Austria, Argentina, Egypt and the USA. The presenter from Nigeria gave examples of mass media and traditional communication tools and methods used in communicating and responding to nuclear and radiological emergencies in the country. The presenter also discussed the use of digital tools and concluded that the way in which information is transmitted should reflect the communication tools used in the country in question. In Nigeria, polls have shown that WhatsApp and Facebook are the most commonly used communication channels, therefore this should be taken into account when transmitting information pertaining to an emergency. Similarly, the presenter from Argentina gave examples of their national approach. They presented the information products created by the National Regulatory Agency and how they use the active voice, personal pronouns, clear designs and visuals to communicate clearly and in a relatable way.

The speaker from Austria discussed the different roles in the communication process, i.e. the modifier (media), the receptor (the public) and the emitter (a radiation protection professional). The presenter provided useful tips about language clarity and suggested alternative and more positive ways of explaining radiation effects. The presenter from Egypt presented on how communication and human psychology could be integrated in a systematic way into EPR programmes, and how a structured approach can improve communication at the individual and public level. The speaker from the USA covered the issue of heuristic approaches to understanding public perception. The presenter highlighted possible ways of mitigating "radiological heuristics", suggesting for example that the use of emotive words when describing protective actions will result in more positive responses.

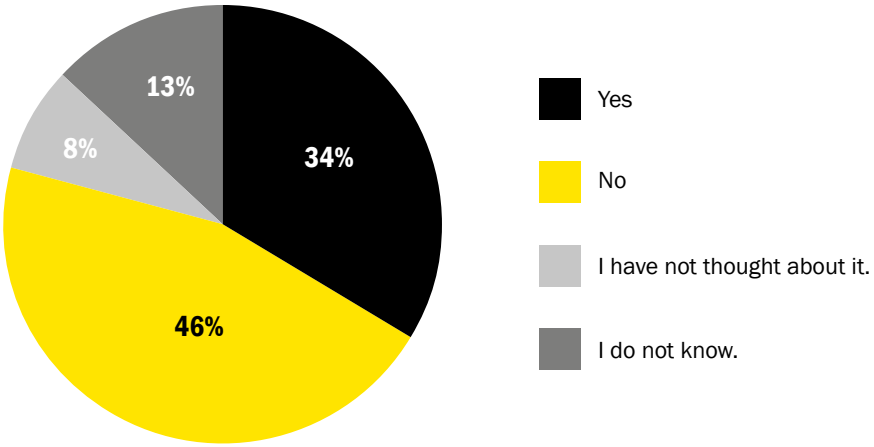
DISCUSSIONS

During the discussion, it was underlined that messages need to be targeted to specific audiences. Presenters noted the fundamental difference in public perception of nuclear-related events, natural disasters and other commonly perceived risk situations. The discussion concluded that the public response is affective rather than data-driven and this aspect should be considered when developing communication programmes.

SLIDO POLL

Does your organisation seek feedback on messages before they are posted?

120 USERS



KEY POINTS FROM SESSION 4:

The presentations underlined the important role of language, specifically:

a. using a simple language and correct terminology;
b. using strong and simple visuals;
c. presenting interactive scientific facts;
d. using active voice and personal pronouns.

In the discussion, the speakers concluded that effective language is more than just what we write down or say, it is necessary to also use accompanying visuals to actively support the overall message.

Speakers agreed that there are challenges in explaining radiation and its effects using plain language. A solution to this is necessary to help maintain public trust in response organizations.

Plain language background materials should be prepared jointly by communicators and scientists, particularly radiation experts.

Any plain language background materials prepared should be translated into all relevant languages.

SESSION 5

PUBLIC'S PERSPECTIVE ON COMMUNICATION DURING AN EMERGENCY

Session 5 covered a number of issues related to communication with the public in nuclear or radiological emergencies. The session included five presentations and a keynote address from a total of four Member States and one international organization. The session was chaired by Ms. Marie-Pierre Bigot, France, with technical support from Mr. Kilian Smith, IAEA.

The keynote address covered how to work with the media to save lives in the event of a nuclear detonation. The presentation gave insights into the communication efforts of the USA during past events and the benefits of preparing simple, protective action-orientated talking points for communication with journalists. In addition, it highlighted the need for credibility and trust.

Presentations were delivered by speakers from the IFRC, Japan, Finland, the USA and the Russian Federation. The presenter from the IFRC alked about public awareness and public education for disaster risk reduction. The use of protective action-oriented key messages and the development of multi-hazard 'apps' to communicate emergency events was noted.

The speakers from Japan, Finland and the USA presented specific research that has been conducted within each country to support the strengthening of public communication. The presenter from Japan gave insights derived from the analysis of the contents of telephone inquiries from the public during the Fukushima nuclear accident. The findings highlighted trends in commonly asked questions at different stages of the emergency response, which can be used to understand what information the public prioritizes at different stages. The speaker from Finland presented the survey they conducted on radiation risk. They identified the importance and usefulness of visual communications and maps in public communication. Lessons from audience research on radiation emergency messaging was presented by the presenter from the USA. They highlighted the key findings from focus groups, and presented findings regarding message development, such as ensuring that messages have clear actions and are tailored for different environments and stages of the emergency.

The speaker from the Russian Federation presented the factors influencing the behaviour of the population in the case of a radiation accident. They highlighted the negative impacts of erroneous information and the stigma attached to residents living in the area affected by a radiation accident.

DISCUSSIONS

During the discussions, it was underlined that there is a need for multiple communication channels (telephone, TV, radio, etc.) during an emergency. In addition, the importance of focus groups in developing emergency messages was identified, as well as the acknowledgement that the content of communication messages evolves over time. The potential benefits of an international database of commonly asked questions and answers that could be useful during an emergency situation were identified.

KEY POINTS FROM SESSION 5:

Enquiries coming from the public should be analysed for learning purposes.

The potential benefits of an international database of commonly asked questions and answers that could be useful during an emergency situation were identified.

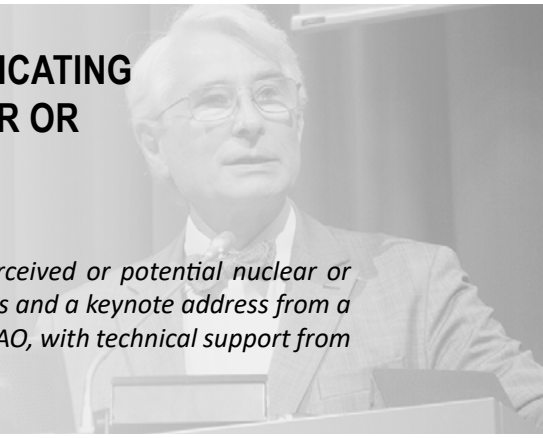
The panellists highlighted the importance of focus groups to help formulate effective emergency messages.

There needs to be close collaboration between scientists and public communicators in developing emergency communication messages.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

SESSION 6

LESSONS LEARNED FROM COMMUNICATING PERCEIVED OR POTENTIAL NUCLEAR OR RADIOLOGICAL EMERGENCIES



Session 6 covered issues related to communicating with the public in perceived or potential nuclear or radiological incidents or emergencies. The session included six presentations and a keynote address from a total of six Member States. The session was chaired by Mr. Carl Blackburn, FAO, with technical support from Mr. Mark Breitinger, IAEA.

The keynote address, delivered by a presenter from France, was about 'Opinion Generations' and the generational shift in the perception of risks and crises. This concentrated on public opinion as a demographic phenomenon and how opinions of people and populations evolve over time. The presenter examined 75 years of public opinion research from France and Western Europe, suggesting that, by the age of 15, individuals establish core values and these collectively mark the generation. Looking towards the next generation, the presenter said that 2050 may be the time of "chiefs". This would constitute a time when people look to power and the ability to direct and influence in an environment where people strive for a sense of belonging and inclusion, while having high and long-term ideals. The transition of the opinion generations provides a framework for understanding how opinions and ideals evolve. Communicators and those dealing with opinions related to "nuclear" need to be aware of the context and nature of changing collective opinions that are shaped by generational changes, influenced particularly by demographics and critical events of a particular time period.

Presentations were delivered by speakers from Bangladesh, Belarus, France, Japan, the USA and Viet Nam. The presenter from Viet Nam described several events to illustrate communication arrangements, including an incident at a research facility, a steel production company and also the discovery of an orphaned source. Lessons learned from dealing with minor "non-nuclear" incidents include the need to improve notification processes,

enhance nuclear emergency communication channels to include the reporting of minor events and facilitate information sharing. The speaker from Bangladesh presented their national communication approach with reference to an incident involving a radiation source in scrap metal. The findings from post-incident analysis studies were presented. Recommendations on how communication could be improved included taking advantage of government social media accounts to reduce rumours and using social media and print media to gauge public responses to official messaging.

The speaker from Belarus presented its system of public communication during nuclear or radiological emergencies. They explained that effective utilisation of different communication channels to inform the public involves building relationships with key communicators, including traditional media as well as online publishers, social networks and purveyors of rapid electronic communication tools. The presenter from the USA provided information on their approach to public communication using a 'Nuclear/Radiological Communication Working Group'. Establishment of a Communications Working Group spanning local and national government, as well as representatives from academia and professional organizations, has promoted efficient communication strategies. It has allowed for the development of "products" to support public communication, for example pre-scripted messages, model question-and-answers, guidance, resource documents, infographics and videos.

The speaker from Japan presented the specific circumstances in communicating with, and addressing the concerns of, people who had undergone thyroid cancer screening after the Fukushima Daiichi nuclear power plant accident. The communication strategies for different population groups were outlined and the constructive contribution of community meetings and special classes for school children was emphasized.

The presenter from France concentrated on their experiences during the 2017 turbine hall fire at the Flamanville nuclear power plant. The case study illustrated a number of lessons learned from a non-nuclear incident at a nuclear site. The presenter stressed the importance of communicating during any nuclear-related event, since any limitation in providing information could result in an increased public perception of risk.

DISCUSSIONS

During the discussion, the presenters were asked for suggestions on mitigating the effects of misinformation during perceived nuclear and radiological emergencies. The presenters suggested using official channels for distributing information, such as the social media accounts of governments and/or regulators. They stressed the importance of building trust with the public at the preparedness stage, so that in the event that messaging is needed, the public will seek out official sources as the credible distributor of information and trust these sources when they refute false information published elsewhere. Finally, they stressed the importance of communicating facts and continuing communication, even if there is no new information, to help alleviate the public's risk perception that grows when communication ceases.

KEY POINTS FROM SESSION 6:

Opinions are shaped by generations, demographics and critical events. Communicators and those dealing with opinions related to nuclear must use this information to place their messaging in the appropriate context.

Perceived or potential emergencies are a chance to learn more about the public's needs and responses and use the lessons to craft communication strategies.

Clear and plain language that puts a hazard into perspective and relays reliable information also builds trust, allays fears and helps the public to avoid taking unwarranted actions.

There is a necessity for Member States to have arrangements in place for effective communication with the public during nuclear or radiological emergencies prior to an emergency or a perceived emergency taking place.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

SESSION 7

VOICE OF LOCAL OFFICIALS AND FIRST RESPONDERS IN COMMUNICATING DURING AN EMERGENCY

Session 7 covered a variety of important issues related to effective and efficient communication with the public by local, regional and national officials during nuclear or radiological emergencies. The session included five presentations and a keynote address from a total of six Member States. The session was chaired by Mr. David Castelveter, USA, with technical support from Mr. Stefane Defour, IAEA.

The keynote address was delivered by a presenter from Israel and concentrated on the communication strategy for crises. The presenter provided general insights on national communication objectives and practices. The presentation emphasized the importance of consistency in messaging among officials, from the highest level of authority to those at a local level. The presentation also highlighted how challenges identified during emergencies have been developed into tangible training opportunities.

Presentations were delivered by speakers from Japan, the USA, France, Canada and the UK. The presenters from the USA, Canada and the UK highlighted specific actions being taken at the local level to improve emergency communication. The speaker from the USA presented crisis communication processes at the county level, where the presenter emphasized the need for ongoing training of spokespersons and press officers, emphasizing the impact of facial expressions and body language. The presenter from Canada presented their guidelines for Emergency Information Centres (EIC), taking into account the diverse nuclear communities within the country. These EICs, which are community based, ensure provision of prompt, coordinated local information about a nuclear emergency by disseminating information to the public and media. One specific feature is the scalability

of the EICs to adjust to an evolving situation. The speaker from the UK offered insights into the hazard-related specificities of the city of Plymouth. Solutions that have been effectively implemented were highlighted, including a dedicated emergency and mass notification system. This process assists in meeting the need for speed in the dissemination of information.

Turning to other local actions which help to strengthen the public's confidence in the authorities after an emergency situation, the Japanese speaker presented the role of the municipal food inspection system in the Fukushima Prefecture. The food inspection system's radioactivity testing of food was established after the Fukushima Daiichi nuclear power plant accident. Communication between authorities and residents and the verifiable effectiveness of this critical initiative were discussed.

Finally, the speaker from France presented feedback the IRSN collected on their communication to the public following the 2017 detection of increased levels of Ruthenium 106 in Europe. The presentation emphasized the commitment of IRSN to their public communication objectives: to deliver early and accurate public messages. They identified trends which showed that the media understood the communication from the IRSN, but they also identified gaps related to social media.

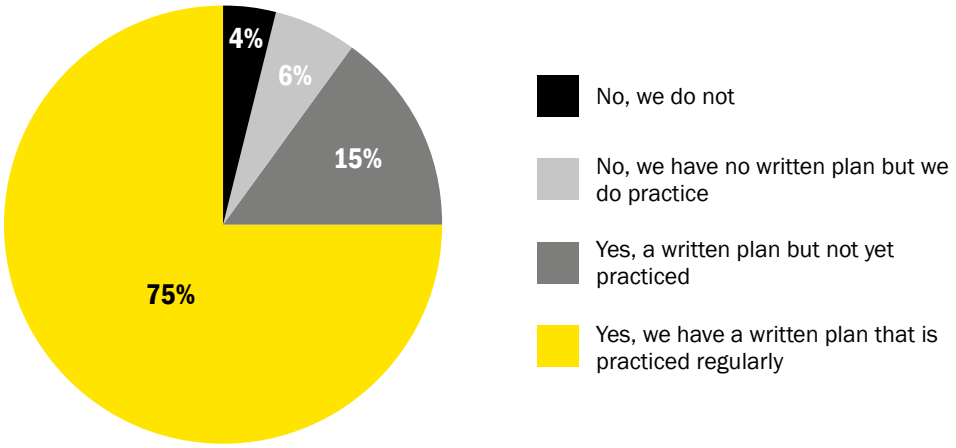
DISCUSSIONS

During the discussions, it was underlined that in emergency communication message integration and consistency must be the top priority. Presenters also agreed that it was essential to carefully distinguish facts from misinformation, in order to bolster public trust and confidence. The need for advanced preparation of written responses and simulation of emergency scenarios was highlighted. It was affirmed that the use of all available social media tools in direct audience engagement is important.

SLIDO POLLS

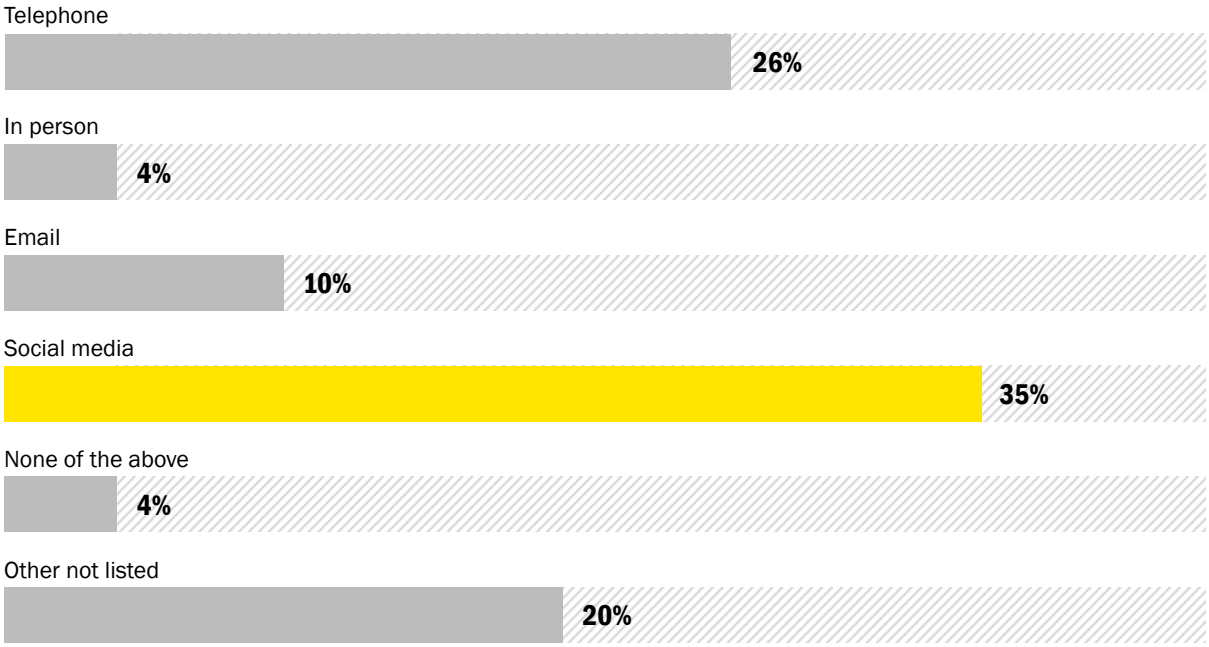
Does your organization have a written and practiced plan for emergency response?

89 USERS



What communication method is the top priority for your organization during an emergency?

96 USERS



KEY POINTS FROM SESSION 7:

Participants addressed the need to establish local and national processes and procedures for effective communication with the public during nuclear or radiological emergencies.

Participants highlighted the need for preparedness and consistency of messaging for all stakeholders — from local officials to national authorities.

Participants discussed the significant role played by social media in delivering information at a local level.

Participants agreed on the importance of prompt action when delivering the messages at a local level.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

SESSION 8

HOW TO ANSWER THE QUESTION "AM I SAFE?" IN AN EMERGENCY?

Session 8 covered a number of issues related to communication with the public in nuclear or radiological emergencies when it is necessary to answer the question "Am I safe" or to increase the public perception of safety in the event of an emergency. The session included five presentations and a keynote address from a total of five Member States and one international organization. The session was chaired by Ms. Ann Heinrich, USA, with technical support from Ms. Katerina Kouts, IAEA.

The keynote address was delivered by a speaker from Argentina and covered examples of the use of improper language and discussed whether this was the main cause of miscommunication and misunderstanding in nuclear and radiological emergencies. The keynote address included an analysis of why communication has not always been effective in the past and analysed how language and terminology has been used historically. The keynote also presented a comprehensive study of the word "risk" and the challenges of using it.

Presenters from the Russian Federation, Japan, the USA, Portugal and the IAEA gave presentations.

The speakers from the Russian Federation, Japan and the IAEA presented communication related to health effects. The presenter from the Russian Federation gave the challenges in communicating health risk issues to the public, highlighting the fact that the risk communication from the decision-makers impacts public perception of risk. The presenter warned that historically nuclear emergencies have occurred approximately every 25 years, meaning that decision makers in the previous emergency have retired and the next generation faces the event without experience. The speaker from Japan presented how to ensure effective communication without using the term 'effective dose'. The presenter gave a clear description of the many variables experts consider when using the term 'dose' and explained how members of the public process the term in relation to their own health. The presenter concluded that affected people should be well-informed about potential health effects and that this communication should be tailored to the individual.

The IAEA representative provided examples of how inappropriately addressing the primary public concerns in past nuclear or radiological emergencies led to unwarranted actions being taken by decision makers and the public, ultimately doing more harm than good. It was stressed that any technical information on radiological health hazards that is provided to the public must be put into perspective in EPR. The Agency is actively supporting Member States by addressing this issue through the development of relevant safety standards and EPR publications. Finally, the presenter showed an example system that can be used at the national level to support the development of easily understandable and simple messages to be disseminated to the public that confront questions about potential health effects and provide an answer to the question "Am I safe?".

The speaker from the USA gave insights into understanding and overcoming communication gaps in a crisis, noting that communication professionals need to investigate these gaps to be effective in their role. The research has identified three gaps; messaging, trustworthiness and access to information sources. In addressing these disparities, steps will be taken to increase public understanding of radiation and safety.

The presenter from Portugal explained the human psychological response to a threat. Through a theoretical analysis of radiation risk history, the presenter showed how the public's radiation risk perception has changed since the discovery of x-rays to the present day.

DISCUSSIONS

During the discussions, questions surrounding the use of the word "safe" were raised.

The speakers on the panel emphasized that messages given to the public need to be simplified to provide advice on what actions can be taken to keep themselves safe. It was important to ensure that what is communicated to the public with the public is commensurate with the actions taken by the authorities, as these actions can influence the public's perception of risk.

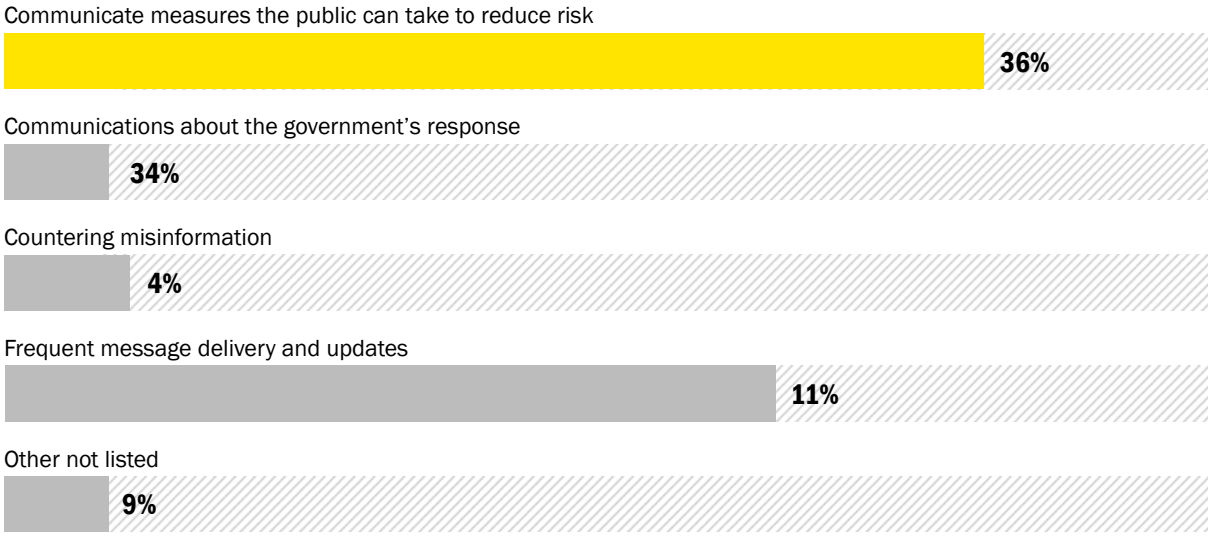
Presenters agreed that it will be difficult to change the scientific terminology that has been established over decades, but it is important to work together to find solutions for clear and simple communication with the public. The development of a common and harmonized approach towards language, including a set of definitions that are understandable to everybody, can contribute to possible solutions. Continuing to educate all those involved in communication to the public in the event of a nuclear or radiological emergency (e.g. national and local authorities) is also essential.

The panel summarized the practical ways of effectively answering the public and the media's question, "Am I safe?". The panellists also discussed the long-term strategies for making progress in this area, including the importance of educating the public, the authorities and other stakeholders. It was underlined that effectively educating the public about risk can be one of ways of answering "Am I safe?". The panel agreed that tangible actions must be taken, for which we already have a good technical basis from past lessons learned. One action that can be taken was for Member States to implement the upcoming IAEA Safety Guide on Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency (DS475) which contains a system for putting radiological health hazards in perspective.

SLIDO POLLS

What would you emphasize to increase public's perception of safety during a nuclear or radiological emergency?

126 USERS



KEY POINTS FROM SESSION 8:

In the discussion, participants underlined the important role of appropriate language and terminology when communicating to the public in nuclear or radiological emergencies. This language has to be simple and easily understandable and has to facilitate answering the question “Am I safe? “. The audience was in agreement that this requires joint cooperation by different communities to ensure a coherent message is delivered which builds on lessons learned at the international level.

There is a need to better convey what is actually known about radiation at very low levels. The draft IAEA Safety Guide on Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency (DS475) provides guidance on communicating about these low levels.

Speakers agreed on the need to improve the education of the public, authorities and others involved in response on radiological health hazards.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

SESSION 9

LESSONS LEARNED FROM COMMUNICATING IN NUCLEAR AND RADIOLOGICAL EMERGENCIES OF VARIOUS ORIGINS

This session addressed communications lessons learned and best practices from nuclear and radiological emergencies of various origins, e.g. medical overexposure, nuclear security event, natural disasters, transport events. The session included five presentations and a keynote address from a total of six Member States. The session was chaired by Mr. David Castelveter, USA, with technical support from Mr. Philip Vilar Welter, IAEA.

A speaker from the Netherlands delivered the keynote address on communication strategies and their dependence on risk perception. The presenter introduced the idea of the ‘Perception Paradox’, which describes the misalignment of public perception and expert assessments of the risks posed by an activity. Studies have shown that there are four factors that affect how the public perceives risk: how much they know about it, how much they fear it, how much trust they have, and social factors. The presenter outlined a toolbox of potential intervention activities to address public risk, and discussed their effectiveness and capacity to shift public perception. He concluded by explaining risk communication methods adopted in the Netherlands with regard to nuclear energy, which include increased stakeholder involvement and creating a web portal for public education.

The presenter from Japan summarized the past experience and foreseeable issues in effective communication during an evolving emergency, focusing on the experience from the 2011 Fukushima Daiichi nuclear power plant accident and how the accident was rated on the International Nuclear and Radiological Event Scale (INES).

The presenter from France addressed the national experience in communicating nuclear and radiological emergencies, particularly focussing on the radiotherapy accident in Epinal, France, and the related public communication challenges.

The presenter from the UK gave views on the realities of communicating with the public during a transport emergency, highlighting the additional challenges when compared to emergencies at fixed installations.

The speaker from Canada presented their lessons learned in emergency communications from various radiation exposure situations, including existing and planned exposure situations, and how the Integrated Fukushima Ocean Radionuclide Monitoring Network and the National Radon Program has been instrumental in communicating with the public.

The presenter from the USA offered insights into the challenges associated with communicating catastrophic weather events. The presentation also discussed "near misses", emergencies that have the potential for significant safety impacts, such as hurricanes and earthquakes, and ones that could foster significant public and media attention.

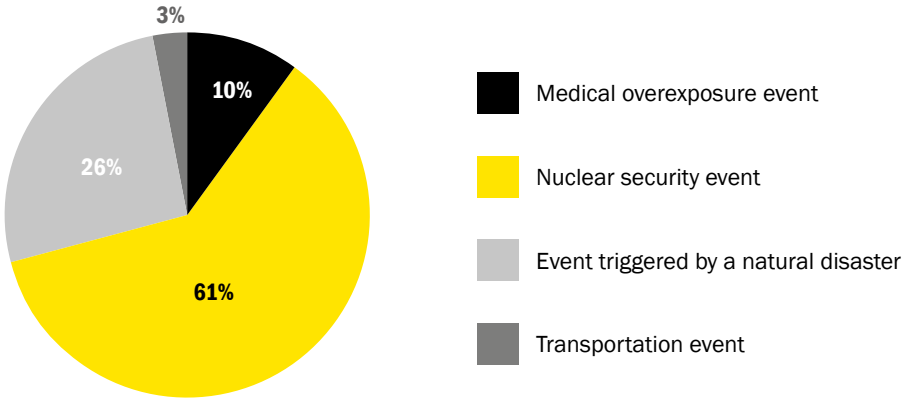
DISCUSSIONS

During the discussions, the panellists highlighted significant lessons they had learned over their careers. They discussed the importance of robust emergency communication in the preparedness phase, as building trust and educating the public before an emergency is essential in building the public's improved understanding of emergency situations. Communicators should also be creating relationships with management and technical staff in their organization. Regular exercises with communication components were suggested as a way to improve relations within an organisation, and with the media and public. The panellists discussed the role of innovative communication methods, such as movies or games, in the context of emergency preparedness and radiation awareness. However, they emphasized that, to clearly acknowledge public concerns during an actual emergency, the proven and standard methods of communication should be used.

SLIDO POLLS

Of the four nuclear or radiological emergencies mentioned in the title of this session, which do you believe would attract the most attention from the public?

80 USERS



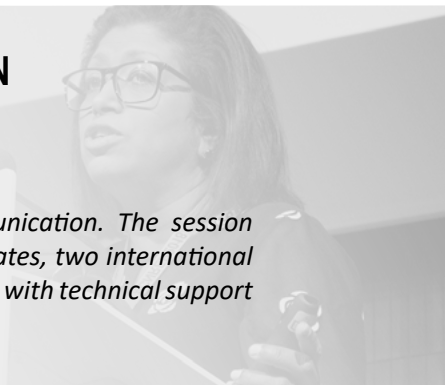
KEY POINTS FROM SESSION 9:

- Public communication arrangements must address challenges in medical overexposure cases, especially if many people are overexposed.
- Public communication arrangements need to be in place for all emergency preparedness categories and must include transport accidents, not only fixed installations.
- There is a need to prepare public communication arrangements for events that are perceived to be emergencies but have no safety implications.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

SESSION 10

TOOLS AND TECHNIQUES: INNOVATIONS IN EMERGENCY COMMUNICATION



Session 10 covered issues related to the use of innovative solutions for communication. The session included five presentations and a keynote address from a total of three Member States, two international organizations and one company. The session was chaired by Ms. Kaisa Raitio, Finland, with technical support from Mr. Joseph Chaput, IAEA.

A speaker from the WHO provided a keynote address on the challenges for communicating risk in modern times. The presentation emphasized the importance of effective communication in all emergencies, drawing parallels with events such as the recent outbreaks of the Ebola virus, and how this has a distinct impact on all emergency response operations. The need to establish trust with the audience, release information frequently and acknowledge both what you know and what you do not know when engaging the audience in two-way communication was highlighted. It is also necessary to implement measures in a public communication strategy to address overcoming the reluctance, refusal and resistance to messaging.

Speakers from Turkey, the USA, France, the EC and SAFECAST delivered presentations.

The presenters from Turkey, SAFECAST and France offered different examples of innovation in public communication. The speaker from Turkey concentrated on the role of women in the development of effective nuclear risk communication. The organization 'Women in Nuclear Turkey' designed and initiated a risk communication project called NUKOM based on the work undertaken by female nuclear scientists in Turkey. The project highlighted the importance of cooperation amongst women for effective public nuclear risk communication issues and that risk communication must be incorporated at the planning stage for nuclear power plants. The representative from SAFECAST presented the innovations offered through citizen participation. The presentation covered engagement with citizen scientists in the measurement of radiation levels which could impact public communication during a nuclear or radiological emergency. The presenter said it was important for governments to allow citizen scientists access to certain restricted areas to further reinforce the openness of information sharing with the public. It would also help to establish and maintain public trust as credible third-party verification serves a vital need. The speaker from France presented insights from innovative approaches developed in post emergency situations and how to engage populations living in contaminated territories. Addressing people at the local level and recognizing that regionally specific concerns will arise during an emergency are important elements of an effective public communication strategy.

The speaker from the USA presented on the importance of effective communication about medical implications after nuclear and radiological emergencies. The presenter said that 'telling your audience' what to do is not the same as 'explaining it to them', the latter being the more effective approach. The necessary collaboration with partners around the world to share lessons learned and gain further perspective on the issues was also stressed.

The representative fo the European Commission provided a presentation on the European Union (EU) Common Framework and Tools for public communication during a nuclear or radiological emergency. The presentation covered the role of the European Community Urgent Radiological Information Exchange (ECURIE) system and the European Radiological Data Exchange Platform (EURDEP) network for sharing information throughout the EU.

DISCUSSIONS

During the discussions the panel was asked a general question on methods and ways to handle data and how to ensure public trust during an emergency when this data is available. An emergency plan should include how to address the vulnerability of society to misinformation. Adapting the message to the local views and needs was highlighted. The differences in the types of audiences and their unique concerns was discussed. This included knowing and understanding regional views, such as trust of the media, scientists and local, national

and international authorities. The presenters also agreed that it was a challenge to translate assessment and prognosis information (which may not be certain) into a format that the public can understand and trust. The need for public communicators to pair with scientific experts was underlined.

The use of new technology to explain a nuclear and radiological emergency to the public was discussed by the panel. It was noted that innovative communication technologies can also result in unforeseen challenges.

KEY POINTS FROM SESSION 10:

Engaging with your audience in a two-way dialogue is important. New and innovative technology, such as social media channels, can help to support this dialogue.

The effective use of technology can support engagement of the public during preparedness and response activities. This includes targeting specific groups with unique concerns (e.g. pregnant women) to ensure those are specifically addressed.

The rapid evolution of modern technology has allowed an entire generation of citizen scientists to emerge and provide their voice during an emergency. The public communication strategy for nuclear and radiological emergencies needs to consider the concerns of these scientists and should plan to effectively engage them during an emergency.

New technology can support improved training of public communicators and first responders who also directly interact with public during an emergency. The emergency response community should continue to investigate new and emerging technologies which can be used to enhance awareness and improve public communication.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

PANEL A

EMERGENCY PREPAREDNESS AND RESPONSE EXPERTS AND PUBLIC INFORMATION OFFICERS: COORDINATED ACTIONS

Panel Session A covered a number of issues related to communication with the public in nuclear or radiological emergencies. The session included five presentations and a keynote address from a total of five Member States and one international organization. The session was chaired by Mr. David Owen, UK, with technical support from Mr. Vasily Kovtunov, IAEA.

The keynote address, delivered by a speaker from Finland, dealt with the role of communication in the system of protection. This keynote address underlined the need for authorities to understand their audience in order to spot the messages that are most likely to be misunderstood. It was not just about communicating radiation levels and doses. The message of the keynote was what needs to be said at all stages to all stakeholders.

The panel included speakers from Belgium, Indonesia, the IAEA, Australia and the USA.

The presenters from Belgium, Indonesia and Australia covered topics from a national perspective. The speaker from Belgium presented on the processes used nationally to plan for and implement crisis communication. They commence the work by making an analysis of the public's perception. The Belgian model uses this public perception analysis to craft the delivery of messages to the public. Indonesia presented on communication and coordination in a nuclear emergency. They showed their platform for coordination and highlighted its implementation at a national and international levels. The presenter from Australia described their multimodal approach to sending out warnings. They have a suite of traditional and modern methods to ensure they have different channels for different audiences.

The representative from the IAEA presented the process to coordinate effective international emergency public communication among multiple international organizations with diverse expertise ranging from public health to transport and humanitarian relief. The IAEA coordinates the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE). Among IACRNE's roles, it aligns its 18 international and intergovernmental participating organizations in developing coordinated public information to support an effective response to a nuclear or radiological emergency.

The speaker from the USA talked about the necessity of exercising public communication processes, and the importance of considering short and long-term communication in the preparedness phase.

Presenters highlighted how it can be effective to embed technical experts into public communication teams and vice versa. By ensuring that technical experts have a full understanding of the communication team, you can guarantee a more effective cycle of information.

DISCUSSIONS

During the discussions, it was underlined that preparedness tools such as a plain language briefing package or public statement templates with relevant technical information are only possible when Public Information Officers (PIOs) and EPR experts coordinate.

One panellist explained how communication was improved nationally when they changed the level of discussions during a response. The decision-makers in the boardrooms have been trained to no longer talk at a technical level but to consider the overarching issue of public safety in plain language. With this change, the PIOs, also present, were better equipped to craft messages in line with the common goal of public safety.

The panellists agreed that familiarization with emergency response procedures through continued exercises was essential. One panellist described how, in their country, they add a technical expert to communication teams in exercises but as a silent observer only. This permitted the technical expert to learn about communication processes and made for more effective 'Just-in-Time' training.

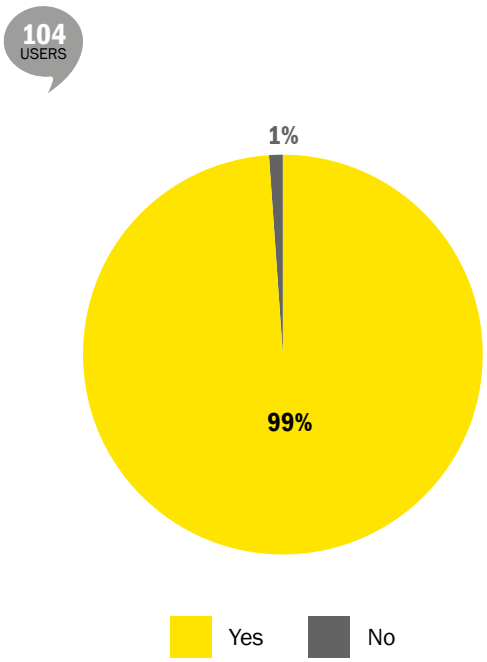
Panellists discussed the problem of trust between stakeholders, communicators and technical experts. It was important to ensure a steady flow of dialogue but still problems remain. Some organizations have considered how psychological expertise can be harnessed to improve communication. Behavioural scientists have been brought into organizations to follow exercises and it was a way to monitor the relationships that formed in a response and then adapt procedures to ensure better coordination. The panel pointed out that reference to 'technical experts' versus 'non-technical' was divisive for both responders and the public. The public accept and trust messages when they can better relate to the official communicator, which is a communication success factor that may be more influential than technical knowledge alone.

The panellists agreed that risk perception among team members, the EPR experts and PIOs, differ, which should be actively acknowledged and addressed by sharing expertise among the team members.

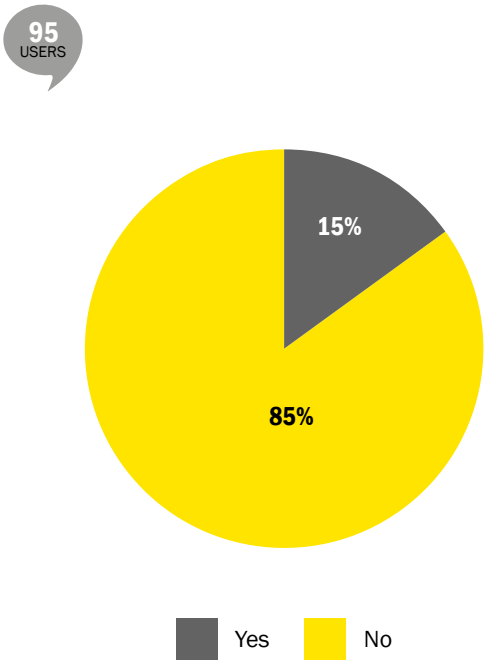
The participants discussed the need to gather data on communication impact. By establishing objectives, then using these to monitor and assess communication then the lessons learned can be distinguishable and quantifiable for technical experts.

SLIDO POLLS

Can the relationship between emergency response experts and public information officers be matured further to allow even more effective messaging to the public?

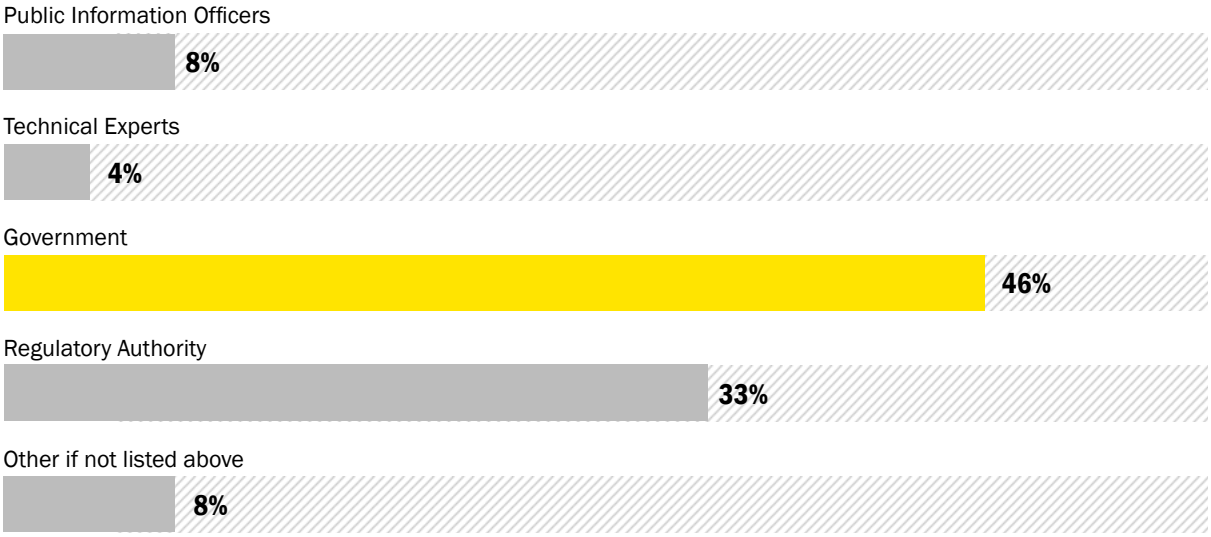


Has the nuclear industry restored public trust on nuclear power?



In your country, where does the spokesperson for nuclear or radiological emergencies come from?

97 USERS



KEY POINTS FROM PANEL A:

The panellists agreed that coordination between EPR experts and PIOs was especially important in the preparedness phase and particularly when designing preparedness tools, such as plain language briefing packages. This could be achieved through training and in joint focus groups on preparedness tools.

It was noted that exercises can help to develop the relationship between EPR experts and PIOs. This could include exercises where each role acts as a shadow in the other team to learn about the specific tasks processes and workload related to the role.

Organizations could introduce obligatory encounters with communicators to allow representatives from all other expert disciplines to understand public perceptions and public communication activities.

It was agreed that there was a need to amend language describing team member and differentiating between technical experts versus non-technical responders, which does not duly recognize that the non-technical responders are experts in their own fields. This was an issue of respect for the expertise of all those who contribute to an emergency response, while their understanding of other fields could be enhanced through training, participating in exercises and work shadowing.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

PANEL B

SOCIAL MEDIA IN AN EMERGENCY: OPPORTUNITY OR OBSTACLE?

Panel Session B covered the issues related to the use of social media for EPR in nuclear or radiological emergencies. The session included four presentations from four Member States. The session was chaired by Ms. Kaisa Raitio, Finland, with technical support from Ms. Sinéad Harvey, IAEA.

Representatives from France, Spain, Indonesia and the USA made presentations covering their national social media activities and the lessons learned.

The speaker from France presented their social media communications during the iodine-131 release in 2017. The presentation underscored the need to build a social media strategy to monitor, anticipate and manage a potential crisis. The presenter from Spain gave their experiences of using social media in emergency management for a nuclear regulatory body. The presentation centred on the use of social media as a method to listen to the public before communicating. The importance of communicating a unified message with coordinated actions during an emergency was also discussed. The speaker from Indonesia gave a presentation on the social media activities of the national regulator. The presentation summarized the general communications activities of the regulator and then offered practices for social media. The presenter discussed a strategy for reducing rumours on social media, including through the use of official spokespersons. The panellist from the USA presented best practices for social media. This included an overview of people's motivations to share content on social media, how to make social media posts more memorable and to avoid missteps.

Presenters highlighted the importance of challenging organizations' fear of social media to establish its use and ensure proper implementation in line with good practices. Panellists described their organizations' training to build staff awareness of the benefits of social media, while noting that continual training is necessary. It was pointed out that if an organization is not present in social media, then other actors outside the organization will fill the gap and the lack of message coherence could undermine response efforts. It is therefore essential for each response organization to establish and maintain social media engagement whilst paying attention to message consistency.

The panellists also discussed how to reach the largest audience, but underlined that it was important to define the intended audience. While the number of users who see organizational social media is relevant data, the level of audience engagement (i.e., the percentage of those who read and subsequently "like", comment or redistribute a post) is a much more meaningful statistic that provides an immediate measure of the post's effectiveness in reaching and motivating the audience to act on the post's message. The panellists agreed that research is necessary to undertake these evaluations, such as determining which platforms and posting strategies are most effective in reaching and enabling the engagement of different audiences.

The participants agreed that communicating via social media as soon as possible after an emergency was essential even if just to announce the organization's awareness of, and urgent response, to an emergency (e.g., the pre-approved initial statement). Early and frequent communication is also essential in maintaining the public's perception of the organisation as a credible and responsible institution. However, participants noted that it was essential to recognize that a commitment to social media outreach required in the preparedness phase a realistic estimation of the required resources.

The panellists discussed how organisational credibility can be challenged by the reach and popularity of a dissenting social media account. In the preparedness phase it is vital that the communicators develop a relationship with the media to ensure that the media can acquire and release the correct information. It is also important to build relationships with the audience by behaving and communicating empathetically.

DISCUSSIONS

The discussions highlighted the importance of using visual and audio content on social media. However, one

panellist cautioned that images can be easily and maliciously manipulated. Visual communication can also create risks since the chosen images can be misunderstood therefore decisions about the choice of imagery must be well-considered bearing in mind the possibility of misperceptions.

If after publication, an error in a message is recognized, then the communicators need to ensure accountability. The panellists agreed that acknowledging erroneous information in a published post should be understood as an opportunity to demonstrate honesty by publicly flagging and correcting the mistake, which will serve to strengthen the organization's relationship with its social media audience.

In order to find the balance between speed and accuracy the panellists also discussed the use of pre-approved initial statements on social media. This message offered a means to confirm that the organization is aware of an emergency, is currently engaged in verifying the facts and will update as soon as possible.

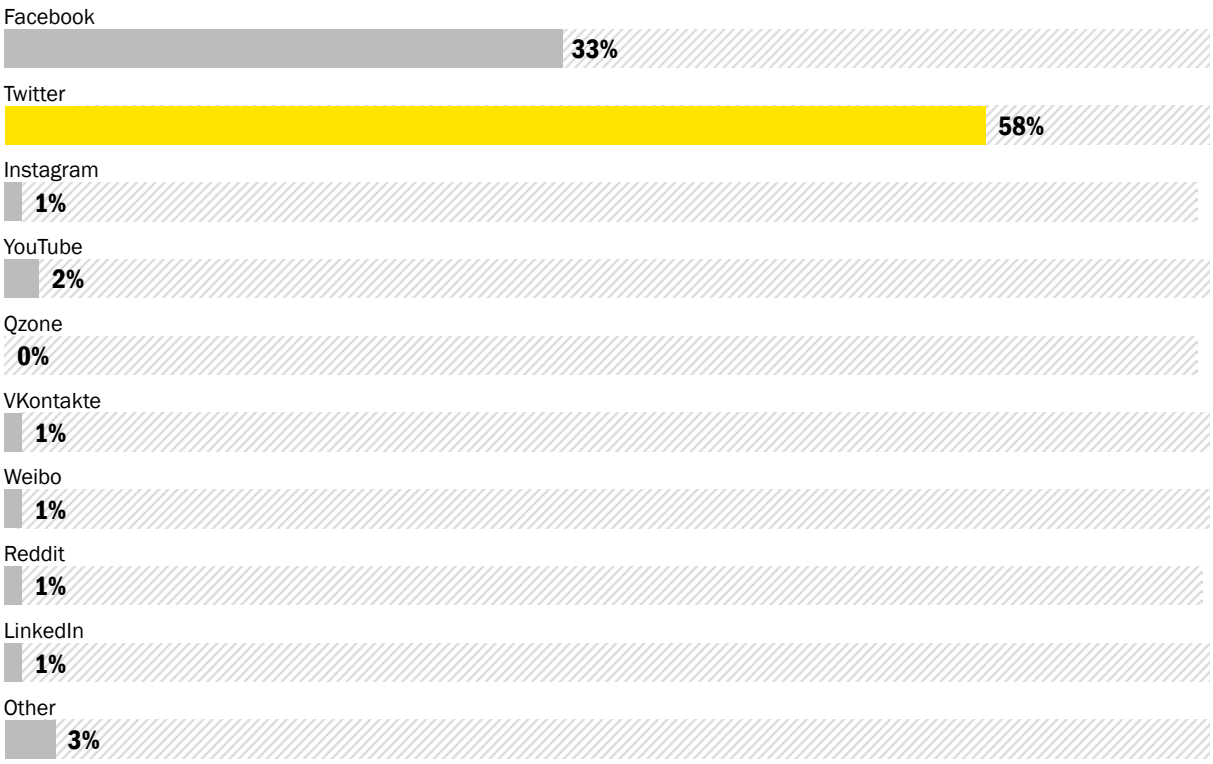
The participants were asked how they deal with the sudden and then sustained increase in the audience's questions posted via social media at the onset and during an emergency. They acknowledged that an effective response was resource-intensive and can be managed by prioritizing questions ("triage"). Further, effective monitoring and analysis of the social media audience's expressed information needs should shape messaging. As a result, questions can be anticipated and proactively addressed, thus reducing the number of questions. When addressing negative or offensive comments, it is most effective to offer first a calm, empathetic response, acknowledging the concerns, followed by fact-based information that may refute the assertion or concern, as well as to re-frame the issue to support a more accurate public understanding.

Questions posted by the Symposium participants on the interactive wall were also addressed during this session and included incorporating social media into emergency exercises. While the panellists did not all exercise with social media, all did train its use. Social media use in exercises ranged from including a hashtag to warn the public that a post is not real to using technology to simulate large numbers of posts. The participants urged response organizations to provide more opportunities to exercise with realistic social media "injects".

SLIDO POLLS

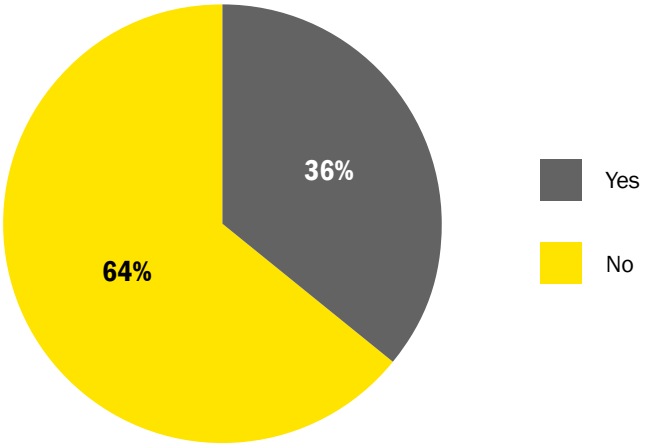
Which social media platform does your organization think is most effective in reaching the largest audience for emergency communication?

149 USERS



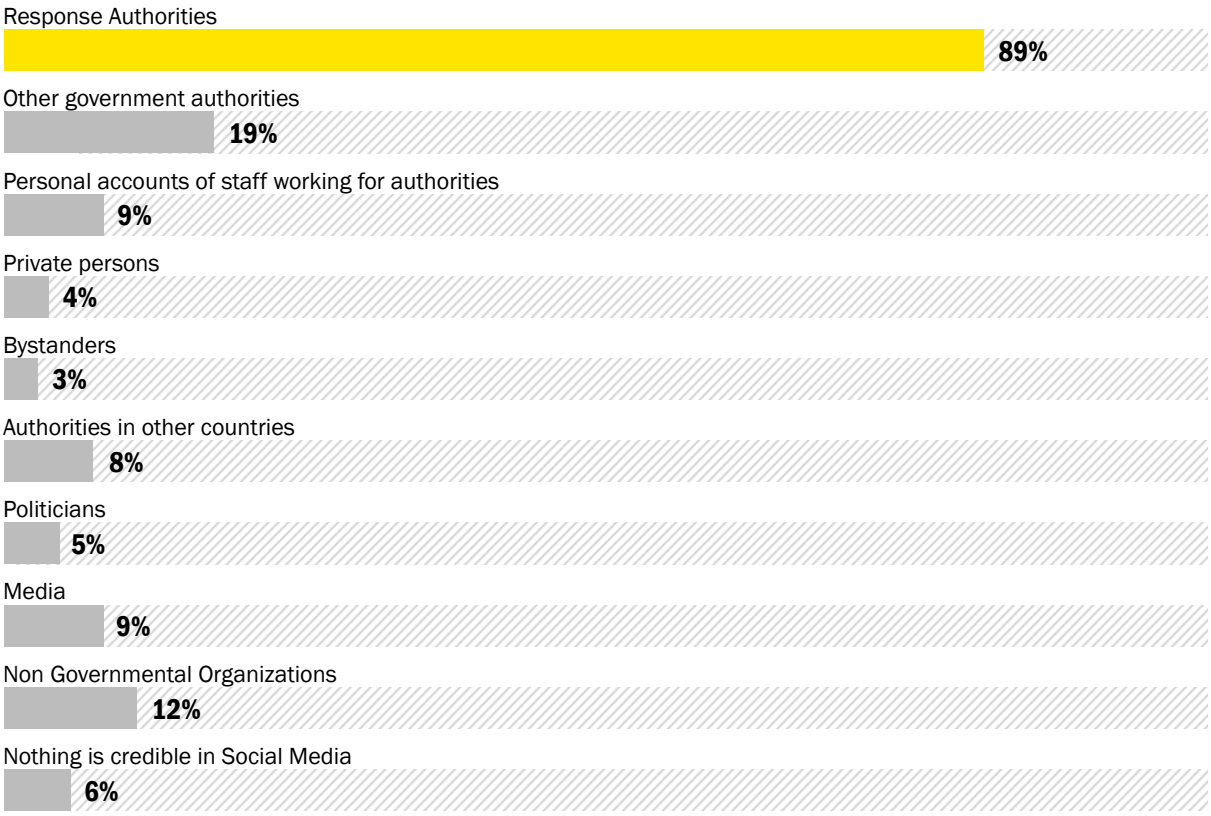
Are you allowed to communicate about your work-related issues on your personal social media accounts?

142 USERS



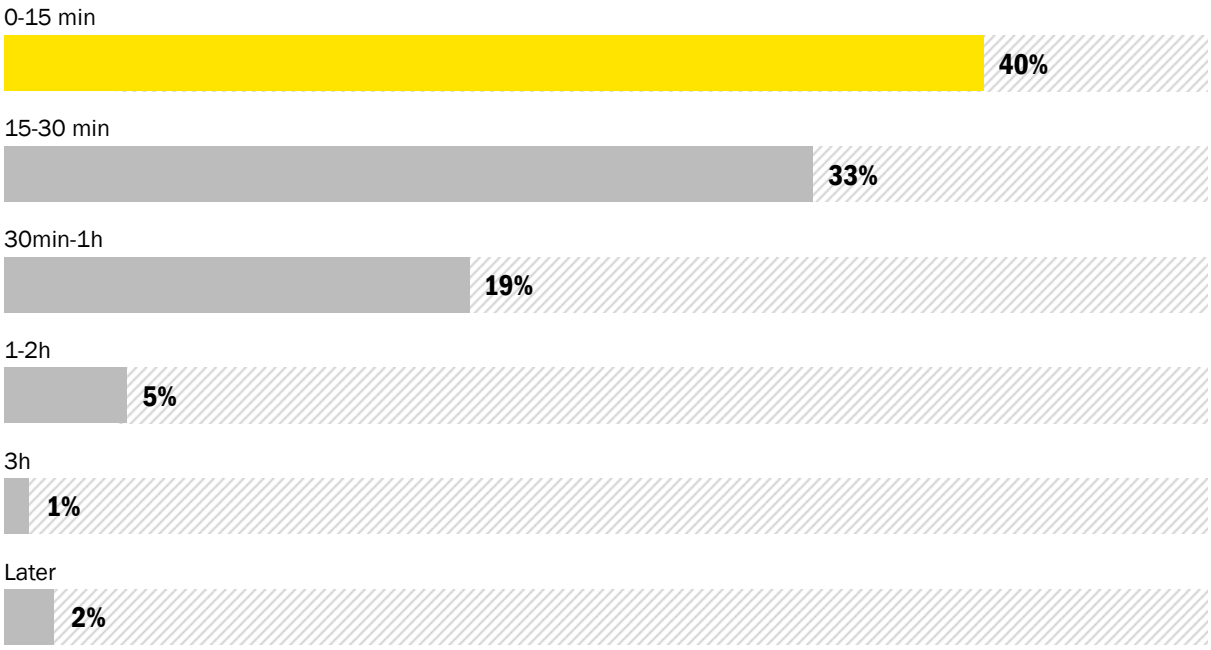
Who communicates credible information on social media during an emergency?

154 USERS



How quickly should response authorities communicate on social media from the beginning of an emergency?

159 USERS



KEY POINTS FROM PANEL B:

It was underlined that organizations must be encouraged to establish arrangements for a presence on social media platforms in the preparedness phase to ensure effective operational capacity in an emergency. This would include monitoring and evaluating the use of social media in the preparedness phase.

Panellists also agreed that there was a need for response organizations to have clear guidelines in place for the official use of social media and for the private use of social media platforms.

In the discussion, the participants welcomed the addition of a social media simulator to the IAEA's training for PIOs and welcomed the opportunity to train social media preparedness arrangements with it and to participate in IAEA exercises for social media.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

PANEL C

PRACTICING EMERGENCY COMMUNICATION IN EXERCISES: EXPERIENCES AND CHALLENGES

Panel C covered a number of issues related to communication with the public in nuclear or radiological emergencies. The session included five presentations and a keynote address from a total of six Member States. The session was chaired by Mr. Mothusi Reginald Ramerafe, South Africa, with technical support from Ms. Jordan Arnswald, IAEA.

The keynote address, delivered by a panellist from Morocco, gave an overview of their efforts in developing a national communication strategy. The presenter described the regulatory framework in place, as well as the objectives it should achieve. Some objectives included protecting the public, keeping them informed and gaining and maintaining trust. It was also stressed that public communication should be transparent, timely, clear and accurate. The presenter concluded with their plans to continue developing a national communication strategy and stressed the importance of capacity building.

Speakers from Greece, Canada, the USA, Finland and Brazil covered topics from a national and international perspective.

The speaker from Greece presented the benefits derived from participating in international exercises such as the Convention Exercises (ConvEx) held to test the operational arrangements of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, in particular the large-scale ConvEx 3 held in 2017. They stressed that their approach allowed for learning by doing and that gaps that may have been otherwise have missed were identified in this way.

The presenter from Canada explained that their communications team is an integral part of their exercises and is key to test how well they implement protocols, interact using social media, and create with technical experts plain language messaging. They have worked on defining the role of the regulator in emergency communication, and practiced staying within the limits of this role during exercises. One key necessity was to have a crisis website for the four NPPs where information can be added during an emergency. This ensures communication with all stakeholders.

The speaker from the USA presented lessons learned from a 2017 nuclear emergency exercise. They stressed that every single person in the response needs to know the communications strategy because all people involved are communicating, even if not officially. One essential lesson gained during this exercise was the assurance that they were able to issue a public safety message within 15 minutes of the accident's occurence. The 15 minute deadline for issuing a message that conveys protective actions is considered the correct response because it may mean the difference between life or death for some people.

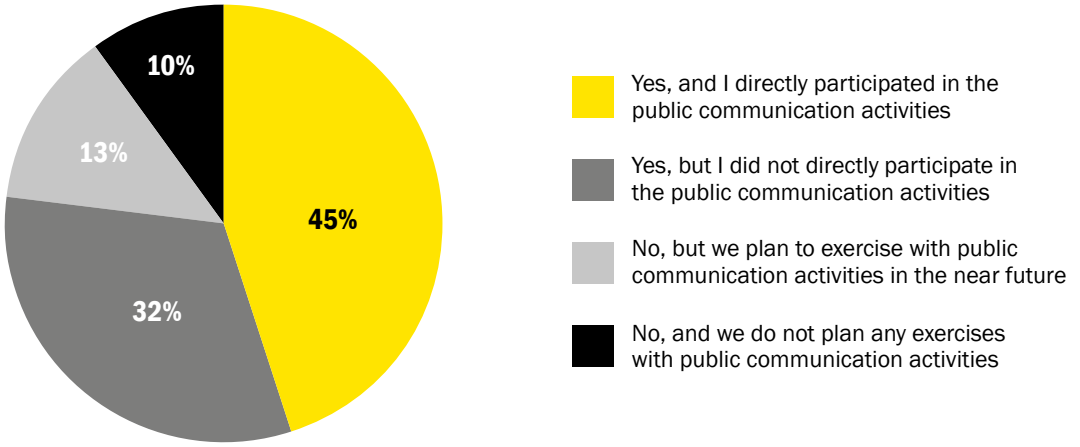
The panellist from Finland stressed the importance for communicators to understand how individuals make sense of the messages they receive. Individual understanding begins with recognizing that an event has occurred and develops into a decision on which actions to take in response. By analysing this process after an emergency, communicators can find lessons learned. The speaker was one of a team of researchers who took part in three full-scale crisis exercises conducted in Finland (2013, 2016 and 2017) to simulate accidents at nuclear power plants. Using an interactive platform simulating social media, created specifically for the exercises, the researchers collected empirical data on the importance of standardizing hashtags, location sharing, and creating awareness using images.Brazil discussed how they evaluated the public's understanding of messages during a radiological accident thorough surveys. Their analysis showed that the public did not always interpret messages as the communicators intended, and recommended that messages sent to the public in future emergencies should follow IAEA recommendations, such as included in the IAEA publication "Communication with the Public in a Nuclear or Radiological Emergency- IAEA EPR 2012".

Presenters highlighted how exercises played an integral role in improving the communication process and increasing the effectiveness of messages for the public. These exercises need to include, to the extent possible, all stakeholders.

SLIDO POLLS

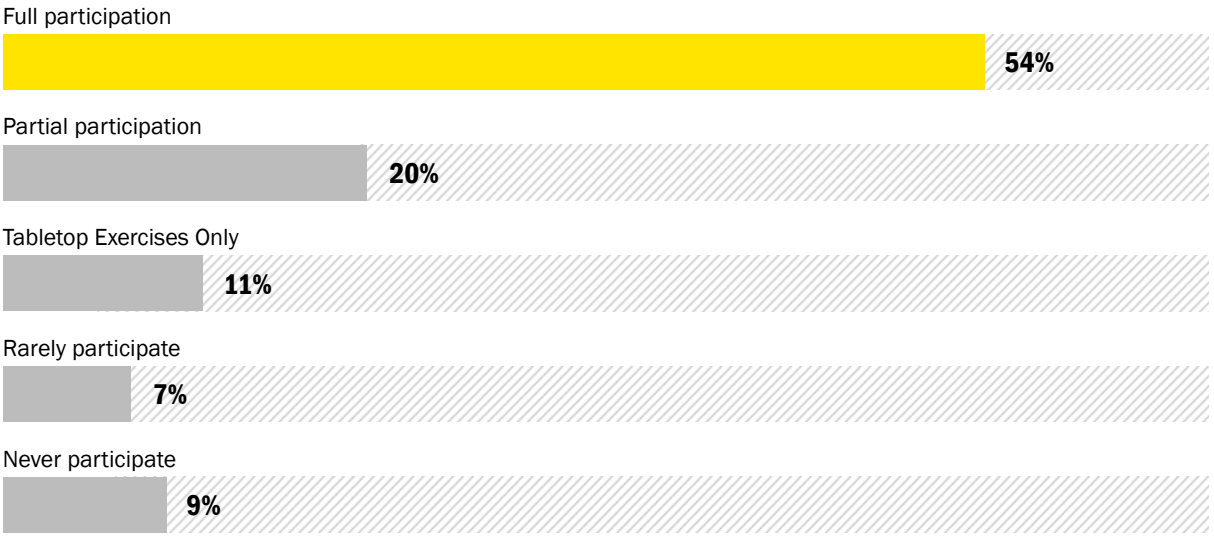
Have you ever participated in a nuclear or radiological emergency exercise that included a public communication aspect?

96 USERS



At what level do your communications experts typically play in exercises?

46 USERS



KEY POINTS FROM PANEL C:

Exercises play a key role in strengthening the practice of public communication, and it is important to gather feedback from all stakeholders.

Although resources are limited, every effort should be made to change the organizational culture to highlight the significant return on investment that can be acquired by incorporating public communication in exercises.

Speakers agreed on the need for encouraging participation in exercises and that even practicing at a small scale (pen-and-paper discussion around a table) is beneficial.

It was stressed that exercises should be a time for learning and the focus should not be on whether an organization "fails". There is always room for improvement and once an exercise is successful, it is time to increase the challenge level to keep learning new things.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

PANEL D

MEDIA REPRESENTATIVES

Panel D covered issues related to journalists' role in swiftly providing accurate information to the public during a nuclear or radiological emergency. In total, the session included three short presentations from the journalists, followed by discussion. The session was chaired by Mr. Martin Nesirky, United Nations, with technical support from Ms. Sinéad Harvey, IAEA.

The three speakers presented their personal experience as journalists dealing with emergency situations. The session highlighted journalists' priorities and challenges in different sectors and with different audiences. The panellists acknowledged the changes in the media landscape and talked about the role of journalists in reporting nuclear and radiological accidents since Three Mile Island.

Speaking from the experience of a career that has spanned three major nuclear power plant accidents, Ann MacLachlan noted the challenging role of journalists during nuclear and radiological emergencies. She highlighted the changes in the media landscape and described also how the role of the journalist has adapted in response. Peter Rickwood described journalists as first responders. He stressed the necessity to engage with journalists in advance and to acknowledge the important role that they play in public communication during times of crisis. He also recognized the regulator's concern that engaging journalists about potential nuclear accidents in advance might spark speculation that an accident is about to take place. However, proactively fostering relationships with the media and sharing information contributes to ensuring that the public receives accurate and timely information during an emergency.

Jordi Kuhs, a journalist who focusses on general news, highlighted that many journalists are not experienced in reporting on emergency situations. Due to his interaction with the IAEA in Vienna in recent years, he has learned more about nuclear issues, but stressed that journalists are not scientists. In order to effectively convey

FIGURE 8: (L-R) PETER RICKWOOD, ANN MACLACHLAN AND JORDI KUHS DURING PANEL D: MEDIA REPRESENTATIVES

such complex issues in plain language for the public, journalists need the support of technical experts. He suggested that there could be value in the IAEA and national agencies holding workshops for journalists to help bridge this gap.

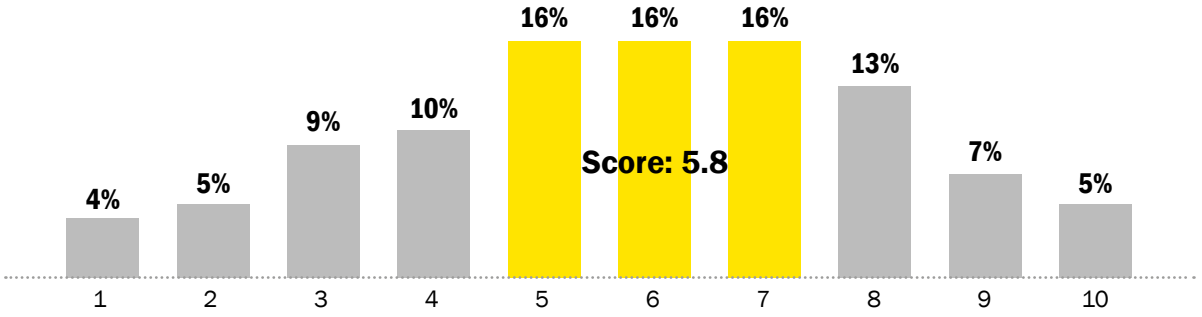
DISCUSSIONS

During the discussions, it was underlined that journalists have a responsibility to balance speed and accuracy, with the hope of publishing correct information as quickly as possible. The panelists noted that reporting on an emergency differs significantly from other journalistic formats: emergency reporting does not prioritize story-telling rather it is a dedicated channel of information to provide the public the information it needs.

SLIDO POLLS

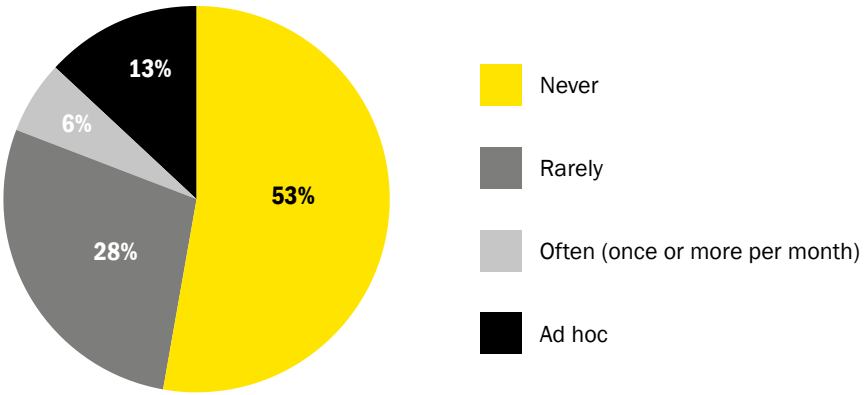
How strong is the working relationship between your organization and journalists responsible for covering your organization [including during emergencies]? (10 = Very Strong; 1 = Very Weak)

105 USERS



Is your organization offering journalists training in emergency preparedness and response?

88 USERS



KEY POINTS FROM PANEL D:

The participants agreed that educational workshops on nuclear issues for journalists, especially for those who are not specialized and cover general public interest stories, can provide benefits in strengthening journalists' ability to better understand the response taken in an evolving emergency and therefore report accurately and quickly.

In addition to training, the panellists encouraged the inclusion of journalists, where appropriate, in EPR exercises.

The panellists also stressed the importance of preparedness by establishing contact and developing trusting relationships between technical experts and journalists before an emergency arises. Communication experts play an important role in facilitating this relationship.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

PANEL E

YOUNG INNOVATIVE COMMUNICATORS COMPETITION

Panel E covered young communicators innovative ideas on communication with the public during a nuclear or radiological emergency. It consisted of presentations from the five finalists of the Young Innovative Communicators Competition, a presentation from a Member State, and the announcement of the competition winner. The session was chaired by Mr. Jason Cameron, Canada, with technical support from Ms. Natasha Galipeau, IAEA, and Ms. Sarah Henry, IAEA..

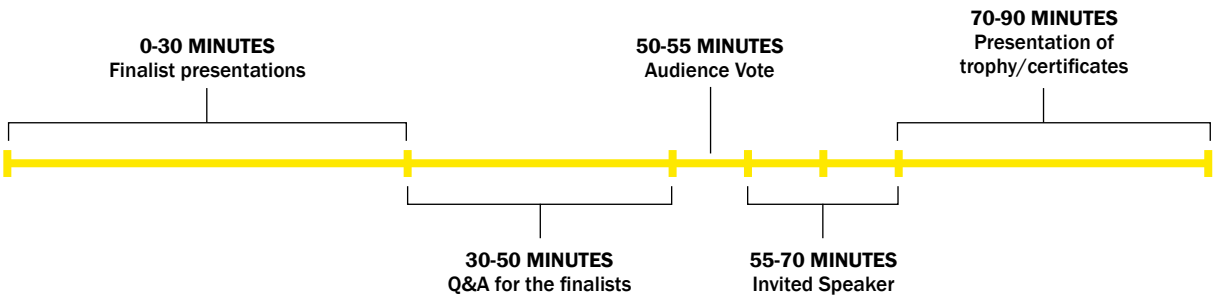
The Young Innovative Communicator Competition challenged youth aged 18-25 to propose an innovative way of communicating with the public during a nuclear or radiological emergency. Over 2.5 months, the IAEA received 93 submissions from 29 Member States. The top 15 submissions were invited to participate in a Skype interview with IEC staff to further explain their idea. The ISPC then ranked the 15 submissions and interviews and the top 5 interviewees were invited to Vienna to present their ideas.

During the competition, each finalist was given five minutes to present their idea before a panel of four judges. This was followed by a question and answer period, where finalists answered questions from the judges and audience. The winner was determined by vote: each judge selected which idea they thought would most effectively communicate nuclear and radiological risks to the public; the aggregate audience vote counted as the fifth judging vote.

While the winner was determined, an invited speaker from Brazil presented an innovative communication initiative. Brazil is running a Nuclear Ambassador program, in which university students are chosen as ambassadors to teach the public about the benefits of nuclear technology and to reduce the public's negative perception of the technology.

FIGURE 9: MUHAMMAD HASSUM-UD-DIN PRESENTS HIS IDEA ON COMMUNICATING NUCLEAR AND RADIOLOGICAL EMERGENCIES TO THE ILLITERATE POPULATION

FIGURE 10: SYMPOSIUM PRESIDENT JASON CAMERON WITH THE YOUTH COMPETITION FINALISTS (L-R) SHAMAR WARD, SAMANTHA REE, MUHAMMAD HASSM-UD-DIN, ELFINA KARIMA AND PAOLOREGEL SAMONTE



FINALIST IDEAS

Ms. Elfina Karima, Indonesia
Ms. Karima's idea was an app that would allow communication if cell service was unavailable. The app would create a network of phones that could transmit messages through Bluetooth connections. Messages would be transferred to all phones within range, allowing them to 'hop' from one device to another.

Mr. Muhammad Hassam-ud-din, Pakistan
Mr. Hassam-ud-din's idea was a method for communicating with illiterate populations during a nuclear or radiological emergency. Using automated phone messages, people would be called and delivered a message educating them on nuclear technology, and asking if they would like to be contacted with protective actions in the event of an emergency.

Ms. Samantha Ree, UK
Ms. Ree's idea involved creating an augmented reality app to assist with exit routes during an emergency. The multi-lingual app would show users what directions to follow to reach muster points. Response authorities would provide input to steer traffic away from hazardous areas.

Mr. Paoloregel Samonte, Philippines
Mr. Samonte's idea focused on building awareness of protective actions during a nuclear or radiological emergency. It involved an advertising campaign with testimonials from celebrities or popular characters on how they would prepare, and a video game that allows players to decide on the actions they would take during an emergency.

Mr. Shamar Ward, Barbados
Mr. Ward's idea involved using repurposed cell phones to communicate if cell service was unavailable. The repurposed phones could be used to display a message, play an audio message, or serve as a data hotspot to allow access to the internet.

After the judging panel's questions, deliberation and audience vote, Muhammad Hassam-ud-din was awarded first place and presented with a trophy.

PANEL E

WHAT ARE THE TOP 10 TERMS THAT CAUSE CHALLENGES GLOBALLY DURING A NUCLEAR OR RADIOLOGICAL EMERGENCY?

The purpose of the interactive session was to identify in dialogue specific words that posed a challenge to effective communication with the public when used during a nuclear or radiological emergency. In total the session included an introduction from the Chair, presentations from three Member States and an interactive discussion with the Symposium participants. The session was chaired by Mr. Jason Cameron, Canada, with technical support from Mr. Andrew Bramnik, IAEA.

The Chair introduced the session's purpose and encouraged active participation. Ms. Adrienne Kelbie from the UK presented on culture in communication and communicating with empathy. Next, Ms. Jessica Wieder from the USA presented on "Radiation terminology: Why is it so difficult?" Lastly, Ms. Alice Cunha da Silva from Brazil presented on perspectives on emergency communication and the influence of culture.

THE "MOST CHALLENGING" WORDS:

- Safe
- Radiation
- Dose(s)
- Risk

Over the first two days of the Symposium, more than 125 "challenging" words were collected when participants posted suggestions on the interactive wall and via the Slido audience interaction tool. During an emergency, different words present different challenges to Member States and the public. A poll posed to the participants

through Slido showed that “the most challenging” words were: “Safe”, “Radiation”, “Dose(s)”, and “Risk”. During the discussions and as shown through a Slido poll, the participants suggested that possible solutions to using these terms may include: using analogies, keeping emergency communications simple, stressing education, showing images or graphics, and communicating with empathy.

KEY POINTS FROM THE INTERACTIVE SESSION:

The participants discussed that when the public trusts an information sender, they are more likely to believe the information being shared, and be willing to accept or understand challenging terms.

In the discussion, participants underlined the importance of considering differences in definitions and understanding based on language and cultural differences.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

PANEL F

WHAT’S NEXT IN EMERGENCY COMMUNICATION?

Panel F brought together the Symposium Secretary, Chairpersons and keynote speakers to discuss the main conclusions of the Symposium and to highlight the way forward. The session did not include formal presentations. The panel was comprised of speakers from Argentina, Canada, China, Japan, Morocco, the USA, the UN Secretariat and the IAEA. The session was chaired by Mr. Jason Cameron, Canada, with technical support from Ms. Sinéad Harvey, IAEA.

The presenters each gave their summaries of the lessons learned and best practices from the week.

KEY POINTS FROM PANEL F:

It is important to think in the long-term and consider the use of all available communication channels. Communication methods change rapidly and those responsible for communicating with the public need to adapt.

It s important to develop plain language tools which could be tested systematically and scientifically.

It is important for all communicators to tackle the challenge of the dwindling trust in institutions through effective preparedness plans.

The dominance of social media and the misleading and false information that can be spread easily via social media provides communicators an opportunity. By engaging in conversation about false information on social media, an organisation can strengthen its message and build a strong relationship with the public.

During the media panel it was underlined that it was essential to build strong relations with the media. Newsrooms are shrinking and journalists are being required to multitask on what they cover. In that regard, it is essential to ensure that journalists acquire the information they need, when they need it and how they need it. This relationship can be improved by offering training, workshops and access to exercises for journalists.

One presenter reiterated the need to engage all stakeholders within a defined 'public', including the general public, the workers, and the patients.

It was also stressed that Member States must continue to implement IAEA safety standards, guidance and tools to bolster their public communication arrangements.

Communicators should be prepared to adapt their messaging to suit local versus national media needs.

There will be a paradigm shift in strategic communication in general and in crisis communication in particular towards relationship management and trust management. It will therefore be essential to incorporate trust management at the core of an emergency communication strategy.

Digital media should be a priority in any communication strategy.

The use of artificial intelligence (AI) in communication was discussed. AI can help to support the digestion of all social media during events and to monitor and identify trends. It can also ensure that there is the automatic appearance of correct information on webpages during an emergency. It was agreed that its development could be a key component to the future of emergency communication.

Social media global amplifiers can support an organisation in communicating directly with the public. These media do not replace the need for a spokesperson in an emergency but can help to spread the message to a larger audience.

Communication strategies should include plans to monitor and evaluate the impact of messages given to the public in a systematic way. The communication strategy should be updated to accommodate findings from these evaluations.

The presenters all agreed that public communication in emergencies is a global challenge requiring global efforts. Prioritizing communication in EPR events and other activities is essential for Member States to share best practices, lessons learned and to continue developing and strengthening national arrangements.

Recommendation 1 Recommendation 2 Recommendation 3
Recommendation 4 Recommendation 5

APPENDIX A: OPENING STATEMENTS

Jason K. Cameron, Symposium President

Good morning, Ladies and Gentlemen.

It is an honour and privilege for me to serve as President of the first International Symposium on Communicating Nuclear and Radiological Emergencies to the Public. I am pleased to see that it has attracted such a high level of interest and participation, which reflects the growing recognition that effective public communication is of vital importance.

I would like to recognize the IAEA leadership for making this Symposium a priority in the Agency's activities for 2018. In particular, I wish to acknowledge the commitment of three IAEA colleagues: Deputy-Director General and Head of the Department of Nuclear Safety and Security, Juan Carlos Lentijo; the Head of the IAEA's Incident and Emergency Centre, Elena Bulgova; and the Director of the Office of Public Information and Communication, Serge Gas.

In fact, this Symposium is rooted in the IAEA's International Conference on Global Emergency Preparedness and Response that was held in October 2015.

That post-Fukushima conference brought together experts in emergency preparedness and response to discuss best practices and focus on strengthening national systems in dealing with nuclear and radiological emergencies. The conference was chaired by a colleague of mine from Canada's nuclear regulator, Mr. Ramzi Jammal, and an outcome of that conference was a call to bring together experts in emergency preparedness response and public communication to share best practices and to discuss approaches to improving public communication. This week, we will fulfil that commitment.

I am very proud of the work that has been done by the IAEA Secretariat – in particular Ms. Sinead Harvey – and the Programme Committee for the Symposium. The Progamme Committee has been working with the IAEA Secretariat since early 2017 and I would like to thank all the members, including: Abel Gonzalez (Argentina), David Castelveter (USA), Sebastian Hueber (Switzerland), Ann Heinrich (USA) Toshimitsu Homma (Japan), David Owen (UK), Carl Blackburn (FAO), Marie-Pierre Bigot (France), Zhanat Carr (WHO), Kaisa Raitio (Finland), Ted Lazo (OECD) and Mothusi Ramerafe (South Africa).

We have brought together an amazing and diverse collection of speakers and perspectives – and together we will learn from each other, get to know one another and inspire each other to do better on public communication in nuclear and radiological emergencies.

One of the IAEA's core principles emphasizes that "emergency response begins with preparedness". I would like to build on this sentiment in two ways. First, of course, public communication in emergency response begins with communications preparedness as well. But, second, I would extend that communications preparedness requires better routine, ongoing and day-to-day communication on all of our nuclear activities – whether in nuclear science, nuclear operations, nuclear regulation, health, industrial or medicine applications – in order to build a better base understanding from which to communicate with the public.

In fact, I believe that better routine communication is the best inoculation to fight misinformation and fearmongering that occurs in heightened anxiety environments around nuclear and radiological emergencies. And this week, we will be examining a wide range of emergency situations, from major facility accidents to transport, industrial and medical events. Any of them mismanaged, both in terms of their response and / or communications, diminishes public trust in our institutions.

I would also like to emphasize the evolution, dare I say, revolution, in public communication:

- When the accident occurred at Three Mile Island in the late 1970s, most Americans were getting their news in newspapers in the morning and television in the evening.
- A decade later, local residents at Pripyat were informed by loudspeaker of the Chernobyl accident and advised to evacuate.
- While the last major nuclear accident occurred at Fukushima seven years ago in a more modern age of telecommunications, with 24/7 television coverage and initial social media such as Facebook and Twitter, it's important to note that many of the most popular and ubiquitous social media platforms were either fledgling or hadn't been created.

In fact, as a father of teenage children, I can tell you that email is ancient technology for them. They are blessed to grow up in an era where information is pushed to them on the platform of their choosing. This is the reality of today and tomorrow's expectations.

It's also why I'm very proud of the IAEA for running a youth competition as part of this Symposium, reaching out to tomorrow's leaders and inspiring us to think differently and prepare today for tomorrow's audience. I am very much looking forward to Thursday's competition and the results.

Another aspect of the Symposium that I'm particularly looking forward to is the discussion on exercises. We have a good cross-section of emergency preparedness and communications professionals who must work seamlessly together to get the right information out to the public in a timely manner. This is essential. Through these sessions, I expect best practices to be shared and lessons learned. I want to give a shout-out to my own country, Canada, which is holding a full-scale nuclear emergency exercise this week, simulating an emergency at the Point Lepreau nuclear power plant – and if I wasn't chairing this session, I would be engaged in that exercise back home.

We have a jam-packed agenda. I would ask that speakers adhere to the guidance of the chairs and for the chairs to ensure speakers stick to their allotted time so that we can accommodate all of the presentations and discussions that we have planned for this week.

Finally, I appreciate the opportunity to be part of this important event, which, I am sure, will contribute to our efforts to further strengthen communications to the public during a nuclear or radiological emergency worldwide. I look forward to a very interesting and productive week.

J. C. Lentijo, IAEA Deputy Director General

Ladies and gentlemen, dear colleagues, good morning and welcome to this important Symposium, which is the first of its kind.

All of us in this room have something in common: in a nuclear or radiological emergency, people will look to us for information. They will expect us to provide accurate information fast. They will expect information that they can understand, even though they might be stressed and perhaps panicked by the emergency.

It is a tough task. But it is one we must do as well as we can. It is our duty and it is the right thing to do.

This Symposium enables us to help each other in meeting this challenge. How do we fulfil our duty to inform in today's non-stop, instantaneous communications environment? I hope your deliberations this week will help answer this question.

In a nuclear emergency, the demand for news, updates, and insights becomes a storm. That storm's potential strength is growing with media channels developing more and more capacity to allow people to engage and share digital content. Emergency communicators are expected to respond instantly. They must adapt and prepare so that they are able to deliver their messages to their audiences – fast.

In the middle of that storm, the Agency has a mission to fulfil. We strive to enhance safety by providing authoritative, consistent, verified, expert information to the public, in cooperation with Member States. The goal for us all is communicating with the public so that they understand why they need to follow any instructions issued by authorities.

The credibility of every one of our institutions depends upon us getting this right. Reliable voices from authoritative institutions such as ours are needed to prevent potentially harmful rumours and misinformation.
Ladies and gentlemen,

We cannot predict which emergency we may face. But we do know our roles. The Agency's role includes analysing available information, using scientific knowledge and Member States' capabilities to provide timely, clear, accurate, objective and easily understandable information on the nuclear emergency's potential consequences and its possible progression.

Providing such public information is part of our duties in an emergency. These also include exchanging notifications and information from official Contact Points, providing assistance on request and coordinating the inter-agency response.

Throughout it all, we place the highest priority on public safety.

We have learned lessons from past incidents and emergencies, including the accident at the Fukushima Daiichi nuclear power plant in Japan. These lessons guide us as we strive to deliver the right messages to the target audience.

Communication is a challenge that we all face together. This Symposium helps us do so.

Use these five days as a forum to share and discuss good practices; a platform for discussions on how to plan, test, exercise, coordinate communications during an emergency.

We have a full agenda:

- From strengthening preparedness to developing communication methods that work in today's demanding context.
- From managing social media to coordinating consistent messaging from the accident site to the international levels.
- And importantly, understanding the psychological aspects of emergency communication, which is key to the public's understanding and acceptance of safety messaging.

Ladies and gentlemen,

This Symposium also highlights the future of communication. I warmly welcome the five finalists of the Youth Competition. These Young Communicators are proposing innovative and sustainable communication methods and technologies. Their commitment is a welcome indication that our work here at the Symposium will contribute to more effective communication not only today but also in years to come.

In closing, I thank the programme committee, the keynote speakers, the panellists, the poster presenters and all 400 plus participants for your interest in and contribution to our shared mission.

The IAEA stands ready on a 24-hour basis to support Member States in nuclear and radiological emergencies. This includes support related to public communication. As preparation is key, I encourage you to make use of our many useful resources, including the safety standards, guidelines and specialized training and workshops on public communication in emergencies.

Thank you. I wish you a successful Symposium.

Tammy Taylor, Director, International Centre Division, Comprehensive Nuclear-Test-Ban Treaty Organization

Dear Ladies and Gentlemen, thank you for being here. I am very happy to be representing the Comprehensive Nuclear-Test Ban Treaty Organisation today and I hope to acquaint you in the next few minutes with the roles and responsibilities of our organisation, relative to our joint agenda here. Before joining the CTBTO six weeks ago, I spent 20 years of my career working at the Department of Energy National Laboratories in the United States. The dearest contributions that I made in my career were to the subject of emergency response and emergency response preparedness.

CTBTO operates a unique global network of highly sensitive detectors of atmospheric radioactivity. Our purpose is to detect nuclear explosions and to monitor for such. Near and dear to our heart is confidentiality. Access to our data is restricted to authorized users of our State Signatories. We have high-level information which is available on a public web site.

Since April 2011, CTBTO has participated in meetings of Inter-Agency Committee on Nuclear and Radiological Emergencies (IACRNE) and in March 2012 became a formal member among 18 participating member organizations. Participation in this joint network is to provide for and to monitor the effects of nuclear accidents. We are grateful to the IAEA for serving as the secretariat for this joint function and also for producing and maintaining the Joint Radiation Emergency Management Plan (JPlan), which is a phenomenal framework for all of us.

What is the CTBTO's role in this International Cooperation?

The key elements for us in terms of emergency preparedness and response are to continuously gather real-time particulate and noble gas monitoring data at our 69 (+1) particulate stations and at our 25 (+6) Nobel Gas sites of the International Monitoring System. The critical response task during the emergency phase of an operation is to provide real-time particulate and noble gas monitoring data including confirmations of no detections. In the post-emergency phase, the priority is to provide results on radionuclide air concentrations from the global monitoring network. We provide global monitoring results, including radionuclide air concentrations, and related expertise such as atmospheric transport and dispersion predictions.

We also have an ability to contribute to the management of multi-hazard disasters. Fukushima was a classic example of multi-hazard, triple disaster event, with a universal impact. We contributed to a universal approach as laid out in the Sendai Framework for Disaster Risk Reduction. Two days after the nuclear power plant accident, the first traces of radionuclides had been detected by the International Monitoring System (IMS) and shared with all State Signatories. It was two days later the first briefing to State Signatories including atmospheric transport simulations was provided.

In all, more than 35 radionuclide stations were part of the IMS provided information on the spread of radioactive particles and noble gases from the Fukushima accident. Since 17 March 2011, the PTS has shared and will continue to share atmospheric radionuclide observations with the International Atomic Energy Agency (IAEA) in support of radiological disasters or events.

I hope that that gives you a framework and understanding of the CTBTO's contributions.

Michael Opriesnig, Deputy Secretary General, Austrian Red Cross, International Federation of Red Cross and Red Crescent Societies

Good morning. Dear Ladies and Gentlemen let me first express my thanks to the IAEA Department of Nuclear Safety and Security and especially to Jason Cameron, the Symposium President, for hosting such an important event.

The International Federation of Red Cross and Red Crescent Societies is one of the official supporting organisations of this event and therefore I am pleased to add some opening remarks. As the Deputy Secretary General and also the former Spokesman for the Austrian Red Cross, I am very glad to represent the IFRC today.

The IFRC is the world's largest humanitarian aid development movement and is present in 191 countries around the world. Our national societies operate as auxiliaries to the national authorities. In this role, we provide services to the public, that range from disaster preparedness and response to the health and social sector and to providing humanitarian support to vulnerable people and communities. The overarching concept that drives our activities is that 'the last mile is our first mile'.

Why am I here to talk about how to communicate with the public in nuclear and radiological emergencies? First of all, the Austrian Red Cross is an active part of the IFRC global nuclear emergency preparedness programme, which is coordinated by the IFRC secretariat in Geneva. This enables us to leverage our expertise and lessons we have learned from events like Chernobyl and Fukushima, but also provides us with important links to other emergencies that national societies prepare for and respond to on a regular basis. Secondly, in our role as auxiliary to the Austrian authorities, we are one of the key pillars of the Austrian civil protection system. Nuclear and radiological scenarios are part of our preparedness and response plans, with specialised CPRN teams that are trained for emergencies.

Nuclear and radiological scenarios include emergency planning for major public events and are also take into account cross border emergencies. These preparations enable us to fulfil the expectations the Austrian population has towards the Red Cross.

People around the world trust the Red Cross to provide relevant and timely emergency services and information on what to do.

Information can be life-saving, in the same way as providing safe shelter, food or first aid. We see risk communication as part of our mandate and role as a disaster relief organisation, before, during and after an emergency.

Through our volunteers, we are deeply rooted in our communities. Volunteers build the basis for spreading actionable lifesaving and life enhancing information in the case of emergencies.

Ladies and gentlemen, allow me to underline my words with a practical example from Austria.

Together with a very popular radio station, the Austrian Red Cross has established Team Österreich. Team Österreich is a platform that registers people who are willing to help and coordinate these so-called spontaneous volunteers in case of regional emergencies. So, for example, if there is a flood in upper Austria, Team Österreich members from the region get an alert via SMS and are asked to help by, for example, digging away the mud.

The same is true for nuclear emergencies, only recently Team Österreich has established a Smartphone app that allows us to reach about 100,000 members from the communities with lifesaving information in the case of an emergency. The app also enables us to receive feedback and information from the spot. We are convinced that the message from a trusted and informed source, which might be a neighbour or colleague who is a Red Cross volunteer, can have a bigger impact in such situations than guidelines delivered by a technical expert. We also encourage communities in certain events to change said behaviours and accept certain protective actions.

Finally, we trust in the existing knowledge and capacities of local communities and, therefore, engage in conversations and listen to communities' feedback to ensure they can participate and guide actions.

In some of this week's sessions, you will directly hear from our experiences, but I want to invite you as well to talk to my colleagues from Geneva and to the CBRN protection team of the Austrian Red Cross Vienna,

who will be available at the Red Cross stand and provide you with more practical insights.

I wish you a successful and fruitful Symposium, with a lot of communication about emergencies.

Thank you very much for your attention.

Douglas Ledingham, Acting Assistant Director, CBRNE and Vulnerable Targets Sub-Directorate, INTERPOL

I am speaking here representing INTERPOL, the world's largest police organisation with 192 member countries, set up to facilitate cross border communication supporting and assisting all organizations, authorities and services whose mission it is to prevent or combat international crime.

I therefore come to this event focusing on law enforcement aspects of communication. Today, I'd like to mention five major themes with you. One, that standard public messaging methodologies will easily be overwhelmed in the aftermath of a radiological incident. Two, that countries should therefore develop communication strategies, including pre-approved messages, now, prior to an incident. Three, these plans should be disseminated to appropriate authorities and trained against. Four, countries should consider public messaging campaigns prior to attacks to arm the public with appropriate knowledge on how to respond safely and calmly. Lastly, INTERPOL and the IAEA are vast resources that countries should utilize to develop their strategies and to call on for assistance in the aftermath of an incident.

In the event of a radiological emergency, communication with the public is critical to prevent panic, save life and provide public reassurance. Such an event will be very challenging to law enforcement and will generate a high degree of public and media interest. Let's not also forget the concern amongst law enforcement responders themselves whose duty it will be to go towards danger to save others.

Demand for information will be immediate and it will be very difficult to provide accurate information in the immediate stages after an event as it may not be known if the incident is as a result of an accident or the consequence of terrorist activity. The responsibilities of different national agencies and international organizations may conflict, some agencies focusing on investigation, others environmental concerns, others public health issues. Pre-planned coordination will be essential. Messaging will need to be clear, accurate and honest. The likelihood is that media outlets will be covering the event with videos posted from mobile phones and so called 'experts' will be giving their immediate reactions before a coordinated communications strategy has been developed by the government or responding agencies. Remember, what you don't say may be just as telling as what you do say. We cannot leave a communication vacuum as it will be filled by others giving wrong and conflicting messages.

Responding to the demand for information whilst concurrently responding to the incident itself will place considerable demands on response services. In many countries it will be a police duty to inform the public, and to advise them what to do to protect themselves from harm. Police are used to providing such public reassurance, however, police are not used to dealing with radiological emergencies, the science behind radiation, the health effects, or the understanding of dose rates, shielding or protective equipment requirements. Law enforcement will seek advice from the IAEA and others, and will need that advice quickly and clearly.

Law Enforcement may not know exactly what types of incidents may occur, which radiological isotopes may be involved, or how they could be disseminated. There are response plans in place for nuclear reactors and large industrial sources but we do not have such detailed plans for response to a dirty bomb going off in a city centre. We can however plan for generic emergencies, based on our knowledge of the threats we face and the capabilities of terrorist groups. We can therefore prepare draft messages that can be 'tweaked' in relation to an actual event should one occur. Such messages can then be released to the public within the first hour of an incident. This will show the public that there is a plan, things are being controlled, and that

all the governmental agencies know what they are doing, have been trained to deal with such situations, and are able to respond.

If there is no communication, the public will be left believing that there is no plan and no-one knows what they are doing, creating real panic and fear. More detailed messages can be released later, after knowledge builds from detection equipment, plume modelling, scientific advice and a fuller picture emerges of what has occurred on the ground.

There is not enough time immediately after an event to engage in detailed consultation with emergency service partners, regulators, scientists and health officials to construct specific detailed messages. Therefore, a high degree of pre-planning is necessary. Few countries have really engaged in such pre-planning of public messaging. I was personally involved in producing pre-planned messages for my home country and can assure you that it is not an easy task, several agencies need to be involved, all with different ideas about what should be communicated to the public and when. Several meetings and many hours were spent drafting messages that met all the participating agencies' needs. Producing such public message really reinforced in me the need to prepare such messages pre-event, there is no time to do this after the incident has occurred.

In light of my experience I produced the INTERPOL Guidance document on 'Public Messages to use in the immediate response to a CBRN attack'. This is available in the four INTERPOL languages, English, French, Spanish and Arabic, and we provide it to participants on our courses.

However, we don't only need to have documentation prepared. It is no good if guidance sits on a shelf and no one is even aware of its existence when it is actually needed. Communication strategies need to be embedded in Standard Operating Procedures, Command and Control Emergency Management Systems and easily available to those who need to see them. I am sure we are all familiar with producing guidance that never reaches the people that really need to know it, and just sits on a shelf gathering dust.

The communication documents not only need to be available but key staff need to be trained in their use. The arrangements need to be tested against credible scenarios and reviewed and redrafted in light of experience gained. I am pleased to note that such tests of communication systems are becoming more frequent and the Radiological and Nuclear Terrorism Prevention Unit in INTERPOL would like to train law enforcement in this area in future years. INTERPOL has been involved in such communication exercises with the IAEA and are happy to continue to do so.

INTERPOL is already heavily mentioned in the IAEA 'Joint Emergency Action Plan' and roles and responsibilities have been defined. Communications have been exercised and tested. The invitation to INTERPOL to attend this event highlights our close cooperation. We understand that the IAEA is the lead organisation in nuclear security and that efforts should be made to ensure that public communication are coordinated with the IAEA before dissemination, unless the message is purely within the scope of INTERPOLs own competence.
I would like to finish by mentioning that I believe we should prepare the public for possible events. We may have produced pre-prepared messages and guidance, however, when we deliver such messages to the public it will be new to them and however hard we try to explain radiation, health effects and risks it will always be hard for the public to comprehend what they are being told, especially if they are being told for the first time when the situation is already occurring, and they are under significant stress and fearful for their safety.

We should therefore also consider what we should be telling the public now, before an event. There is always the risk that telling the public beforehand will make some believe that the government has received a new threat and that some form of attack is imminent. The timing and delivery of such information therefore would need to be carefully considered.

I look forward to this meeting and discussing with you the role of INTERPOL and how we can all support the IAEA in promulgating the communication guidance that they have prepared.

Shengli Niu, Senior Specialist on Occupational Health, LABADMIN/OSH Branch, International Labour Organization

It gives me great pleasure to extend to you all a very warm welcome on behalf of the International Labour Organization. The ILO is extremely pleased to join the other organizations in cooperating with the IAEA on this important international Symposium.

The Fukushima Daiichi nuclear accident in 2011 has taught us a number of lessons. One of them is the need to strengthen public communication in the management of nuclear and radiological emergencies at the national and international levels. As the ILO has a mandate to deal with accidents at the workplace, industrial disasters like Bhopal have prompted the ILO to adopt a number of instruments for the control of major hazards at industrial facilities and for the prevention of major industrial accidents. Communications during an emergency and after a major accident is an important part of these instruments. For example, the ILO Code of Practice on the Prevention of Major Industrial Accidents has a chapter on information to the public concerning major hazard installations which provides detailed requirements for the competent authorities to make arrangement for provision of information to the public living or working near a major hazard installation. The ILO Convention on Prevention of Major Industrial Accidents No. 174 (1993) stipulates that "(t)he competent authority shall ensure that:

a. information on safety measures and the correct behaviour to adopt in the case of a major accident is disseminated to members of the public liable to be affected by a major accident without their having to request it and that such information is updated and re-disseminated at appropriate intervals;
b. warning is given as soon as possible in the case of a major accident;
c. where a major accident could have transboundary effects, the information required in (a) and (b) above is provided to the States concerned, to assist in cooperation and coordination arrangements.

These requirements are legally binding for countries which ratified the convention. Even though that this Convention was purposely designed not to be applied to nuclear installations and plants processing radioactive substances except for facilities handling non-radioactive substances at these installations to avoid overlapping with the work of the IAEA, the experiences on public communication in the event of an industrial emergency or accident may be of interest to the discussion of this Symposium. Furthermore, when a nuclear or radiological emergency or accident occurs, workers and the public may also under the threat of other hazards than radiation, such as electric, mechanical, gravitational, chemical, biological, pressurized fluids and gases, thermal, noise, special worksite or conditions. To communicate the risks from radiation and other hazards in a balanced manner and on proportionality grounds will help the public in better understanding the information.

The ILO has had a long history of fruitful cooperation with the IAEA and other organizations and professional bodies in developing international guidelines and standards on radiation safety and protection. In this connection, it is worth pointing out that the IAEA GSR part 3 (International Basic Safety Standards for Radiation Protection and Safety of Radiation Sources (BSS)) and GSR part 7 (Preparedness and Response for a Nuclear or Radiological Emergency) cosponsored by the ILO and other organizations are two good examples of the efforts in harmonizing global standards on radiation safety and protection and on emergency preparedness and response. We believe that such cooperation not only facilitates the implementation of the ILO Conventions on safety and health at work including protection of workers against ionizing radiation by our constituents but increase, at the national level, the synergy and impact of the relevant international polices on radiation safety and protection formulated by other sister organizations.

In the coming days, there will be many presentations and exchange of experiences and good practices which will provide useful insights into how we can improve public communication during a nuclear or radiological emergency. I offer my best wishes for a successful and productive Symposium and wish you a pleasant and memorable stay in Vienna.

Thank you.

Yeonhee Hah, Head of the Division of Radiological Protection and Human Aspects of Nuclear Safety, Nuclear Energy Agency

Thank you, Mr Chair. Good Morning Ladies and Gentlemen.

It is a pleasure to represent OECD Nuclear Energy Agency (NEA), co-sponsor of this significant event, International Symposium on Communicating Nuclear and Radiological Emergencies to the Public.

Nuclear and radiological emergency preparedness management is a broad, complex, dynamic and challenging field. The work of the IAEA and its Incident and Emergency Centre, headed by Elena Buglova, coordinated internationally through the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE), of which NEA is a co-founding member, has helped countries and international organisations to be better prepared for such situations, to share information and speak to their national constituents with one shared voice, to share experience, to address situations with state of the art science and engineering and to share resources as quickly as possible to help those in need.

Yet, public communication remains a challenge in many crisis situations, particularly in nuclear emergencies. Acknowledging the importance of this topic, as well as the importance of joining efforts, NEA supports this international Symposium, emphasising the need of working together, among the different actors and stakeholders involved in public communication during emergencies.

For many years NEA has worked on assisting its member countries in better preparing for emergencies. The NEA Working Party on Nuclear Emergency Matters has focussed much of its efforts in developing the INES Exercise to assist participants to test and improve the efficiency of their response strategies.

To be better prepared for public communication, the Working Group on Public Communications of Nuclear Regulatory Organisations has addressed emergency circumstances. Since the Chernobyl accident in 1986, the Committee on Radiological Protection and Public Health has addressed the aspect of public communication in the recovery phase.

A major NEA milestone is the roadmap for crisis communication for Nuclear Regulatory Organisations, which was produced in 2012, reflecting on lessons learned from the Fukushima accident. We have also addressed the evolution in risk and communication strategies with the emergence of social media.

A recent annual publication towards an 'all hazard approach' in emergency preparedness and response presents the insight from a multidisciplinary perspective and lessons learned from non-nuclear accidents to enhance national resilience and responsiveness. In the same framework, NEA is organising the second workshop on stakeholder involvement, from 24-26 September 2019 in Paris.

NEA continues to serve its members by collaborating with the IAEA and other leading international organisations and bodies to address the challenges, taking an innovative and broad approach to better communicate nuclear and radiological emergencies to the public. By broad I mean all hazards, all faces and the whole of society. We need to work together, thinking globally while considering country specific needs.

Thank you for your attention. I look forward to fruitful exchanges during the Symposium, that will lead to relevant and useful output for future work.

Thank you very much.

Lee Heng, Head of Soil and Water Management and Crop Nutrition Section, Joint FAO/IAEA Programme, Food and Agriculture Organization

Ladies and Gentlemen, distinguished guests, dear colleagues.

It is my great honour and pleasure to be here and give a short opening remark on behalf of the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture.

The Joint FAO/IAEA Division, based in Vienna, is the link between Food and Agriculture Organisation of the United Nations, headquartered in Rome, and the IAEA Headquarters here. The two UN organizations have been working closely through the Joint Division since 1964.

We are involved in various projects related to nuclear and radiological emergencies. Currently, we are developing a cloud-based IT Decision Support System (IT-DSS) for nuclear emergency response management and communication. It provides a user-friendly spatial and temporal visualization platform and tool for decision makers which can create communication materials for use during emergencies. We are also conducting evaluations and reviews, developing and maintaining up-to-date norms and standards related to food and agriculture. In this regard, the Joint FAO/IAEA programme continues to work in cooperation with many international organizations and standard setting bodies, including the Codex Alimentarius Commission and its food standards.

However, the main work of the Joint FAO/IAEA Division is to support and promote the safe and appropriate use of nuclear and related technologies by the FAO/IAEA Member States in food and agriculture. And so, contribute to peace, health and prosperity throughout the world, especially to global food security and sustainable agricultural development, through climate-smart agriculture.

Ladies and Gentlemen, it is my privilege to be with you today and on behalf of the Joint Division and FAO, may we wish you well in this Symposium as communicating effectively with the public about nuclear and radiological emergencies is key to addressing events that may have wide-spread consequences and raise issues that can both be helped and hindered by the increasing speed of electronic news and social media.

Thank you very much!

Michael Huebel, Head of Unit D3: Radiation protection and nuclear safety, Directorate D: Nuclear Energy, Safety and ITER, European Commission

The European Commission (Directorate-General Energy) welcomes the opportunity to address this international Symposium which provides an important opportunity to review how the practices in information provision and communication with the public have evolved, to learn from each other's experiences, but also to identify areas where improved approaches are necessary.

Nuclear activities in the European Union are governed by the Euratom Treaty which provides the basis for establishing basic safety standards for the protection of the health of workers and the general public. These take the form of Directives – notably the Basic Safety Standards Directive and the Nuclear Safety Directive. These are legally binding and enforceable acts which EU Member States are obliged to transpose into national legislation. The Euratom BSS have been regularly updated since 1959, most recently in 2013. The Nuclear Safety Directive has also been strengthened in 2014, in the light of the lessons learnt from the Fukushima accident.

These Directives impose, amongst others, strengthened emergency preparedness and response requirements, including on transparency and information provision to the public. The challenge now is to ensure the consistent and effective transposition and implementation of the Directives amongst EU Member States, so that European citizens can be assured that the new rules are being effectively applied in practice, in a common and coherent way.

At a practical level, there is a need to continuously review and adapt emergency plans taking account of developments and experience on the availability and dissemination of information on emergencies. Today, people around the world follow events in real-time through the internet and social networks. Equally, the public in the affected countries are well aware of the response in other parts of the world. In the midst of a crisis, it is difficult to explain the rationale of radiation protection: the distinction between activity concentration and dose, the difference between normal acceptance criteria and those in case of an emergency, and above all – what is a "safe" level. In a real emergency the workload of information collection, interpretation, and dissemination can quickly overwhelm resources both at national level and amongst international bodies. When more than one country is affected, the challenge is to ensure not only coordination of protective measures but also the consistency of information on different sides of the borders.

In discussions with stakeholders representing civil society, it is clear that the effectiveness of arrangements to provide information in the preparatory phase of an emergency as well as during an actual emergency is a topic of strong interest. Against this background the European Commission is sponsoring a study to review existing arrangements, compare standards and guidance, and to identify good practices in information provision. The final report of this study is due to be published shortly.

A major nuclear emergency is always an international event. Even if the physical consequences are geographically limited, the consequences on public information needs are global. At the EU-level, protecting the population in such an event is a responsibility of the EU-Member States, and the Commission is responsible for ensuring information exchange through the ECURIE mechanism – which links with the IAEA's systems – and providing EU support if the Member State resources are overwhelmed. Radiation monitoring data from most European countries are made available in near real-time on the public EURDEP website. The Commission also promotes significant research in this field, in particular on new solutions for information exchange, environment monitoring and decision support systems.

In conclusion, securing the most effective implementation of emergency preparedness and response provisions at the European and international level is an objective that the European Commission is keen to help achieve. The effective implementation of provisions on public information remains a challenge. Through participation at this event we can share experience and good practices that will lead to practical improvements in emergency preparedness and response measures.

Sylvie Castonguay, Acting Chief/Editor, Communications and Public Affairs, World Meteorological Organization

WMO's Emergency Response Activities programme tracks and predicts the spread of airborne hazardous substances in the event of a large-scale environmental emergencies. By using specialized atmospheric transport and dispersion models, we track and predict where these hazardous substances will travel to.

Following the Chernobyl nuclear power plant accident in 1986, WMO focused on nuclear facility accidents. The programme has now expanded to dispersion of smoke from large-scale fires, ash from volcanic emission and other emissions from volcanic eruptions, and chemical releases from industrial accidents.

After the earthquake, tsunami and the two explosions at the Fukushima nuclear power plant in Japan in March 2011, WMO's Regional Specialized Meteorological Centres in Asia issued forecast charts of nuclear dispersion from Fukushima. Meteorologists from Austria and Sweden provided support to the IAEA and the World Health Organization to communicate on the event and the trail the substances would follow. WMO took part in the daily conference calls on risks to health and transportation.

Many lessons have been learned from both the Chernobyl and Fukushima emergencies. One of them is that accurate, reliable and speedy communication is paramount. It is no longer an option to be defensive or reactive.

During the Fukushima accident, the release of joint UN press releases was often very slow as we had to find consensus on language and go through the various clearance procedures. It caused a lot of delay and was not the best model.

The situation also arose where more information was being communicated in German (via ZAMG and CTBTO) than in English or Japanese. ZAMG and CTBTO were communicating in German and releasing more information than was then available in other languages. WMO was being bombarded, as was the German Weather Service, with the requests for the release of English-language information.

As a result of the lessons learned, the Japan Meteorological Agency has routinely now established an English language web portal for all extreme events, from earthquakes to floods and tsunamis. This is a practice that needs to be replicated in any future emergencies, regardless of where they occur. So for every event they now have the emergency response in English.

Communications has, however, changed a lot in the few years since Fukushima. Social media has completely changed the way people communicate. Like many UN organizations, WMO is now focussing on emergency communication through Twitter rather than a formal press release, which take too long and which were bypassed by the public flow of information on Twitter.

There is therefore a need for a UN wide crisis management social media platform, as well as regular emergency communication exercises.

There have been huge strides in atmospheric monitoring and in predicting the course of hazardous airborne substances. There have been major breakthroughs, for instance, the EU's Copernicus Atmospheric service have publicly accessible products which are vigorously promoted on social media.

The emergence of fake news poses a very real threat for communicating. It is, therefore, more important than ever before to have rapid and transparent communication from an authoritative and trusted source.

Rudolf Mueller, Interim Functional Lead, Coordination Division, United Nations Office for the Coordination of Humanitarian Affairs

Mr. President, Ladies and Gentlemen:

On behalf of the Office for the Coordination of Humanitarian Affairs I would like to thank the IAEA and welcome the organization of the International Symposium on Communicating Nuclear and Radiological Emergencies to the Public.

The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) has been working successfully with the IAEA for a long time and is committed to continue its collaboration with the International Atomic Energy Agency (IAEA) in the field of nuclear and radiological emergency readiness and response, especially through the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE) and the Joint Radiation Emergency Management Plan of the international organizations.

We very much appreciate the objective of the Symposium to connect actors across the globe and from different communities of practice for advancing our knowledge about contemporary challenges for effective communication with the public and media during nuclear and radiological emergencies.

Connecting partners is part of OCHA's DNA.

About OCHA, Core Mandates

With its partners, OCHA contributes to principled and effective humanitarian response through coordination, advocacy, policy, information management and humanitarian financing mechanisms and tools.

Coordination and Information Management are the core functions pertinent to this cooperation with IAEA.

Coordination

OCHA plays a key role in operational coordination in crisis situations

- This includes assessing situations and needs; agreeing common priorities; developing common strategies to address issues such as negotiating access, mobilizing funding and other resources; coordinating joint public messaging; and monitoring progress.

Key to effective response is the state of preparedness in advance of a crisis as we heard earlier today.

- OCHA promotes the value of preparedness in lessening the impact of disasters on vulnerable communities, especially in disaster-prone countries.

Partnerships with national governments, regional bodies and agencies such as the IAEA on implementing and testing measures are essential to help save lives in an emergency, which are central to the work of OCHA.

Information Management

OCHA provides information management services to the humanitarian community to inform a coherent, effective and principled response.

A clear information management structure promotes shared situational awareness and enables the gathering and dissemination of complementary information. It aims to ensure that this information is as relevant, accurate and timely as possible to help planning and action for all the organizations involved.

The data collected and analysed is used as a foundation for situation reporting and for crafting public information messages.

Properly collected and managed information during the emergency phase can benefit early recovery and disaster preparedness activities later.

OCHAs rapid Information Management structures can support IAEA and partners with the timely communication of nuclear and radiological emergencies to the public.

The role of communication to the public during nuclear and radiological emergencies.

The 1986 Chernobyl accident has proven the devastating humanitarian impacts that nuclear emergencies can have and demonstrated the need to strengthen global cooperation on nuclear and radiological safety. The most cited 2011 Tohoku tsunamigenic earthquake resulting in the Fukushima nuclear accident has furthermore shown a need to link the international system of response to nuclear and radiological incidents and emergencies on the one hand and the international humanitarian coordination system and contingency planning and readiness on the other.

IAEA and OCHA have since then worked successfully together to bring forward key areas of communicating nuclear and radiological emergencies to the public. These key areas are, firstly, to ensure that affected populations receive accurate and timely information from authoritative sources as soon as possible after a nuclear event. And, secondly, to produce risk and crisis communication drafts well in advance, ready to be adapted in local circumstances.

We do appreciate the joint efforts of the Inter Agency Committee on Radiological and Nuclear Emergencies' members and IAEA member states to develop a safety guide on "Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency" that are currently being reviewed. Radiological and nuclear emergencies caused by manmade or natural hazards or a combination of them already cause a loss of life and massive economic losses. Exposure to these hazards is increasing under

rising urbanization of the population and climate change. Higher concentration of people in urban areas leads to higher risks of being exposed to radiological and nuclear activities and hazardous materials. In addition, the most vulnerable members of urban communities are at a particularly elevated risk.

Addressing radiological and humanitarian emergencies is particularly challenging. Therefore, there is a need to continuously strengthen public communication systems in the long run and improve dissemination of authoritative information to the public which is likely to remain highly important in emergency response and readiness planning. Practical and concise guidance is highly valued by public communication professionals.

I look forward to the week ahead of us and the Symposium overall.

APPENDIX B: PRESIDENT'S SUMMARY AND RECOMMENDATIONS

FIGURE 11: SYMPOSIUM PRESIDENT JASON CAMERON GIVES HIS FINAL SUMMARY AND RECOMMENDATIONS DURING THE CNREP 2018 CLOSING SESSION ON 5 OCTOBER 2018

Jason Cameron, Vice-President and Chief Communications Officer, Canadian Nuclear Safety Commission

Good afternoon ladies and gentlemen. Thank you for being here for the closing of the first International Symposium on Communicating Nuclear and Radiological Emergencies to the Public. And thank you for your excellent participation all week – which has made this event such a success.

Before we close, I would like to provide you with a brief summary of the event – including what I believe are some of the key themes that emerged. I will then share with you my recommendations to both the IAEA and its Member States that will be included in the President's Summary within the final Symposium report.

CNREP BY THE NUMBERS: PARTICIPANTS

We had an excellent turnout for the first Symposium on this important topic. In the end we had 373 participants, from 74 Member States and 15 international organizations. On top of that we had over 600 Symposium app downloads which speaks to the number of people who were also engaged from outside of Vienna.

CNREP BY THE NUMBERS: PROGRAMME

Throughout the week we heard from 72 speakers over 16 sessions. We also had 37 excellent poster presentations and 11 exhibits from Member States, vendors and international organizations. The IAEA's emergency operations centre also provided three tours with over 70 total participants.

CNREP BY THE NUMBERS: INTERACTIONS

For me, one of the most exciting parts of this Symposium has been the interactions with all of the Symposium participants throughout the sessions. The use of Slido and Twitter has allowed us to capture some analytics. We had 531 active users on Slido and a total of 3949 votes cast on the polls. On Twitter, the #CNREP2018 hashtag reached over 54,000 accounts and was trending on October 2.

YOUTH COMPETITION

The youth competition was another big highlight of mine! The IAEA received over 93 submissions from 29 Member States. After a thorough process, five incredibly talented finalists were brought to Vienna to present their innovative ideas to the Symposium.

I would like to once again congratulate all of the finalists and our winner, Mr. Muhammad Hassam-ud-din, from Pakistan, for his innovative idea for raising nuclear and radiological emergency awareness amongst the illiterate.

SYMPOSIUM THEMES

I would now like to take a few minutes to reflect on some of the key themes that I believe emerged throughout the Symposium.

THEME 1: DON'T WAIT FOR AN EMERGENCY

To be prepared there are many actions that all of us should undertake prior to any emergency. We should take time to truly understand what the public's communication needs are during an emergency.

Once the needs are understood, key messages and effective modes of delivery should be planned in coordination with key stakeholders.

Trust is also critical to build ahead of time through routine communications with the public, including on non-events. Communicators can also help create a more resilient public by proactively informing them about radiation and protective measures. Finally, there is a need for organizations to maintain awareness of evolving communications trends.

THEME 2: EXERCISE, EXERCISE, EXERCISE

Emergency exercises at all levels need to include public communication.

Exercises allow us to practice communicating, gather feedback from stakeholders, build trust between communicators and technical experts, and understand the resource implication of communicating during a nuclear or radiological emergency.

To be effective, exercises should provide communicators with as realistic an experience as possible and focus on continuous learning and improvement.

THEME 3: ONE COMMON QUESTION – AM I SAFE?

Throughout the Symposium it was shown that location, language, demographic or cultural differences make some communication methods or tools more effective in certain situations than others.

However, it was also clear that wherever you are in the world, during a nuclear or radiological emergency, members of the public ultimately want to know if they and their families are safe. Failing to answer this question and focusing communications on expert terminology and measurement units is unhelpful and can hurt the public's trust in an organization.

While all responsible organizations want to communicate clearly, accurately, honestly, transparently, timely, and in an understandable manner, there remains a common challenge to clearly and consistently provide the answers the public wants and needs.

THEME 4: THE IMPORTANCE OF LANGUAGE

Whether at the local, national or international level we need to communicate using proper, simple and translatable words. The language we choose should connect us with the public by using an active voice, personal pronouns, and expressed through an empathetic lens.

To help communicators in the moment, we need to prepare in advance agreed-upon plain language background material and messaging. This should include an explanation of radiation and its effects. The importance of visuals to help get messaging across was also emphasized.

THEME 5: COLLABORATION AT EVERY STAGE

In order to provide clear and consistent messaging to the public, collaboration is needed at many levels and throughout every stage of emergency preparedness and response.

First, closer collaboration is needed between technical experts and communicators. When designing preparedness tools, both parties need to be included as part of a multidisciplinary approach.

During an emergency response, a common focus on public safety within organizations will help ensure communicators have what they need. To be successful trust must be built between technical experts and communicators.

Second, closer collaboration is also needed between local officials, national authorities, humanitarian organizations, and international organizations to ensure consistent messaging (one message, many voices). As a result of the discussions at this Symposium, I will make five recommendations. The implementation of these recommendations will require dedicated commitment at the national and international levels. I strongly encourage decision makers and relevant authorities in Member States, as well as organizations to determine how these recommendations apply to them, decide how they will move forward with their implementation, and commit to sharing the results of implementation.

PRESIDENT'S RECOMMENDATION

Recommendation 1: Principles and arrangements for effective public communication (achieving "one message, many voices")

Participants of the Symposium discussed the importance of having established principles and practical arrangements for emergency public communication. The necessity of having best practices reflected in the international safety standards was highlighted.

I recommend that the IAEA complete the development of the draft Safety Guide on "Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency" as soon as possible and assist Member States in its speedy implementation by conducting relevant workshops, training, and exercises. I also encourage Member States to utilize the Safety Guide, once it is published, for further strengthening their preparedness for emergency communication and to provide feedback to the IAEA on its use.

Recommendation 2: Practical means to implement communication arrangements in nuclear or radiological emergencies

Participants of the Symposium highlighted the need for being prepared in advance (e.g. knowing roles and responsibilities, having developed and tested materials, identifying and engaging stakeholders). The importance of continuous learning through workshops, training and exercises was stressed, including for technical experts and communication experts to be trained together.

I recommend that the IAEA further develops training materials and tools, including e-learning tools, to support Member States in developing and further strengthening national capacities in emergency communication. I further recommend that Member States request and participate in IAEA workshops, training, and exercises related to emergency communication.

Recommendation 3: Answering the question "Am I safe?" in an emergency

Participants of the Symposium stressed the importance – yet difficulty – of answering the question "Am I safe?" Clear and empathetic language that puts radiological health hazards into perspective and relays reliable information builds trust, allays fears and helps to avoid unwarranted actions. To underpin these efforts, there is a common need to prepare EPR communication materials that are understandable for a broad diversity of different cultural, educational and linguistic backgrounds.

I recommend that the IAEA continue its efforts to provide Member States with guidance on how radiological health hazards can be put into perspective in an emergency, and how it can be used to answer questions that cause challenges globally, in a simple and understandable manner. I further recommend that Member States adopt the IAEA guidance of how radiological health hazards can be put into perspective in communication arrangements within the national context.

Recommendation 4: Incorporating innovative media in communication arrangements

Participants of the Symposium agreed that innovative communication media is fundamentally changing communications practices. In particular, social media has grown in reach and influence. These trends are expected to continue to grow in strength, thus the role of Public Information Officers and nuclear communicators in ensuring the effectiveness and transparency of emergency communications is of essential value.

I recommend that the IAEA develops guidance on the utilization of innovative media for public communication in a nuclear and radiological emergency. I also recommend that the IAEA incorporates innovative technologies, including social media simulators and other tools under development, in training and realistic exercises developed for Member States. I further recommend that Member States give priority, as appropriate to their national context, to incorporating innovative media in their communication arrangements and utilizing, as applicable, available IAEA tools.

Recommendation 5: Prioritizing communications in EPR events and other relevant activities

Participants highlighted the importance of effective public communication within EPR overall. I recommend that the IAEA considers all of the findings of this Symposium, continues to host events specifically focused on communicating with the public during emergencies, and includes the topic into other EPR activities. I further recommend that Member States prioritize communicating with the public in a nuclear or radiological emergency at relevant national activities on EPR.

IN CONCLUSION

This summary gives a high-level overview of a successful Symposium and provides reasonable and achievable recommendations aimed at improving how officials at all levels communicate to the public during a nuclear or radiological emergency. It is now incumbent on Member States and the Agency to implement these recommendations and share progress at future international events on emergency preparedness and response.

I would like to thank the IAEA secretariat, including its technical staff of the Incident and Emergency Centre and the Public Information Office, as well as the dedicated staff of the IAEA's Conference Services.

I would also like to thank all of the speakers, panellists, exhibitors, and poster presenters for their contributions to the Symposium.

I would also like to once again thank the members of the planning committee for their efforts over the last 18 months and the excellent role they played this week in chairing the sessions.

Finally, I want to thank all of you for making this Symposium such a success.

APPENDIX C: INTERACTIVE POSTERS

1. Issues and Solutions of Emergency Preparedness and Radiation Protection in the Republic of Tajikistan.	U. Mirsaidov, Tajikistan.
2. Emergency Preparedness: Crisis Communication Plan.	P. Mthombeni, South Africa
3. Social Media and Complex Emergencies in Uganda.	A. Otim, Uganda
4. Education, training, competence – fundamental prerequisites for appropriate EPR, with emphasis on communication with the public	S. Jovanovic, Montenegro
5. When used in communication to general public, does plume maps lead to desired protective actions?	K. Raitio, Finland
6. Research project on target groups and communication channels in crisis communication: first results	C. Fehn, Germany
7. Formative informations to decision makers and their impacts on a multisectorial team of nuclear emergency management system	C. A. B. Dath, Senegal
8. Nuclear Power Emergency in the United States of America: Challenges Associated with Standard Operation Procedure and Emergency Evacuation	K. Dean, USA
9. Effective Communication	N. Mughal, Pakistan
10. Communication and Public Relation Skills course for MS Radiation Physics: Current Status, Lessons Learnt and the Future Prospects	T. Majeed, Pakistan
11. Enhancement the Emergency Preparedness of Nuclear and Radiological Site: Public Communication Aspect	M. Abdelaal, Egypt
12. Harnessing Online and Social Media in Communicating Nuclear Safety to the Public: Insights from Five Large-Scale Public Opinion Surveys in Southeast Asia	S. Ho, Singapore
13. “LINE”: An Alternative Social Media Channel for Communication	K. Pakdee, Thailand
14. Impacts of Social Media Addressing Rumors on Communicating Nuclear and Radiological Emergencies to the Public: Trust Building Perspective	D. Hossain, Bangladesh
15. The Importance of Social Networks in the Communication of Radiological Emergencies in Paraguay	S. López Centurión, I. Riquelme Díaz, F. Doncel Invernizzi, Paraguay
16. Communicating Nuclear and radiological Emergencies in Iraq	K. Jasim, Iraq
17. Media and Nuclear Emergencies	L. Khalayi, Uganda
18. U.S. Lessons Learned: Communications During Response to an International Incident	D. Blumenthal, USA
19. National arrangements for public communications in a nuclear and radiological emergency	W. Bakr, Egypt
20. The Vital Role of Emergency Claims Response in Emergency Preparedness	W. Hayden, Canada

21. Arrangements for public communication in a nuclear emergency –Experience and Lessons learned from the Fukushima Daiichi NPP accident	K. Motomitsu, Japan
22. Communicating the Clarity of Nuclear Power's Myths and Rumors in Indonesian Community Through a Social Media Platform: YouTube	I. Romadhon, Indonesia
23. Proposal of a Communication Plan with the Public in Radiation Emergencies in Cuba	R. Bosch Robaina, Cuba
24. Vietnam communication system in nuclear and radiological emergency – current status and gaps need to be fulfilled	N. D. Kieu, Malaysia
25. Arrangements for Public Communication in a Nuclear or Radiological Emergency in the United Republic of Tanzania	S. Sawe, Tanzania
26. Current Situation and Prospect of Communication with the Public about Nuclear Incidents in China	Q. Zhang, Q. Guo, China
27. Radiological Emergency Preparedness & Respond in Malaysian Nuclear Agency: Exerciser's Lessons Learned	S. Muhd Sarowi, Malaysia
28. Emergency preparedness and response: emergency drills specifically on public communication, public communication components in emergency exercises.	N. Boryshkevych, Ukraine
29. CNCAN's lessons learned from emergency response exercises concerning public communication during an emergency	M. Florescu, Romania
30. Visualizing Radiation in 3D and in Real-Time: Enhancing Risk Communication and Response during Nuclear Emergencies	K. Vetter, USA
31. Risk and Crisis in the Perspective of the Nuclear Sector in Brazil	T. B. Machado, Brazil
32. Adopting challenges involving private mass media, mass people in communicating Nuclear and Radiological Emergencies	M. Z. I. Mollah, Bangladesh
33. National Strategy for Communicating Nuclear and Radiological Emergencies to the Nigerian Public	S. Isa, Nigeria
34. The role of Hiroshima University as the new radiation/ nuclear emergency medical support centre on communicating radiation/nuclear emergencies to the public	N. Hirohashi, Japan
35. The Management of Uncertainty in Public Communication of the Ru-106 Case	V. Tafili, Greece
36. Role of the Tunisian Association of Nuclear Sciences and Awareness in Communicating Benefits and Risks of Radiation Exposure to Public	L. Ounalli Mejri, Tunisia
37. Public Communication Channels and Tools in Nuclear and Radiological Emergencies	P. Ngamilo, Tanzania
38. The Case of a Newly Created Regulatory Authority: Challenges & Good Practices	H. Housni, Morocco
39. Emergency Preparedness and Response Plan for Pilot Nuclear Fuel Cycle Facility (PNFCF)	M. Salem, Egypt
40. Public Communication Channels and Tools in Emergencies	F. Arogundade, Nigeria