

Communication recommendations related to mass media and social media in order to move towards mutual understanding

R1 Develop 'risk culture' throughout society to provide a solid basis for communicating about ionizing radiation risks. Risk culture means that people are aware of the existence of risks but also, of preventive and protective actions that are taken by the authorities, or that people themselves can take in some cases.

R2 Establish a more regular channel of communication on ionizing radiation risks rather than one that is concentrated on crisis reporting. This means organizing more regular exchanges between sources and the media. Networks and more elaborate structures and multiple partnerships can be built to establish trust over time. These channels can then be turned to in case of emergency.

R3 Engage in ongoing dialogue among the professionals involved in communicating ionizing radiation risks. Officials, specialists of radiological protection and nuclear safety and media professionals who participated in EAGLE want a continuing exchange and learning platform in the interest of building solid relationships, risk culture and public understanding.

B. Process of communication

R4 Adapt information delivery to the needs of the media. Journalists need rapid, clear responses from source institutions. Scientists and experts working at the source institutions must be trained to meet these needs. Bureaucratic obstacles should be lifted.

R5 Develop relationships with journalists through training and joint learning events. There are many ways to develop relationships and build respective competence: technical seminars, press trips, open door visits, and support for joint participation by journalists and sources in third party activities.

R6 Provide radiological protection trainings for journalists. Specific training – if possible including a simulation – will improve the protection of journalists themselves when reporting about radiological events (e.g. explosion of a radiological dispersal device), mutual understanding between journalists and emergency management, understanding of ionizing radiation concepts by journalists, and quality of information transfer in such events.

R7 Design press conferences and other media events to bring up the standard of reporting on complex IRR topics. Source institutions can organize press conferences and other media events in a way that maximizes understanding of the complexity of the topic, the dialogue between sources and journalists, and the quality of resulting reporting.

R8 Get to know the public's needs and perceptions. Up-to-date knowledge about public needs and perceptions, and also how people receive and understand information, should be checked as a first step in public communication.

R9 Develop direct ongoing communication with the public, on IRR and other risks, in many voices. For this, all available mass media and social media channels should be actively employed as well as live, face-to-face events. Create open and direct discussions during crisis and non-crisis periods, where members of the public can ask their questions.

R10 Participate in networks with active, empowered citizen communicators. A new type of public is emerging: citizens who are active partners in communication as well as recipients. Sources can help build competence by entering the new discussion networks and forming partnerships.

R11 Contribute to the foundations of risk knowledge in the schools. The public should be given a better basis to understand IRR issues. This means developing risk culture already at the level of schooling. Sources should invest in programs targeting children and educators.

C. Ethical aspects

R12 Respect the different perspectives, needs, and roles of participants in the communication process. Source institutions, media, civil society organizations, and stakeholders in the general public have different concerns and are responding to different pressures. Find out what the other communication partners need to know and how they can best receive information and help from the source.

R13 Deliver information that helps people make a better-informed decision in their situation (don't pre-define the risk as acceptable for them or not; similarly, do not misuse inclusive public risk communication as covert industry promotion). A dialogue can take place about the different value assigned by different stakeholders to the benefits and costs associated with IR applications, with resulting planned or accidental exposures. It is an opportunity to pass on knowledge about IRR, and to develop risk culture – including safety culture among those applying IR.

R14 Admit that a nuclear accident can happen. When sources including government, authorities, and industry admit the basic fact that nuclear accident is a possibility, this similarly opens the way to dialogue and strengthens safety and risk culture on all sides.

R15 Admit scientific uncertainties related to health effects of ionizing radiation. Ionizing radiation exposures, especially low doses, are linked to high uncertainties as to health effects, modeling etc. Experts are not speaking with one voice on these issues. It is important

to present balanced information showing the areas of doubt and uncertainties.

D. Institutional and organizational aspects

R19 Adapt public information on ionizing radiation risks to everyday life and observed needs of citizens. Communicators need to go out to the public to learn what the actual (potential) impacts of IR risks are. Information should be adapted to different societal groups (media professionals, general public, children...) and give examples of questions that could be asked by people to help fit the information to different decisions they must make.

R20 When delivering information about IRR, especially in times of crisis, be affirmative and responsive (not tentative and prudent). Be prepared to come out very fast with information to serve the media's need to be quick and reactive. Start by stating the important take-away message. Thoughtfully communicating uncertainty and "what we don't know" can come next.

R21 Translate and clarify content. Simplify, use metaphor, comparison, and familiar reference points setting information into context (without trivializing risk, or comparing involuntary risk with dangers that people face by their own choice). Help the public understand the meaning of legal radiological limits, and communicate even on doubt and uncertainty.

R22 Provide materials that suit media needs. Keep the institutional website and social media accounts up to date with useful resources clearly labeled for journalists, including media kits, newsletters and infographics. Offer narrative so that media can tell a story. Be aware of citizen journalism and support it in the same ways.

E. Channels

R23 Create and support online banks of information that journalists and other stakeholders can consult. These can be integrated with seminar events. Online content can be supplied with a "free to use" license so that journalists but also bloggers, civil society organizations, teachers, children can obtain easy to understand materials (such as video animations, infographics, photos) as well as links to relevant experts and opinion makers. An integrated model for an IRR information resource combines online and face-to-face components.

R24 Television is a major IRR information channel for most Europeans, so source institutions should cooperate in the production of news and documentaries. Only a real collaboration between sources and media may produce a high standard of IRR information in documentary news, full-length documentaries, TV shows, etc. Sources should enter into collaboration with the various expert professionals and appropriately offer content and financial aid.

R25 Consider different types of spokespersons and mediators appropriate for your context. In some countries journalists prefer to deal with source spokespersons or press officers; elsewhere, they prefer to be placed into direct relation with experts, who should be trained to speak to the media. The source institution should also develop the ability to communicate directly with the public, for instance through social media. Trained "science mediators"

translate, popularize and perform scientific outreach.

R26 Introduce social media channels through traditional communication campaigns. Traditional time-limited communication campaigns engage publics and can introduce social media channels which interested people can use to stay in touch, continue discussion, and become in turn a communication channel that can redistribute source's content.

R27 Become part of relevant social media communities. Engage in conversations and discussions, identify and maintain contact with relevant influencers, nourish your networks and persevere.

R28 Foster multiple sources, a plurality of voices considering the issues and speaking to the public. Support citizen science and citizen journalism, and facilitate the activity of civil society organizations responding to citizen needs "on the ground". Whether part of organizations or acting independently, civil society volunteers are engaged persons, they render a service to their fellow citizens and can act as channels between authorities and the population – in both directions. Sources can be responsive to them, engage and support them with information, material resources, public-interest partnerships and events, including barcamps, hackathons, and other crowd-sourced endeavors.

*Communication recommendations related to **information sources** in order to improve the education, training and information (ETI) material and activities about the effects of IR*

R1: It is not advisable to prepare the ETI materials and activities on a common template in all EU member states.

R2: ETI materials and activities should be prepared for specific target publics (e.g. students, local population, politicians, journalists, teachers ...) and should respond to their interests and needs.

R3: ETI materials and activities should be regularly reviewed and adapted according to feedback from the target public. Preparation of the materials together with the public is very beneficial.

R4: ETI materials like leaflets, video-clips, annual reports, webpages, blogs, TV and radio broadcasts etc. are valuable but not sufficient communication tools; science-to-citizens approach and open discussions about facts and fears should be promoted as an efficient tool for communication about ionizing radiation.

R5: Employ internet-mediated encounters (e.g. webinar, online forum, platforms...) in order to enhance interaction with different groups of the population. Actively participate on a

social media landscape.

R6: ETI materials and activities should communicate facts, not opinions, in order to empower the citizens to take informed decisions but not to dictate their decision.

R7: Information sources should consider and implement role division, and define the responsibility of information sources, educational system, media, policy makers etc.

R8: ETI materials and activities should support teachers' work but duplicating their work should be avoided.

R9: Information sources should show and explain what they are doing and what are the health and environmental risks from their activities. Justification of radiation activities must be presented to the public.

R10: The impacts of using the ionizing radiation should be put in the context of exposure to natural background radiation.

R11: Risks of using ionizing radiation in defined situations should be clearly described and the distinction between the risk and the actual danger in emergency situations should be explained.

R12: ETI materials and activities should address radiological protection aspects in parallel with nuclear safety issues.

R13: Radiation risks and radiation safety issues should be balanced and preferably presented together.

R14: Institutional communication culture should be constantly adapting to the actual communication landscape in order to support and facilitate all routine and emergency communication activities.

R15: Engagement in the ongoing dialogue among the professionals and public should be a routine procedure.

R16: Contribute to citizens' science projects by organizing or promoting projects about ionizing radiation, sharing information and verifying collected information.

R17: Support science correspondents by offering education and training related to IR topics including emergencies. In addition, some funds for scholars could be established in order to encourage knowledge gathering in a journalistic population.

R18: Establish “Science Media Centers” as a centralized scientific data service for journalists. Sources can foster this type of resource by becoming dues-paying members and by contributing information and expertise. Similar “Science Education Centers” can be established for teachers.

Recommendations related to communication with the members of general public and informed civil society in order to support informed decision-making about IR

R1 The EUROBAROMETER survey should continue to address questions regarding the use of ionizing radiations and their potential risks in order to capture current population’s needs, changes and trends in the people perceptions. Based on this information, institutional sources, mass media, and all relevant decision makers can adapt their communication content in order to answer these needs.

R3 Availability of information for the whole population, at any time, using a large diversity of means and opportunities for the education and training should be a priority of the sources’ communication program. Scientific Museums, Science media communication, social media, scientific documentaries are only few ideas in this regards.

R4 Build confidence and maintain it during normal situation in order to use it during crisis should be the main strategic objective of any communicator (institutional source, waste organisation, nuclear power plant operator, journalists). It takes time, it needs proves and has to be continuously alive. It has to be based on professionalism, transparency and honesty.

R5 Risk communication in modern society should be seen as an important form of stakeholder engagement, based on dialogue and two-way communication rather than a simple provision of information. Communication has to be more than just an education and/or marketing process. it should be part of a real engagement with the public for a mutual understanding of reasons, benefits and risks, no matter what IR application is approached. Communication about IR should correctly balance the benefits and risks, and its content should be adapted to the target audience in order to be 100% accessible.

R6 Knowledge-based society requires involvement of citizens at a large scale, including local communities, teachers, students, mothers, volunteers, etc.

R7 Continuous collaboration of mass media with institutional sources and scientists should create those links which can be immediately accessed during crisis for an efficient

communication and information of the population.

R8 Early engagement of relevant stakeholders should be a formal part of the early planning of any activity related to ionizing radiation.

R9 Stakeholder engagement has to be an integral part of a decision-making.

R10 Mutual learning and transparency among all stakeholders, including scientists and lay people, is vital. A technocratic approach, where 'experts know best and can decide for the people who do not understand the technical issues' should be switched to a socio-centric communication based on public participation with which the gaps between experts and stakeholders can be bridged.

R11 Citizen Initiatives and engagement opportunities should be created.

R12 A trans-disciplinary approach in risk communication (collaboration with natural science, social sciences and humanities) is important in order to develop appropriate, responsible and value based risk communication.

R13 More opportunities for dialogue among natural scientists, researchers in social sciences and humanities, civil society organisations, and other stakeholders, such as provided by the RICOMET conference, should be created.

R14 In order to better focus ionizing radiation research, interactions with, and experience exchange among platforms and projects, are essential.

R15 The converging values and differences among the different groups of stakeholders should be identified.

R16 To enhance and promote SSH research in the field of ionising radiation protection, and to maintain and share the specific knowledge and expertise developed so far, a need was expressed for the establishment of: SSH research within the Strategic Research Agenda of technical radiological protection platform; and SSH networking activities. These should be self-sustainable after the completion of the projects participating at the RICOMET conference.

Recommendations related to a research in the field of communication

R1 Support a transdisciplinary research and development of nuclear technologies and applications.

R2 Establishment of the European Platform for the integration of Social Sciences and Humanities (SSH) in research related to Ionising Radiation (IR).