

## Preparing to Assist in a Nuclear or Radiological Emergency Under all Circumstances

Nicholas Tarsitano, IAEA Department of Nuclear Safety and Security



IAEA Director General Rafael M. Grossi chairs a mid-exercise briefing of the Steering Group on 25 March 2020. (Photo: IAEA)

You cannot be “too prepared” for a nuclear or radiological emergency. That is why emergency exercise scenarios should include challenging, high risk, low probability events.

Last week a planned IAEA coordinated “ConvEx-2b exercise” went ahead and saw the participation of 35 countries and two Regional Specialized Meteorological Centres (RSMCS) of the World Meteorological Organization. The three-day exercise, from 24 to 26 March, was conducted while the responders in many Member States and in the IAEA’s Incident and Emergency Centre (IEC) in Vienna worked remotely to support measures taken to prevent the spread of the novel coronavirus—COVID-19.

IAEA Director General Rafael Mariano Grossi chaired a mid-exercise meeting of the Incident and Emergency System Steering Group and told participants: “We need to be prepared for the possibility that nuclear and radiological emergencies resulting from a safety or security event could be accompanied by natural disasters, pandemics or other crises. Conducting this exercise at a time when all of our lives are being seriously disrupted by the coronavirus crisis demonstrates

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our determination to maintain our emergency response capability, regardless of the causes and circumstances of any crisis, the IAEA will act quickly to coordinate an effective international response.”

## Assistance in a nuclear or radiological emergency—even during a pandemic

*“We need to be prepared for the possibility that nuclear and radiological emergencies resulting from a safety or security event could be accompanied by natural disasters, pandemics or other crises.”*

**Rafael Mariano Grossi**  
IAEA Director General

The ConvEx-2b ‘players’ included 17 Member States in the role of ‘Requesting States’ and a further 20 ‘Assisting Players’, comprising 18 ‘Assisting’ Member States and two ‘Assisting’ RSMCs.

Member States’ assistance requests focused on the various safety or security related nuclear and radiological emergency scenarios, as well as operating during an on-going pandemic situation such as COVID-19, where first responders operate in an even more challenging

environment. For instance, Requesting States’ plans provided for additional precautions to protect the Field Assistance Teams deployed by the Assisting Member States.

The “Assistance Action Plans” included immediate COVID-19 testing for the Field Assistance Teams on arrival and providing them with personal protective equipment to protect them from COVID-19 exposure and on-going medical assessment while they deliver assistance.

## Testing time objectives

Convex-2b exercises test the players’ efficiency and effectiveness in offering or requesting assistance. “Speed and efficiency are essential strategic requirements to facilitate assistance to Member States who may need to manage different, simultaneous crises occurring worldwide,” noted Elena Buglova, Head of the IAEA’s Incident and Emergency Centre whose staff organized and coordinated the exercise.

The exercise commenced with those Member States acting as the ‘Accident States’, seeking assistance via the IAEA to respond to a hypothetical emergency. The IEC then notified the participating Member States’ designated Competent Authorities and international organizations of these requests. Their procedures were then set into motion to determine if, and how, they could submit an offer of assistance to the Accident State.

In consultation with the Accident State and the Assisting States, the IEC coordinated and prepared the Assistance Action Plan that outlined each partner’s roles, responsibilities and activities, which was then agreed and

signed by the Assistance Action Plan’s parties.

While the focus of this exercise is relevant to the 35 States Parties registered in the IAEA’s Response and Assistance Network (RANET), all competent authorities and international organizations were encouraged to participate.

The exercise results, and the IEC’s evaluation, will be published on the IAEA’s secure website for operational 24/7 communication, USIE, or the Unified System for Information Exchange in Incidents and Emergencies. Sharing this feedback affords all Member States and international organizations the opportunity to review the exercise and implement lessons learned to advance their emergency preparedness arrangements as well as improve their capabilities.

## The IAEA’s mandate in preparedness and response



IAEA Director General Rafael M. Grossi (left), IAEA Deputy Director General and Head of the Department of Nuclear Safety and Security Juan Carlos Lentijo and Head of the IAEA’s Incident and Emergency Centre Elena Buglova at the Steering Group meeting, 25 March 2020. (Photo: IAEA)

The IAEA’s IEC, prepares, conducts and evaluates exercises to strengthen Member States’ and international emergency preparedness. These exercises test whether the operational arrangements Member States, international organizations, and the IAEA have in place meet key response objectives, some of which are defined under international law—the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.

As part of the IAEA’s work in coordinating emergency preparedness internationally, it regularly conducts various exercises with Member States’ authorities to test whether they meet the Conventions’ response requirements.

The least complex of the exercises, ConvEx-1, tests whether Member States and international organizations can respond to an emergency alert on a 24/7 basis. Contact between the Competent Authority and the IAEA’s IEC must be established within a set time frame. Simultaneously, the registered contact details of the official communication channels are confirmed.

ConvEx-2 exercises test Member States’ procedures for swiftly and correctly exchanging information and arranging assistance.



Finally, ConvEx-3, the largest and most complex exercise conducted by the IAEA, involves many Member States and international organizations. It requires continuous, 24/7 operations for several days and tests arrangements for severe radiological and nuclear emergencies. The last one was held in 2017 and the next is planned for 2021. [IEC](#)

## Related Resources

- COVID-19: latest IAEA updates <https://www.iaea.org/covid-19>
- Emergency Preparedness and Response <https://www.iaea.org/topics/emergency-preparedness-and-response-epr>
- Emergency preparedness and response: exercises and training <https://www.iaea.org/topics/epr-exercises-and-training>
- IAEA Incident and Emergency Centre <https://www.iaea.org/about/organizational-structure/departments-of-nuclear-safety-and-security/incident-and-emergency-centre/>
- RANET <https://www.iaea.org/topics/assistance>
- IAEA Response and Assistance Network (RANET) <https://www.iaea.org/publications/12340/iaea-response-and-assistance-network>
- Convention on Early Notification of a Nuclear Accident <https://www.iaea.org/publications/documents/treaties/convention-early-notification-nuclear-accident>
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency <https://www.iaea.org/publications/documents/treaties/convention-assistance-case-nuclear-accident-or-radiological-emergency>

## Related Story

Assistance Regardless of Distance: About the IAEA's Response and Assistance Network (RANET) <https://www.iaea.org/newscenter/news/assistance-regardless-of-distance-about-the-iaea-response-and-assistance-network-ranet>

## Finding a Radioactive Needle in a Haystack: IAEA Emergency Exercise in Las Vegas Hosted by US Department of Energy's National Nuclear Security Administration

Nicholas Tarsitano, IAEA



Joint Assistance Team members “sweep” a stadium in Las Vegas, USA, before a major sport event to recover any radioactive sources. (Photo: S. Carragher)

A mock explosion near a hypothetical major sporting event in Las Vegas set the scene for an exercise in which the IAEA tested the adaptability of its multinational Response and Assistance Network, RANET, whose members deliver expertise and specialized equipment to assist in a response to nuclear and radiological emergencies.

In the 23-26 September 2019 exercise scenario, hosted by the US Department of Energy's National Nuclear Security Administration (NNSA), the IAEA received a request for support to locate and recover any radioactive sources in a stadium and athlete's village before a major sporting event. The IAEA activated RANET and dispatched to Las Vegas a Joint Assistance Team including experts from five countries and the IAEA Secretariat.

As the exercise commenced, a mock explosion was reported at a storage facility near the athlete's village prior to the hypothetical sporting event. In the scenario, firefighters detected radiation levels many times higher than the relevant background levels of the area, indicating that radioactive sources were involved.

Authorities from the requesting country simulated issuing a further assistance request for specialized support for the response to the incident. After the Joint Assistance Team determined that they could work safely in the area, they developed and agreed on a plan with the requesting country to conduct wide-area radiation monitoring. By taking measurements nearby and downwind of the

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simulated explosion, the team determined that the athlete's village and the surrounding area should be evacuated.





The team then received the next simulated assistance request to monitor radioactivity in a busy, pedestrian zone bustling with tourists. Team members were tasked with surveying radioactivity along the 3-kilometre length of the crowded public area without attracting attention or causing public alarm. The Joint Assistance Team correctly identified the single individual illicitly carrying a radioactive source.

"We developed and conducted this exercise with the IAEA to provide a more complex situation than is routinely available," said Jared Czap, Acting Deputy Director, Office of Nuclear Incident Policy and Cooperation, NNSA. "The RANET teams responded robustly and demonstrated that RANET is a network that can effectively tailor its support to dynamic emergency conditions."

On the final day of the exercise, the teams searched both the 35,000-seat Sam Boyd Stadium and a shopping mall's 6,000 car parking lot, where they located all hidden radioactive sources.

"RANET's success depends on testing and strengthening our procedures to deliver the assistance that Member States may request in an emergency," said IAEA RANET Officer Kilian Smith. "The Las Vegas Joint Action Team exercise, hosted by NNSA, was an invaluable initiative that helps ensure that RANET is ready to handle complex emergencies." <sup>IEC</sup>

## Related Resources

-  RANET <https://www.iaea.org/topics/assistance>
-  Response <https://www.iaea.org/topics/response>
-  Emergency Preparedness and Response <https://www.iaea.org/topics/emergency-preparedness-and-response-epr>
-  US Department of Energy's National Nuclear Security Administration <https://www.energy.gov/nnsa/national-nuclear-security-administration>

## Related Stories

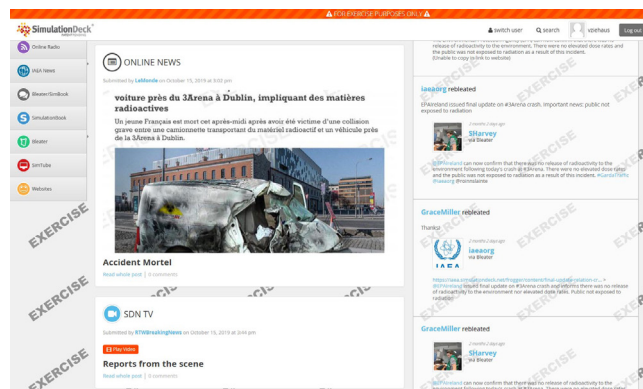
Enhancing Cooperation for Effective Nuclear and Radiation Regulatory Systems: IAEA Conference Begins <https://www.iaea.org/newscenter/news/enhancing-cooperation-for-effective-nuclear-and-radiation-regulatory-systems-iaea-conference-begins>

IAEA Holds Exercise to Test International Capabilities for Assistance in the Event of Nuclear or Radiological Emergencies <https://www.iaea.org/newscenter/news/iaea-holds-exercise-to-test-international-capabilities-for-assistance-in-the-event-of-nuclear-or-radiological-emergencies>

Peer Review Service for Emergency Preparedness and Response Reaches 20 Year Milestone <https://www.iaea.org/newscenter/news/peer-review-service-for-emergency-preparedness-and-response-reaches-20-year-milestone>

# IAEA and Ireland Test Social Media Simulator for Effective Communication in a Nuclear Emergency

Viola Ziehaus, IAEA



Screenshot of the social media simulator adapted for nuclear emergency response by the IAEA.

"OMG #Dublin will be a radioactive zone due to the #3ArenaCrash!! @EPAlreland @iaeaorg what should we do?? We need answers! This is another #Chernobyl!" This fabricated social media post is one of hundreds that public information officers in Ireland had to assess in an exercise using the IAEA's Social Media Simulator. The exercise was developed to help countries strengthen their emergency social media response capabilities during a simulated perceived emergency.

The Irish Environmental Protection Agency (EPA) stepped up to support this first-time Convention Exercise using SimulationDeck, an internet simulator and exercise management tool that the IAEA adapted for use in nuclear emergency exercises and training. "We all felt that using a tool that reflected 'real life' social media provided a very rich learning environment," highlighted Ciara Hilliard, Programme Officer of the Emergency Preparedness Unit at EPA Ireland. "It gave a realistic example of the potential pressures of communicating in an emergency."

The social media exercise takes place online yet can only be seen by the teams taking part in the exercise in Dublin and Vienna. All the exercise "players" view a monitoring platform that tracks simulated social media posts. The exercise begins with initial public concern, a trending story about a traffic accident involving a van carrying radioactive material near a concert arena in Dublin. The initial posts were soon followed by photographs of the vehicle's radiation placards that trigger a surge in posts.

The public is demanding answers, some accounts circulate rumours and media seek official responses. Adding to the complexity and realism, the simulated social media posts include multilingual messages, news articles, and news video clips. Through it all, the emergency communicators need to determine the facts and coordinate with their technical teams to swiftly issue accurate, easily understandable public safety messages on the appropriate

channels. In coordination with emergency responders, the communicators also adapt their messages throughout the exercise to keep pace with shifting public concerns and circumstances.

“It is vital to be able to test emergency communications on social media since it is a major part of any effective response in an emergency,” said Peter Kaiser, IAEA Crisis Communications Adviser. “We developed a secure platform that allows public information teams to realistically engage with a simulated public via social media during a fictional emergency, enabling emergency procedures to be tested and evaluated with no risk of alarming the public.”

The IAEA Incident and Emergency Centre (IEC) is planning to further test SimulationDeck in internal and national exercises, as well as in training workshops.

## Background



The Irish Environmental Protection Agency (EPA) in Dublin using the social media simulator during the first Convention Exercise of this kind. (Photo: EPA)

In emergency preparedness and response, the IAEA has defined responsibilities and specific functions assigned to its Statute, the Convention on Early Notification of a Nuclear Accident (the Early Notification Convention), the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (the Assistance Convention) and relevant decisions of IAEA policy-making organs. Convention Exercises (ConvEx) are regularly conducted to strengthen IAEA’s response arrangements and capabilities, as well as those of Member States and ensure the implementation of these conventions. <sup>IEC</sup>

## Related Resources

- 🔗 EPR Exercises and Training <https://www.iaea.org/topics/epr-exercises-and-training>
- 🔗 Early Notification Convention <https://www.iaea.org/publications/documents/treaties/convention-early-notification-nuclear-accident>
- 🔗 Assistance Convention <https://www.iaea.org/publications/documents/treaties/convention-assistance-case-nuclear-accident-or-radiological-emergency>
- 🔗 Ireland–Environmental Protection Agency <https://www.epa.ie/irelandsenvironment/>

## Emergencies Don’t Sleep: IAEA and Sweden Test Response Arrangements to Simulated Nuclear Accident

Viola Ziehaus, IAEA



IAEA Incident and Emergency System responders in the Incident and Emergency Centre’s “operational area” participate in an exercise simulating a nuclear accident, Vienna, Austria. (Photo: K. Vargas/IAEA)

During a 36-hour emergency exercise held recently, the IAEA Incident and Emergency Centre (IEC) together with counterparts from 41 countries and 3 international organizations simulated a global emergency response to a nuclear accident. The exercise was conducted in cooperation with authorities in Sweden, who developed the scenario and acted as the ‘accident state’.

“The purpose of the exercise was, among others, to strengthen all relevant organizations’ capacity to deal with a nuclear accident, both in terms of safety and security, as well as to strengthen Sweden’s ability to receive support from other countries regarding radiation measurements,” said Catarina Danestig Sjögren, Head of the Emergency Preparedness and Response Section at the Swedish Radiation Safety Authority (SSM).

***“The purpose of the exercise was, among others, to strengthen all relevant organizations’ capacity to deal with a nuclear accident, both in terms of safety and security, as well as to strengthen Sweden’s ability to receive support from other countries regarding radiation measurements,”***

**Catarina Danestig Sjögren,**  
Head, Emergency Preparedness and Response Section, Swedish Radiation Safety Authority (SSM)

The exercise started on 23 October, when the SSM reported the detection of a security threat at the Forsmark Nuclear Power Plant. Over the following days, Member States and international organizations received, acknowledged, submitted and responded to information postings about the event on the IAEA’s Unified System for Information Exchange in Incidents and Emergencies (USIE) secure website.




“The IAEA Incident and Emergency System responders played their roles exchanging official information, providing public information, assessing potential emergency consequences, providing prognoses of possible emergency progression, and facilitating a request for and offers of assistance,” said Kilian Smith, IAEA Response and Assistance Network (RANET) officer.

During the exercise, the SSM submitted a request for assistance to the IAEA’s IEC, the focal point for the coordination and facilitation of international assistance. Following this request, the IAEA developed an Assistance Action Plan and organized a RANET Joint Assistance Team mission to Forsmark, comprising the IAEA Field Assistance Team and teams from Denmark, Finland and Norway. From 29 October to 1 November, the Joint Assistance team assessed the radiological situation in the environment using in situ gamma spectrometry, car-borne and backpack radiation monitoring.





“The exercise provided an excellent opportunity for an IAEA Field Assistance Team to successfully test the implementation of assistance arrangements for the first time” said Stephane Defour, IAEA Response System Analyst.

## Background

The IAEA has defined responsibilities and functions which are in accordance with its Statute, the Convention on Early Notification of a Nuclear Accident (the Early Notification Convention), the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (the Assistance Convention) and relevant decisions of IAEA policy-making organs. Convention Exercises (ConvEx) are regularly conducted to practice the operational arrangements for the implementation of these conventions.

In the event of a nuclear or radiological incident or emergency, Member States may request assistance from or through the IAEA. For this purpose, the IAEA maintains the Response and Assistance Network (RANET) which currently comprises 35 Member States who have identified national assistance capabilities that consist of qualified experts, equipment and materials, which could be made available to assist another State. The RANET procedures tested during this exercise are described in the *IAEA Response and Assistance Network manual (EPR-RANET 2018)*. 

## Related Resources

-  RANET <https://www.iaea.org/services/networks/ranet>
-  Convention on Early Notification of a Nuclear Accident <https://www.iaea.org/publications/documents/treaties/convention-early-notification-nuclear-accident>
-  Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency <https://www.iaea.org/publications/documents/treaties/convention-assistance-case-nuclear-accident-or-radiological-emergency>
-  IAEA Response and Assistance Network 2018 <https://www.iaea.org/publications/12340/iaea-response-and-assistance-network>

## IAEA Holds First Course on Preparedness and Response to a Nuclear or Radiological Emergency Combined with Other Emergencies

Laura Gil, IAEA



Participants respond to a mock emergency with a lost radioactive source combined with a flood. Traiskirchen, Austria. (Photo: L. Gil/IAEA)

*Traiskirchen, Austria*—Imagine a nuclear emergency triggered by another emergency, such as a natural disaster like an earthquake, volcanic eruption, or tsunami. Or, imagine a tropical cyclone, hurricane or civil disturbance leading to a radiological emergency. Preparing to respond in complex emergency scenarios is what participants learned to do at a recent course on the topic, the first-ever such course by the IAEA, offered in cooperation with Austria’s Civil Protection School in Traiskirchen, near Vienna.

“It is unlikely that a radiological event will be affected by an extreme natural disaster, but it is a possibility we need to be aware of and ready to respond to,” said Emiliano Mingorance Sánchez, Head of the Chemical, Biological, Radiological and Nuclear Technical Unit at the Spanish Guardia Civil, who participated in the course.

Participants—mainly nuclear power plant operators, regulators and first responders—learned about the specific requirements different response professionals need to meet to effectively respond to combined emergencies and their associated challenges. Combined emergencies amplify the challenges emergency responders must manage. During the week-long course, they analysed real case studies. One such case was the accident at Fukushima Daiichi nuclear power plant—a nuclear emergency combined with a natural emergency caused by a severe earthquake and tsunami.

GSR Part 7, or the *IAEA Safety Standards Series’ General Safety Requirements Part 7, Preparedness and Response for a Nuclear or Radiological Emergency*, addresses the requirements for preparedness and response to any nuclear or radiological emergency, irrespective of its cause. This includes combined emergencies.

## A flood and a source

Participants were asked to come up with a response plan for a simulated emergency with a missing radioactive source, combined with a flood. The challenge? To reach a consensus on the response plan and to think of all stakeholders and institutions required.

“Ensuring effective preparedness and response to a combined emergency requires the development and maintenance of an all-hazards emergency management system,” said Phillip Vilar Welter, IAEA Emergency Preparedness Officer in charge of the training course. “A necessary element for such an all-hazards emergency management system is the establishment of a unified command and control system, which provides a means for effective communications, coordination, cooperation and integration of operating, local, regional and national emergency response organizations.”

The topic of combined emergencies, Vilar Welter said, became especially relevant and was prioritized by the international community after the Fukushima Daiichi nuclear power plant accident. The IAEA then developed specific guidance that reflects the lessons learned from the accident.

Following this pilot course, the IAEA plans to publish an Emergency Preparedness and Response series publication on nuclear or radiological emergencies combined with other incidents or emergencies.

“After this course, I can reassess some of the procedures back home and try to influence or raise awareness of the need to adapt our norms and intervention protocols in the face of such emergencies,” Mingorance Sánchez said.

More than 50 experts from 15 countries attended the course at Austria’s Civil Protection School, a national education and training facility for radiation protection where police officers and first responders such as the fire brigade and ambulance services are regularly trained.

“Collaborating internationally in the face of transregional and international disasters is key to responding effectively in crisis situations, which is why we look forward to our continued cooperation with the IAEA,” said Almira Geosev, course host and member of the Civil Protection Training Unit of the Austrian Federal Ministry of the Interior (BMI). <sup>IEC</sup>

## Related Resources

- Photo Gallery [https://www.flickr.com/photos/iaea\\_imagebank/albums/72157712695261417](https://www.flickr.com/photos/iaea_imagebank/albums/72157712695261417)
- EPR Training Courses <https://www.iaea.org/services/education-and-training/training-courses/epr>
- Incident and Emergency Centre <https://www.iaea.org/about/organizational-structure/department-of-nuclear-safety-and-security/incident-and-emergency-centre>
- Preparedness and Response for a Nuclear or Radiological Emergency <https://www.iaea.org/publications/10905/preparedness-and-response-for-a-nuclear-or-radiological-emergency>

PRESS RELEASE

## IAEA Network for Emergency Assistance Grows to 35 Countries as India Joins

India has become the 35th country to join the International Atomic Energy Agency (IAEA) Response and Assistance Network (RANET), a group of states which offer assistance to mitigate the consequences of nuclear or radiological emergencies.



Through RANET, states can register their emergency preparedness and response capabilities, including support for radiation measurements, medical advice or treatment, and specialized equipment. This enables the IAEA’s Incident and Emergency Centre to promptly mobilize an assistance team upon request of a state affected by an emergency.

“India’s emergency preparedness and response capabilities can now be offered to countries during an emergency, if these countries ask for assistance. This shows a strong commitment by India to strengthen the international framework for nuclear and radiological emergency preparedness and response,” said Elena Buglova, Head of the IAEA’s Incident and Emergency Centre, which serves as a focal point for coordinating and facilitating international assistance. “We hope that India’s decision to join RANET will encourage more countries to become members.”

Participating in RANET is one way in which states fulfil their obligations under the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, which was adopted in 1986 following the Chernobyl nuclear power plant accident. The network was formally established after a decision by IAEA Member States in 2000. RANET members share up-to-date information about the type of assistance they can offer so that response teams can be assembled based on the support required.

In March 2019, for example, France provided medical treatment, facilitated by the IAEA through RANET, for a person who was exposed to high doses of radiation over an extended period in Georgia. Other cases, such as assistance missions by RANET members to Cambodia and Trinidad and Tobago in 2012, involved searching for and recovering lost radiation sources and assessing patients overexposed by radiation during medical treatment.

The following 35 countries are now part of RANET: Argentina, Australia, Austria, Belarus, Belgium, Bulgaria, Canada, China, Czech Republic, Denmark, Egypt, Finland, France, Germany, Hungary, India, Ireland, Israel, Japan, the Republic of Korea, Mexico, Nigeria, Norway, Pakistan, Romania, the Russian Federation, Slovenia, Spain, Sri Lanka, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and the United States of America. <sup>IEC</sup>

# IAEA Holds First Research Coordination Meeting on Using Dose Projection Tools in Nuclear or Radiological Emergencies

Nicholas Tarsitano, IAEA



During the research coordination meeting, participants discussed dose projection tools to ensure effective emergency preparedness and response. (Photo: K. Vargas/IAEA)

Participants from 21 countries and 25 institutes shared their experience and knowledge about using dose projection tools when preparing for, and responding to, nuclear or radiological emergencies at the first research coordination meeting on this topic organized by the IAEA in Vienna in January 2020.

“The goal of this coordinated research project (CRP) is to outline the plans and details, which will be implemented over the next three years, to help improve the performance of dose projection tools in the preparedness and response to nuclear or radiological emergencies,” said Phillip Vilar Welter, IAEA Emergency Preparedness Officer.

Dose projection tools are important for ensuring effective emergency preparedness and response. In the preparedness phase, tools such as RODOS (Real-time On-line DecisiOn Support system) or MACCS (MELCOR Accident Consequence Code System) are used to assess the potential radiological consequences of an emergency. The projections can help authorities develop emergency arrangements that specifically address the expected consequences. For example, these tools can be used to determine the size of emergency planning zones needed for protective actions, prioritize locations for radiation monitoring, estimate the location and type of contamination deposited on the ground, or project the dose received by the public, among many other projections.

“The IAEA Incident and Emergency Centre (IEC) supports this work as it contributes to Member States’ preparedness, assisting them to enhance the effectiveness of their emergency arrangements,” Vilar Welter added.

The CRP will help Member States better understand the advantages and limitations of using dose projection tools. For instance, all modelling tools produce outputs that

display some uncertainty when these projected results are compared to actual experience. Therefore, comparing data from modelling tools to actual data from past events will enable experts to examine and assess the modelling tool’s limitations and uncertainties.

At the one-week meeting, experts considered experience from the use of the dose projection tools and approaches in improving them. Their analysis will inform the CRP’s recommendations to improve the tools’ effectiveness in supporting emergency preparedness and response.

Researchers, technical experts and observers attended the course organized by the

IEC and the IAEA’s Division of Radiation, Transport and Waste Safety from 20 to 24 January 2020, representing diverse organizations, such as national laboratories, public health organizations and nuclear safety institutions. These organizations are directly involved in developing and using the projection tools to enhance emergency preparedness and response arrangements.

“We hope to gain a better understanding of the IAEA’s methods for radiological assessment in nuclear and radiological emergencies,” said Lainy Cochran and Brian Hunt of Sandia National Laboratories. “We also hope to gain a better understanding of the tools used by the IAEA and other countries during these emergencies.”

For further information please use the contact form (<https://www.iaea.org/projects/crp/j15002>) on the CRP page.

## Related Resources

- Emergency Preparedness and Response <https://www.iaea.org/topics/emergency-preparedness-and-response-epr>
- Coordinated Research Projects <https://www.iaea.org/services/coordinated-research-activities>

## Related Story

New CRP: Effective Use of Dose Projection Tools in the Preparedness and Response to Nuclear and Radiological Emergencies (CRP J15002) <https://www.iaea.org/newscenter/news/new-crp-effective-use-of-dose-projection-tools-in-the-preparedness-and-response-to-nuclear-and-radiological-emergencies-crp-j15002>

**“The goal of this coordinated research project (CRP) is to outline the plans and details, which will be implemented over the next three years, to help improve the performance of dose projection tools in the preparedness and response to nuclear or radiological emergencies,”**

**Phillip Vilar Welter**  
IAEA Emergency Preparedness Officer



# New IAEA Operations Manual for Stronger Global Emergency Preparedness and Response

Laura Gil, IAEA

In case of a nuclear or radiological emergency, what do national authorities need to do to respond and how quickly? How do they communicate with other countries' emergency responders and the IAEA when every second counts? A new and updated Operations Manual provides the answers to these and other questions that arise in emergency response.



The Operations Manual for Incident and Emergency Communication describes in detail the steps that authorities and international organizations need to take to notify other countries and the IAEA of an event and how to request help during a nuclear or radiological emergency. Information in the manual applies to all countries and relevant international organizations and is of particular importance to those that have signed the Convention on Early Notification of a Nuclear Accident ([“Early Notification Convention”](#)) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency ([“Assistance Convention”](#)), which represent approximately three quarters of the IAEA’s 171 Member States.

“Several developments have led to modifying existing arrangements since the last edition of the Operations Manual was issued in 2012,” said Kilian Smith, Response and Assistance Network Officer at the IAEA’s Incident and Emergency Centre. “This includes changes due to the lessons identified in exchanging information during incidents, emergencies and exercises, and updates to the Unified System for Information Exchange in Incidents and Emergencies ([USIE](#)).”

## Notification and assistance

The Early Notification Convention covers different types of emergencies. It foresees obligatory notification of the IAEA and the affected States, as well as voluntary reporting, depending on the characteristics of the emergency.

Countries used standardized reporting forms to prevent ambiguity, and these forms have now been fully revised. The new and updated Manual and its Attachments outline the information national authorities need to convey to other countries and international organizations via the new forms, which cover the emergency’s time, location, nature and other data needed to assess the consequences of the radioactive release. (One of these attachments, which contains contact details, is not available to the public online.)

“The Operations Manual gives countries and international organizations an outlined process: How quickly should they be contacting us? How long should they wait for our response? What can they do next?” Kilian said, adding that, States are encouraged to contact the IAEA for emergencies that do not have an impact on another country—although they are not obliged to do so.

At the same time, by signing the Assistance Convention, countries and international organizations confirm they will cooperate in facilitating prompt assistance to minimize consequences and to protect life, property and the environment from the effects of radioactive releases in the event of nuclear accidents or radiological emergencies.

States and international organizations that signed the Assistance Convention need to inform the Agency about the experts, equipment, and materials they may be able to provide to a country that requests assistance.


“Member States need to know how they can request or offer assistance. In an emergency, they need to know how they reach us, by phone, email or fax? The Operations Manual goes into that detail,” Kilian said.

The Manual and its Attachments specify communication channels and timelines to follow. For instance, the Attachments include information on all the official State and relevant international organizations emergency contact points—staff who have been trained on emergency preparedness and response and who have been officially designated by national authorities and relevant international organizations to be contacted in case of a nuclear or radiological emergency. This information included in the Operations Manual, Kilian added, restricted to Member States and relevant international organizations, is not available to the general public to ensure that these channels remain exclusively for use in an emergency response.

## Scope of the Manuals

The Operations Manual for Incident and Emergency Communication (EPR-IEComm) sets out to improve the global exchange of information in nuclear or radiological emergencies. It provides information that countries and relevant international organizations can use to develop effective, operational arrangements to interact with each other and with the IAEA.

As an attachment to the EPR-IEComm, the International Radiation Monitoring Information System (IRMIS) User Manual provides an overview of IRMIS and includes step-by-step guidance on how to use it. Another attachment, the International Radiological Information Exchange (IRIX) Format, provides a reference description of the IRIX format, which is an information structure and machine-readable format in Extensible Markup Language (XML) developed to carry the different types of information and data that are of relevance when responding to nuclear or radiological emergencies.

All these publications are [available online](#) and in hard copy upon request. 

Go to [page 11](#) for more information →

## A Female Perspective: Emergency Responders at the IAEA

Viola Ziehaus, IAEA



Women at the IAEA volunteer to acquire and maintain emergency response certification in the IAEA's Incident and Emergency System. (Photos: IAEA)

They wear different coloured vests, have diverse backgrounds and are shaped by their unique experiences. One common goal unites them: to respond effectively to a nuclear or radiological incident or emergency. To mark the International Day of Women and Girls in Science, the IAEA commemorates the female emergency responders in its Incident and Emergency System (IES) and celebrates their contribution in this field.

"In emergency preparedness and response we need a broad range of disciplines," highlighted Elena Buglova, Head of the Incident and Emergency Centre (IEC). "That's why I encourage young women professionals to challenge themselves in new areas and take on increasingly difficult tasks to gain experience and grow in problem solving. This supports our emergency response and women's professional advancement," she added.

***"...I encourage young women professionals to challenge themselves in new areas and take on increasingly difficult tasks to gain experience and grow in problem solving."***

**Elena Buglova**  
Head of the Incident and Emergency Centre, IAEA

In an emergency response, the IES responders implement specific IAEA response roles: notify designated counterparts and exchange official information; assess potential emergency consequences and provide prognoses of the possible progression of the emergency; inform the public; provide assistance; and coordinate the inter-agency response. Women with diverse professional backgrounds are actively engaged in all these varied tasks.

Almost half of nearly 200 IES responders are women. Around a quarter of them are part of the technical team, whose tasks include assessing the causes, the

response measures and the probable evolution of a nuclear or radiological emergency, as well as verifying technical information received during the emergency. Globally, according to UNESCO, women continue to be underrepresented in fields that contribute to these important tasks.

"I strongly believe that good preparation leads to a good outcome and that we need many highly qualified women to prepare for potential radiological emergencies," said Debbie Gilley, a Radiation Safety Specialist in the IAEA's IES.

### Seize the opportunity: a call for women and girls in science

To inspire all the women and girls working or planning to work in the fields of science, technology, engineering and mathematics (STEM) we mark this day by collecting messages from women who are part of the IAEA's IES.

"There is no limit to what you can reach. The strength to reach your highest goals lies within you. Just step out and try," said Nadia Nammari, a Logistics Support Officer in the IES, who manages staffing for response positions and ensures that experts can travel into the field quickly and safely in case assistance missions take place.

Muzna Assi, who works as a Radiation Safety Specialist in the IES, is aware of the need to bring more women on board: "We are living in the era of technology. Women have devoted a lot to reach a considerable level of recognition around the globe. The journey continues and you are the future that you create. If you want to be influential in your societies, a technical profession is a means to cope with change, face challenges and solve difficulties in different areas. We have succeeded and we need every single young woman to keep up the good work."

"If you want to grow, you have to get out of your comfort zone," said Michaela Ovanes, who serves as a Nuclear Installation Specialist in the IES. "So, don't let fears and worries about obstacles, biases and stereotypes diminish your self-worth and limit what you think you can achieve. Find something you're good at and fits your aspirations, seize the opportunities and go for it. Time, hard work and determination will prove you right." Ovanes verifies technical details and assesses emergency conditions at nuclear power plants and nuclear fuel facilities.

### Background

The IES covers the IAEA's emergency preparedness and response arrangements to nuclear and radiological incidents and emergencies regardless of whether they arise from an accident, negligence or deliberate act. The IAEA Incident and Emergency Centre (IEC) serves as the Agency's focal point for emergency preparedness and response and as custodian of the IES.

IES responders must fulfil annual training requirements that include classroom training, hands-on practice, and full-scale exercises that simulate nuclear or radiological incidents or emergencies.

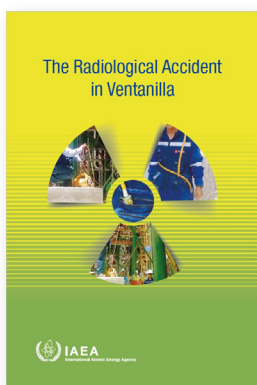
The IAEA is committed to gender equality. It is carrying out initiatives for gender balance among its professional staff and senior management and is working closely with Member States in the identification of women candidates. Outreach engages women experts in the nuclear field and serves to inspire younger generations to explore educational and professional opportunities in science and technology. IAEA staff and national counterparts are encouraged to use a gender perspective when designing and implementing IAEA projects. <sup>IEC</sup>

## Related Resources

- 🔗 Incident and Emergency System <https://www.iaea.org/topics/incident-and-emergency-system>
- 🔗 With science 'held back by a gender gap', Guterres calls for more empowerment for women and girls <https://bit.ly/2TDhPXo>
- 🔗 International Day of Women and Girls in Science <https://www.un.org/en/observances/women-and-girls-in-science-day>

## PUBLICATIONS

### NEW The Radiological Accident in Ventanilla



In February 2014, a radiological accident in a chemical plant occurred in Ventanilla, Peru. This publication addresses the chronology of events, international assistance provided by the IAEA and lessons learned to prevent potential similar accidents.

STI/PUB/1887; ISBN: 978-92-0-106619-0; English Edition; €30,00; 2019

<https://www.iaea.org/publications/13423/the-radiological-accident-in-ventanilla>

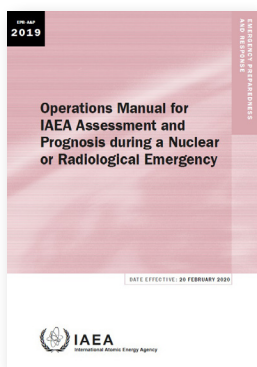


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### UPDATED EPR Series

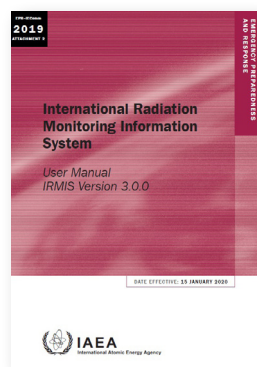
A series of new and updated operational manuals published in February by the IEC include arrangements that outline what steps national authorities and international organizations should take and how to request help in the case of a nuclear or radiological emergency.



#### Operations Manual for IAEA Assessment and Prognosis during a Nuclear or Radiological Emergency

EPR-A&P (2019); ISSN 2518-685X; English Edition; 2020

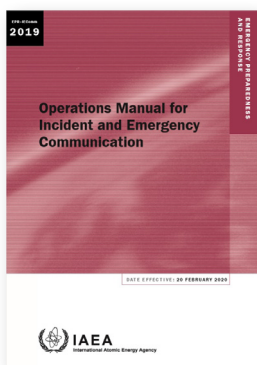
<https://www.iaea.org/publications/12362/operations-manual-for-iaea-assessment-and-prognosis-during-a-nuclear-or-radiological-emergency>



#### International Radiation Monitoring Information System User Manual IRMIS Version 3.0.0

EPR-IEComm (2019) Attachment 2; ISSN 2518-685X; English Edition; 2020

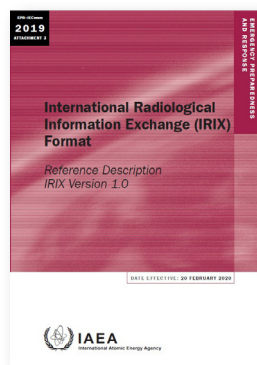
<https://www.iaea.org/publications/13641/international-radiation-monitoring-information-system>



#### Operations Manual for Incident and Emergency Communication

EPR-IEComm (2019); ISSN 2518-685X; English Edition; 2020

<https://www.iaea.org/publications/12359/operations-manual-for-incident-and-emergency-communication>



#### International Radiological Information Exchange (IRIX) Format Reference Description IRIX Ver 1.0

EPR-IEComm (2019) Attachment 3; ISSN 2518-685X; English Edition; 2020

<https://www.iaea.org/publications/13641/international-radiation-monitoring-information-system>



## MESSAGE FROM THE DIRECTOR GENERAL

*“To protect the public and the environment in the event of a nuclear or radiological emergency, we must build effective national and international response arrangements. The IAEA’s Incident and Emergency Centre is the global focal point for international preparedness and response to such an emergency, whether it arises from an accident, natural disaster, negligence or a security event.”*

**Rafael Mariano Grossi**  
IAEA Director General



### EVENTS AND ACTIVITIES

In response to the Coronavirus disease (COVID-19) outbreak, most events organized by the Agency have been postponed or deferred through 1 June 2020. The situation for other events is under review in light of the evolving situation. Event participants will be contacted by the respective organizers with further practical information. Please check this page the IAEA events page (<https://www.iaea.org/events>) regularly for any updates.

#### June

**10<sup>th</sup>**  
**Meeting of the  
Representatives  
of Competent  
Authorities**

**15-19 June 2020**  
**Virtual Meeting**

[https://www.iaea.org/  
events/evt1805176](https://www.iaea.org/events/evt1805176)

#### July

- **Workshop on Arrangements for Notification, Reporting and Assistance in Nuclear or Radiological Incidents and Emergencies**
- 3 – 16 July 2020  
Virtual Meeting  
<https://www.iaea.org/events/evt1904651>

#### September

- **Technical Meeting on Next Generation Reactors and Emergency Preparedness and Response**
- 29 September – 2 October 2020  
Vienna, Austria  
<https://www.iaea.org/events/evt1805598>

[www.iaea.org/topics/epr](http://www.iaea.org/topics/epr)

[IEC-Information@iaea.org](mailto:IEC-Information@iaea.org)

[@IAEAIEC](https://twitter.com/IAEAIEC)

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