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Coordination project

DELIVERABLE 1.1

Analysis of education and training materials and activities regarding the ionizing radiation

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Project Context

<http://eagle.sckcen.be>

Ionizing radiation and associated risks are intriguing issues for European citizens. The 2011 Fukushima accident has demonstrated the need for further improving this communication. This has been recognized by the nuclear utilities, policy makers, general and specialized education institutions, medical institutions, technical support organizations, media and many others. Public gets the information from different information sources and the quality of the information may vary. It has also to be recognized that information channels and ways of communication may vary depending on the social and historical context of different European states and nations.

EAGLE is a coordination project under FP7-EURATOM that aims at clarifying information and communication strategies to support informed societal decision-making. Education, training and information to the public are key factors in the governance of ionising radiation risks, as are opportunities for dialogue and stakeholder involvement in decision making. EAGLE will assess the current dissemination of ionising radiation information to the public and provide practical guidance tools for best practice to support the ideal of a participative, citizen-centred communication.

To achieve these objectives, EAGLE will bring together representatives of nuclear actors, users of ionizing radiation, authorities, mass and social media, and informed civil society, from a range of European countries employing nuclear power or not.

General objective of WP1 is to improve education, training and information (ETI) material employed in communication about ionising radiation by information sources (industry, experts, authorities, medical field) across EU member states. In order to achieve this a list of potential information sources across Europe was made. Attitudes towards communication, practices and the ETI materials from the sample of information sources were analysed by different information gathering tools, like computer assisted interview, personal interview, questionnaires about the materials.

Information and results will be disseminated among stakeholders and the public on an ongoing basis. Sharing of results and communication will be facilitated through the web site, social media tools and the “EAGLE Stakeholder Platform.” EAGLE will electronically publish its recommendations for improving the education, training and communication processes related to ionising radiation. EAGLE will hold a final International Stakeholder Conference with members of academia, operators’ regulators, authorities, medical sector, health organizations, consumers, different associations, traditional media, new media, emergency management and the public to exchange experience, methods, and tools developed throughout the project. The event will publicize project results and gather feedback from stakeholders on employing these tools to better support European citizens’ understanding of ionising radiation.

The composition of the EAGLE grant consortium is as follows:

Coordinator: SCK-CEN - Studiecentrum Voor Kernenergie

Partner 2: ARAO - Agencija za Radioaktivne Odpadke

Partner 3: IRSN - Institut de Radioprotection et de Sûreté Nucleaire

Partner 4: Regia Autonoma pentru Activitati Nucleare Drobeta tr. Severin ra Sucursala Cercetari Nucleare Pitesti - INR

Partner 5: Institut Symlog

Partner 6: Institut Jozef Stefan

Partner 7: Instytut Chemii i Techniki Jadrowej

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About deliverable:

Deliverable D1.1. Analysis of education and training materials and activities regarding the ionizing radiation



Analysis of education and training materials and activities regarding the ionizing radiation

Summary

Objective of WP1 of the project EAGLE is to collect and analyse the existing education, training and information material and activities (ETI materials and activities) dealing with ionizing radiation that are available to citizens of EU member states. Only ETI materials and activities produced and distributed by information sources, e.g. a variety of public and private institutions that use sources of ionizing radiation were included into survey. Information distributed through university programs was also included but primary and secondary school curricula and textbooks were not. Samples of ETI materials and activities were collected directly from information sources and by searching the internet.

The following methods were used to collect the data: computer assisted online questionnaire providing data on information sources and their own evaluation of their materials and activities, analysis of samples of ETI materials and activities, personal interviews with top management and leaders of communication departments to evaluate communication culture of information sources.

Results of the survey indicate that all the information sources support communication and information activities and that they are well aware that these activities are necessary for their successful work. The opinion of information sources about the quality of their ETI materials and activities was very positive, some of them would like to have more resources to increase these activities.

In most cases the information about ionizing radiation is presented as additional or supporting information for explaining issues connected with nuclear energy, nuclear facilities or nuclear safety and in some cases to support radiation protection and medical use. However, information sources recognize that basic understanding of ionizing radiation is very important for a constructive dialogue with the public but they think that this issue should be covered by formal compulsory education.

Web pages of institutions were a basic type of media for information dissemination. Some of information sources also use Facebook and Tweeter but more to provide information about their activities, safety and environmental information, and not to educate about ionizing radiation. Educational materials are in principle accessible through web pages. They can be downloaded or ordered free of charge by e-mail or contact form. Useful information about ionizing radiation can be found also on web pages that are not directly linked to nuclear energy. It was found that nuclear accidents (Fukushima Chernobyl) didn't have a major impact on ETI materials and activities. This could be expected because basic knowledge about nuclear energy hasn't change with the accident.

There are two main types of ETI materials and activities regarding two main communication objectives: to educate young population (materials and activities for schools) and to inform general population about activities of nuclear facilities. In both cases the final objective is to increase acceptability of nuclear installations. Medical institutions have a different approach and are focused mainly on the effects of radiation used in treatment or diagnostics, and giving advice what to do after medical exposure. It is usually explained why ionizing radiation can be helpful in the context of a certain disease.

The analysis showed that ETI materials and activities are a common praxis in most institutions involved in implementing nuclear energy. Types and forms of the materials and activities are well defined and are usually not questioned. Most of materials is of good quality and already standardized. Increasing the number of activities with ionizing radiation sources (hands-on experiments, science fairs ...) can increase public interest and understanding of ionizing radiation.

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0. Introduction

There are two main applications of ionizing radiation for human benefit – electricity production in nuclear power plants and medical application of radiation sources for treatment of disease and for diagnostics. Public perception of each of them is generally very different: most of the people accept medical use of ionizing radiation and trust the benefit they can have from it while the same persons can completely reject nuclear power for electricity production.

Application of different uses of ionizing radiation for the benefit of humanity is growing with development of scientific understanding of the ionizing radiation as a natural phenomenon and with scientific understanding of effects that ionizing radiation can have on human health and the environment. At the same time public perception of risks and benefits of ionizing radiation depends not only on scientific facts but also on many misconceptions, personal opinions and biases. Public perception of ionizing radiation is often influenced by misinterpretation of scientific facts, by out-of-date information or by information without scientifically based background. Credibility of the information source and trust in the information source are also important factors influencing attitudes towards ionizing radiation.

Nuclear sector is fully aware that decision making about siting, operation and decommissioning of nuclear facilities, should involve public participation. Successful communication with the public depends on the openness and transparency of the nuclear sector on one side but also on openness and willingness to participate and to consider the arguments on the side of the public or citizens. It is believed that good basic understanding of ionizing radiation and its impacts on organisms can foster a constructive dialogue between nuclear stakeholders and the public and promote responsible decision-making.

Objective of the project EAGLE is to provide guidelines for improving information materials and activities dealing with ionizing radiation that will be available to European citizens in order to improve decision-making process regarding policy and nuclear facilities in EU.

WP1 of project EAGLE provides input data on education, training and information materials and activities that serve improving public understanding of the effects of ionizing radiation and therefore may influence public attitude towards use of ionizing radiation sources in medicine, industry and energy production. Objective of WP1 of the project is to analyse the education, training and information materials and activities that are provided for the general public by different groups of primary information sources (e.g. nuclear power plants, waste management organizations, governmental institutions, medical institutions ...). The results will be useful for other WPs that analyse mass and social media as a source of information about ionizing radiation, and public knowledge, mental models and attitudes towards ionizing radiation. Both these aspects depend on availability of information from primary information sources, and on the quality and acceptability of this information.

Work in WP1 focused on two main issues:

- to define and analyze the communication strategies and attitudes towards public information activities of information sources,
- to collect and compare samples of education, training and information materials and description of activities.

Delivery 1.1 reports on the results of Task 1.1 with the title “Identification of status quo in education, training and information at the level of information source”, and Task 1.2 with the title “Good practices in education, training and information materials”. The report aims at providing analytical and critical review of education, training and information (ETI) materials and activities related to ionizing radiation (IR) produced or performed by the information sources, e.g. nuclear utilities, regulatory bodies, national research institutes, governmental bodies in the field of electricity production and medicine. For this purpose, the information on overall communication process, on communication culture and on ETI materials/activities produced and performed by information sources in EU member states was collected. Samples of ETI materials were obtained as well and analysed. Data were collected by the use of web survey, interviews and questionnaires.

I.Methodology

Data Collection Protocol (DCP) was developed in order to get comparable results and to assure a harmonized approach and integral collection of information across EU member states, EU international associations and platforms.

Data collection protocol determines mode, activities, time schedule and performers of the data collection. It includes the following activities:

- a listing of information sources in EU states, EU international associations and platforms,
- b specification and evaluation of ETI materials and activities by information sources in EU member states:
- c collecting data on communication culture of information sources in project partners states:

I.1 Listing of information sources

In project EAGLE, "Information sources" are defined as institutions from each EU member country and EU international associations and platforms that produce information materials and activities about ionizing radiation for the public. A list of relevant information sources was the basic requirement for collecting information about ETI materials.

Form 1 (*Appendix 1*) for collecting contact data of relevant information sources was prepared by ARAO and delivered to EAGLE partners and EURATOM national contact points in November 2013. It was sent by e-mail together with the explanatory e-mail to EAGLE partners and to EURATOM national contact points. The response was expected to be sent by e-mail to ARAO.

The following data about information sources were collected:

- Type of information source (governmental bodies, nuclear power plants and their owners, waste management organizations, technical support and research organizations, producers and users of open or sealed sources, medical institutions and NGOs),
- Name of organization,
- Address ,
- Contact person/ department to fill out the questionnaire,
- e-mail(s) of contact person.

In the countries with extensive nuclear program and hence many potential information sources, only most relevant and representative of each type were listed. Similarly, only the most relevant and representative medical institutions using open/sealed sources for diagnostics and treatment were included. Only NGOs communicating with public on nuclear energy issues and effects of ionizing radiation were included.

I.2 Specification and evaluation of ETI materials and activities

Objectives, contents, and types of ETI materials and activities

Data were collected with a questionnaire (*Appendix 2*). A set of questions comprises some data on information sources (who are anonymous), questions on objectives, contents, types of materials and activities and also on the stakeholders' response. Additional questionnaire on ETI including also aspects of Fukushima accident referring to Task 1.3 (Analysis of the Fukushima accident regarding ETI) was integrated in the questionnaire (questions 19 – 24). However, the responses to these questions are not analyzed in this report because they were analyzed in D 1.2.

The survey was created, distributed and automatically analysed by the online survey engine SurveyMonkey (<https://www.surveymonkey.com/>). Contact persons from the list of information sources were contacted by e-mail and given the link to the questionnaire. They were briefly informed about the EAGLE project, and the objective to analyze the ETI materials for general public was stressed.

Basic analysis of responses to the questionnaire was provided by the SurveyMonkey tool and the results were further discussed by ARAO.

Analysis of samples of ETI materials and activities

In the second phase of collecting information about ETI materials and activities an e-mail request for samples was sent to information sources from the mailing list. Each information source was asked to provide printed or electronic samples or website links of its ETI materials and activities on ionizing radiation. They were also asked to describe and evaluate their ETI materials and activities with the help of a questionnaire Information on samples of ETI materials and/or Information on ETI activities (*Appendix 3*).

Samples of ETI materials and description of ETI activities were collected by:

- Collecting the description of materials and activities directly from information sources with the help of Forms (*Appendix 3*),
- Collecting samples at professional meetings and conferences (e.g. PIME 2014),
- Survey of information sources' web pages.

We pooled all the collected samples because it was obvious that the approach used by the information sources was unified and followed well established scheme.

I.3 Communication culture

Information on communication culture was collected by conducting interviews with competent persons at information sources in some project participant states. A set of 9 leading open questions on the organization's understanding of the role of the communication with the public were prepared by ARAO. The questionnaire also included some guidelines for the interviewer. Guidelines for the preparation for national report in order to harmonize the obtained results in different countries was also prepared by ARAO (*Appendix 4*).

Open interviews were carried out by EAGLE partners (Slovenia – REC, Romania – IRN, Poland – INSTYTUT CHEMII) with the information sources in their own countries. Interviewees were holders of communication strategy (CEO or member of a management board or head of communication department ...).

Results of interviews were summarized by the interviewer and national reports were prepared by EAGLE partners following **Form 4**.

II. Results

II.1 List of information sources

List of information sources was needed in order to get contacts of institutions that will be included into the survey of education, training and information materials and activities in EU member states.

Form 1 for preparing a comprehensive list of information sources in EU member states was sent to 33 e-mail addresses of EAGLE partners and to a list of 42 Euratom contact points in EU states without states participating in project EAGLE (Table 1). There were not many responses and even after repeated e-mails ARAO received information from less than ten member states.

Additional effort to collect data about information sources was made at PIME 2014 conference (Communicating Nuclear) in February 2014, and additional 17 information sources were added to the list.

Finally ARAO made an internet survey and completed the list of information sources with data available from the web pages of appropriate institutions and EU international associations and platforms. The result is a list of 148 governmental, technical and medical institutions and NGOs that deal with ionizing radiation (Table 1) and a list of 16 international associations and platforms in the nuclear field (Table 2). We collected data from all EU member states except Portugal, and from Switzerland. About 1/3 of institutions are classified as governmental bodies (ministries, administration, agencies) and about 1/5 of institutions belong to nuclear industry (NPPs, RW management organizations). Technical support and research organizations and producers/users of radiation sources were very rare.

Table 1: EURATOM National Contact Points			
Country	Name	e-mail	institution
Austria	Mag. Monika FISCHER	monika.fischer@oeaw.ac.at	OAW-Osterreichische Akademie der Wissenschaften
Bulgaria	Mr. Mladen MITEV	mlmitev@inrne.bas.bg	Bulgarian Academy of Sciences
	Mrs. Yanita ZHERKOVA	y.zherkova@minedu.government.bg	Ministry of Education and Science
	Mr. Boncho BONEV	bibonev@tu-sofia.bg	Technical University
	Mr. Angel ANGELOV	angelov@inrne.bas.bg	Bulgarian Academy of Sciences
Croatia	Mrs. Nevenka NOVOSEL	nevenka.novosel@dzrns.hr	Croatian State Institute for Radiological and Nuclear Safety
Cyprus	Dr. Marinos PORTOKALLIDES	mportokallides@research.org.cy	Research Promotion Foundation

Czech Republic	Mr. Miroslav HREHOR	hre@ujv.cz	Nuclear Research Institute
Denmark	Mr. Jakob Just MADSEN	jjm@fi.dk	DANRO
Estonia	Ms. Kadri ISAKAR Mr. Rivo RAAMAT	isakar@ut.ee rivo.raamat@etag.ee	INSTITUTE OF PHYSICS, TARTU UNIVERSITY Estonian Research Council
Finland	Mr. Jorma AURELA	jorma.aurela@ktm.fi	Ministry of Trade and Industry
Germany	Ms. Annemarie SCHMITT-HANNIG Dr. Stefan STUPP Mr. Wolfram HARMS-SUNTROP Dr. Walter STEININGER	schmitt@bfs.de stefan.stupp@bmbf.bund.de wolfram.harms-suntrop@grs.de walter.steininger@kit.edu	Bundesamt für Strahlenschutz Bundesministerium für Bildung und Forschung Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) mbH Karlsruher Institut für Technologie (KIT)
Greece	DR. Leonidas KAMARINOPOULOS	thzorbak@eeae.gr	Greek Atomic Energy Commission
Hungary	Mr. Zoltan LENGVEL Mr. Sandor ZOLETNIK	lengyel@haea.gov.hu zoletnik@rmki.kfki.hu	Hungarian Atomic Energy Authority (HAEA) KFKI Research Institute for Particle and Nuclear Physics
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Lithuania	Mrs. Anzelma USELIENE	anzelma.useliene@mita.lt	Agency for Science, Innovation and Technology
Luxembourg	Mr. Mathias LINK Mr. Arnaud DUBAN	mathias.link@luxinnovation.lu arnaud.duban@luxinnovation.lu	LUXINNOVATION EIG - National Agency for Innovation and Research
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Table 2: List of information sources in EU member states					
Country/info source group	info source's name	info source's address	info source's web page	contact person/department	contact e-mail
Austria					
Governmental body	Federal Ministry of Agriculture, Forestry, Environment and Water Management	Stubenring 1, 1010 Vienna	http://www.lebensministerium.at/umwelt/strahlen-atom.html	dr. Viktor Karg	viktor.karg@lebensministerium.at
	Austrian Federal Agency for Health and Food Safety	AGES, A-1220 Vienna, Spargelfeldstraße 191	http://www.ages.at/ages/en/about-us/department-for-radiation-protection-radiochemistry/	Dr. Christian Katzlberger	cc.strahlenschutz.wien@ages.at
RW management organization	Nuclear Engineering Seibersdorf	Nuclear Engineering Seibersdorf GmbH, 2444 Seibersdorf, Austria	http://www.nes.at/		
Medical Institution	Kaiser Franz Josef-Spital, Institut für Radioonkologie	Kundratstrasse 3, A-1100 Vienna	http://www.wienkav.at/kav/ZeigeText.asp?ID=6920	Prim. Univ. Doz. Dr. Annemarie Schratter-Sehn, head of department	annemarie.schratter@wienkav.at
NGO	Austrian Nuclear Society	Österreichische Kerntechnische Gesellschaft, Atominstitut der Technischen Universität Wien, Stadionallee 2, 1020 Wien	http://www.oektg.at/en		admin@oektg.at

Belgium					
Governmental body	Agence fédérale de Contrôle nucléaire	AFCN, 36 rue Ravenstein, 1000 Bruxelles	http://www.fanc.fgov.be/fr/page/homepage-federaal-agentschap-voor-nucleaire-controle-fanc/1.aspx	contact form	pointcontact@fanc.fgov.be
RW management organization	ONDRAF	Avenue des Arts 14, 1210 Bruxelles	http://www.ondraf.be/	Evelyn Hooft, press officer	e.hooft@nirond.be
Nuclear power plant/owner of NPP	Electrabel		https://www.electrabel.com/en/corporate/nuclear-power-plant-belgium/doel-tihange	contact form	https://www.electrabel.com/en/corporate/company/contact?subj=press
Research organization	SCK•CEN	Boeretang 200, 2400 Mol, Belgium	https://www.sckcen.be/en	Dirk Wouters, Maud Vanderthommen	press@sckcen.be
Producer of open/sealed sources	The National Institute for Radioelements	IRE, Avenue de l'Espérance, 1, B - 6220 Fleurus	http://www.ire.eu/en/index_en.php	IRE Communication Department	communication@ire.eu
NGO	Belgian Nuclear Society	BNS, c/o SCK-CEN, Avenue Hermann Debrouxlaan 40, Brussels (Auderghem) , B-1160 , BELGIUM	http://www.bnsorg.eu/	Thomas Berkvens BNS Secretary	secretary@bnsorg.be
Other	Micro-Matic Research	MMR, Technologielaan 13, Research Park Haasrode Zone 1, B-3001 Heverlee	http://www.mmr.be/nuclear_energy/undervalued.asp	Paul Bossens	paul.bossens@mmr.be
	Belgian Nuclear Forum			contact form	http://forumnucleaire.be/fr/contact
	Rad4Med.be network		http://rad4med.be/		contact@rad4med.be

Bulgaria					
Governmental body	Nuclear Regulatory Agency	69 Shipchenski prokhod Blvd.,1574 Sofia,			mail@bnra.bg
	National Centre for Radiobiology and Radiation Protection		http://www.ncrrp.org/new/en/	dr. Nina Chobanova, head of EDUCATION AND INFORMATION DEPARTMENT	sdo@ncrrp.org
	Executive Environment Agency	136 Tzar Boris III blvd., P.O.Box 251, 1618 Sofia	http://eea.government.bg/en	Directorate Information Systems, International Cooperation and Public Relations""	ncesd@eea.government.bg
	Ministry of Environment and Water	22 Maria Louiza Blvd., Sofia, 1000	http://www.moew.government.bg/?lang=en	Emiliya Kraeva, International Cooperation Department	ek@moew.government.bg
Nuclear power plant/owner of NPP	Kozloduy NPP PLC	3321 Kozloduy	http://www.kznpp.org	Dimitar Lazhov, PR Department	dnlazhov@npp.bg
NGO	BULATOM	10, Vihren Str., 1618 Sofia,	http://www.bulatom-bg.org/en.html	contact form	pr@bulatom-bg.org ; http://www.bulatom-bg.org/en/contact.html
Croatia					
Governmental body	Državni zavod za radiološku i nuklearnu sigurnost	DZRNS, Frankopanska 11, 10000 Zagreb	http://cms.dzrns.hr/		dzrns@dzrns.hr
RW management organization	APO d.o.o.	Savska 41/IV, 10000 Zagreb	http://www.apo.hr/home/?lang=2		apo@apo.hr ; http://www.apo.hr/Contact_Us/index.asp?lang=2
Nuclear power plant/owner of NPP	HEP d.d.	Ulica grada Vukovara 37, 10000 Zagreb	http://www.hep.hr/hep/en/news/default.aspx	Marketing and corporate communications department	glasnogovornik@hep.hr

Cyprus					
Governmental body	Ministry of labour and Social Insurance, Department of Labour Inspection		http://www.mlsi.gov.cy/mlsi/dli/dli.nsf/dmlprotection_en/dmlprotection_en?OpenDocument	contact form	http://www.mlsi.gov.cy/mlsi/dli/dli.nsf/dmlcontactus_en?OpenForm
Czech Republik					
Governmental body	The State Office for Nuclear Safety	SÚJB, Senovážné náměstí 9, Prague 1,	http://www.sujb.cz/en/about-sujb/introduction/		podatelna@sujb.cz
	The National Radiation Protection Institute	NRPI/SURO, Bartoskova 1450/28, 140 00 PRAHA 4 - Nusle	http://www.suro.cz/en/	contact form; Branch Hradec Kralove (Information and Communication Technology department)	suro@suro.cz ; zdenek.borecky@suro.cz
RW management organization	SURAO/RAWRA	SURAO, Dlážděná 6 , 110 00 Praha 1	http://www.surao.cz/eng/ABOUT-SURAO	Tereza Bečvařková, Head of the Communications Department; contact form	info@surao.cz ; becvarikova@surao.cz
Nuclear power plant/owner of NPP	ČEZ, a.s.	Čez, a.s. Duhova 2/1444, 14053 Praha 4	http://www.cez.cz/en/home.html	Marie Dufkova, PR Specialist	marie.dufkova@cez.cz
Technical support organization	ÚJV Řež, a. s	ÚJV Řež, a. s. ,Husinec - Řež, Hlavní 130, 250 68,	http://www.ujv.cz/en/	Lukas Slavic, Public relation officer	lukas.slavik@ujv.cz
Research organization	The National Institute for Nuclear, Chemical and Biological Protection	SUJCHBO, v.v.i., Kamenná 71, 262 31 Milín	http://www.sujchbo.cz		sujchbo@sujchbo.cz

Denmark					
Governmental body	Danish Emergency Management Agency , Nuclear emergency management	Datavej 16 - 3460 Birkerød	http://brs.dk/eng/aboutus/Pages/aboutus.aspx	Nuclear division	nuc@brs.dk
	National Institute of Radiation Protection	Knapholm 7, 2730 Herlev, Denmark	http://sundhedsstyrelsen.dk/en/about-us/contact/national-institute-of-radiation-protection		sis@sis.dk
Estonia					
RW management organization	Ltd A.L.A.R.A.	Leetse tee 21, 76806 Paldiski Harjumaa	http://www.alara.ee/index.php		alara@alara.ee
Finland					
Governmental body	Radiation and Nuclear Safety Authority	STUK, Laippatie 4, 00880 Helsinki, P.O. BOX 14, 00881 Helsinki	http://www.stuk.fi/en_GB/	Jarmo Lehtinen, head of public information	jarmo.lehtinen@stuk.fi
RW management organization	POSIVA	Posiva Oy Olkiluoto, 27160 Eurajoki	http://www.posiva.fi/en	Timo Seppälä, Senior Manager in Communications	timo.seppala@posiva.fi
Nuclear power plant/owner of NPP	Fennovoima	Salmisaarenaukio 1, 00180 Helsinki	http://www.fennovoima.com/en/fennovoima	Susanna Harju, communication officer; Tiina Tigerstedt, PR and international communications	susanna.harju@fennovoima.fi tiina.tigerstedt@fennovoima.fi
	TVO	Teollisuuden Voima Oyj, Olkiluoto, FI-27160 EURAJOKI	http://www.tv.fi/Home	Pasi Tuohimaa, Head of Communications	pasi.tuohimaa@tvo.fi
Medical Institution	Docrates Cancer Center	Saukonpaadenranta 2 00180 Helsinki	http://www.docrates.com/en/docrates	Marina Rutgayzer	international@docrates.com ; marina.rutgayzer@docrates.com

	The Hospital District of Helsinki and Uusimaa	Stenbäckinkatu 9 PO BOX 100, FI-00029 HUS,	http://www.hus.fi/en/Pages/default.aspx	Johanna Saukkomaa	johanna.saukomaa@hus.fi
NGO	Cancer Society of Finland	P.B. 238; FIN-00131 Helsinki	http://www.cancer.fi/en/	Kirsi Hakala, head of communications	kirsi.hakala@cancer.fi
France					
Governmental body	IRSN – Institute for Radiation Protection and Nuclear Safety	IRSN, 31, avenue de la Division Leclerc, 92260 Fontenay-aux-Roses;	http://www.irsn.fr/EN/Pages/home.aspx	BAUMONT Geneviève	genevieve.baumont@irsn.fr
	IFFO RME - Institute for the Major Hazards and Environmental Protection Training	IFFO RME, 9 rue Jacques Louvel-Tessier, 75 010 Paris	http://www.iffor-me.fr/content/institute-mission-and-goals		contact@iffor-me.fr
	ASN - Autorite de Surete Nucleaire	15 rue Louis Lejeune; CS 70013, 92541 Montrouge cedex	http://www.french-nuclear-safety.fr/	contact form; Communication and Public Information Department (DCI): Alain DELMESTRE	http://www.french-nuclear-safety.fr/ASN/Contact-us
RW management organization	ANDRA	Andra, 1/7, rue Jean Monnet, Parc de la Croix-Blanche, 92298 Châtenay-Malabry cedex	http://www.andra.fr/international/	Anabelle, Quenet, Press	webcom@andra.fr ; Annabelle.Quenet@andra.fr
Nuclear power plant/owner of NPP	EDF- Informaion Agency	22/30 avenue de Wagram 75008 Paris	http://press.edf.com/press-42871.html	contact form	http://www.edf.com/institutional-contacts-200628.html#link4
Technical support organization	AREVA		http://areva.com/EN/group-57/global-leader-in-nuclear-energy-and-renewable-energy-solutions.html	Julien Duperray, Head of press Office, contact form	press@areva.com ; http://areva.com/EN/accueil-492/page.html

Research organization	CEA- French Alternative Energy and Atomic energy Commission	CEA/Siege (Essone), 91191 Gif-sur-yvette cedex	http://www.cea.fr/englis h-portal	Natalie Guillaume, Communications Division	nathalie.guillaume@cea.fr
Medical Institution	Institut Curie	26 rue d'Ulm, 75248 Paris cedex 05	http://curie.fr/en/fondati on/institut-curie- foundation-public- interest	contact form	http://curie.fr/en/contact
NGO	Societe Francaise d'Energie Nucleaire	SFN, 5, rue des Morillons, 75015 Paris	http://www.sfen.org/?lan g=en	Francis Sorin, Press Contact	francis.sorin@sfen.org
	Societe Francaise de Radioprotection	SFRP, B.P. 72 92263 Fontenay-aux-Roses CEDEX	http://www.sfrp.asso.fr/s pip.php?lang=en	Valérie CHAMBRETTE, director	secretariat@sfrp.asso.fr ; valerie.chambrette@sfrp.a sso.fr
Other	Comité Local d'Information et de Suivi du Laboratoire souterrain de recherche sur la gestion des déchets radioactifs de Bure	CLIS	http://www.clis- bure.com/index.html	Benoît JAQUET, Secrétaire général	clis.bure@orange.fr
	Commission de Recherche et d'Information Indépendantes sur la Radioactivité	CRIIRAD, 29 Cours Manuel de Falla, 26000 VALENCE	http://www.criirad.org/e nGLISH/presentation.html		contact@criirad.org
	Radioprotection Circus	8 Rue du Valois 91940 Les Ulis	http://www.rpcirkus.org/ site-web/	Billy Kernisant	klax@rpcircus.org
Germany					
Governmental body	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety	Stresemannstraße 128-130, 10117 Berlin	http://www.bmub.bund. de/en/	contact form	https://secure.bmub.bund .de/en/service/buergerfor um/bmu-english-contact/ ; service@bmub.bund.de
	Federal Office for Radiation Protection	BfS, Willy-Brandt-Straße 5, 38226 Salzgitter-Lebenstedt	http://www.bfs.de/en/bf s	Varga, head of information center (Z6)	ePost@bfs.de

Producer of open/sealed sources	Global Siemens Healthcare Headquarters Siemens AG	Henkestrasse 127, D-91052 Erlangen	https://www.healthcare.siemens.com/medical-imaging/low-dose/order-guide-to-low-dose?stc=wwhim800883		low-dose.healthcare@siemens.com
	URENCO, Central Technology Group (CTG)	Bahnhofstraße 8 48455 Bad Bentheim	http://www.urenco.com/content/45/URENCO-Deutschland-(Gronau).aspx		enquiries@URENCO.com
NGO	Deutsches Atomforum e.V.		http://www.kernenergie.de/kernenergie-en/about-us/datf/index.php		info@kernenergie.de
	Deutsche Gesellschaft für Radioonkologie e.V.	DEGRO, Pressestelle, Postfach 30 11 20, 70451 Stuttgart		Dagmar Arnold, Pressekontakt	arnold@medizin-kommunikation.org
Greece					
Governmental body	Greek Atomic Energy Commission	GAEC, P.O Box 60092, Patriarxou Grigoriou and Neapoleos, Agia Paraskevi, 15310 Athens, Greece	http://www.gaec.gr/en/	ms. Vasiliki Tafili, International and Public Relations Office	vtafili@eeae.gr
Research organization	Institute of Nuclear & Radiological Sciences & Technology, Energy & Safety	15310, Ag. Paraskevi, Athens	http://www.ipretea.demokritos.gr/index.php?option=com_frontpage&Itemid=1		makrigia@rrp.demokritos.gr
Hungary					
Governmental body	Hungarian atomic energy authority	1036 Budapest, Fényes Adolf u. 4.; postal address 1539 Budapest, Pf.: 676	http://www.oah.hu/web/v3/HAEAportal.nsf/web?OpenAgent		szerkeszto@haea.gov.hu
RW management organization	Public Limited Company for Radioactive Waste Management PURAM	PURAM (RHK Kft.) 7031 Paks, Pf.: 12., hrsz.: 8803/2 Budaörs	http://www.rhk.hu/en/	Gabriella Honti, Head of Communication Office	honti.gabriella@rhk.hu

Nuclear power plant/owner of NPP	Paks NPP	H-7031 Paks P.O.Box 71	http://paksnuclearpowerplant.com/	Csaba Dohoczki	dohodzki@npp.hu
Ireland					
Governmental body	Radiological Protection Institute of Ireland	RPII, 3 Clonskeagh Square, Dublin 14	http://www.rpii.ie/	contact form	http://www.rpii.ie/getdoc/5728faa8-ec3f-4c01-9641-54b288540373/Contact-Us.aspx?c=Communication
Medical Institution	Irish Institute of Radiography and Radiation Therapy (IIRRT)	IIRRT, 28 Millbrook Court, Kilmainham, Dublin 8	http://www.iirrt.ie/		info@iirrt.ie
NGO	Irish Association of Physicists in Medicine		http://www.theiapm.ie/		
Italy					
Governmental body	The Institute for Environmental Protection and Research (ISPRA)	ISPRA, Via Vitaliano Brancati 48 - 00144 ROMA	http://www.isprambiente.gov.it/en	press office, information office	stampa@isprambiente.it ; infopubblicazioni@isprambiente.it
RW management organization	Nucleco S.p.A.	via Anguillarese, 301 - 00123 Roma	http://www.nucleco.it/		nucleco@nucleco.it
Technical support organization	Sogin S.p.A. – Società Gestione Impianti Nucleari	Via Torino, 6 – 00184 ROMA	http://www.sogin.it/en/Pages/default.aspx		ufficiostampa@sogin.it
Research organization	L'ENEA - Radiation Protection Institute	Lungotevere Thaon di Revel, 76 - 00196 Rome	http://www.enea.it/en/research-development/safety-and-human-health/radiation-biology-and-human-health	Elena Fantuzzi, director	elena.fantuzzi@enea.it
NGO	AIRO - Associazione Italiana di Radioterapia Oncologica	AIRO, Via Farini, 62 00185 Roma	http://www.radioterapiaitalia.it/AIRO_SITO_UFFICIALE_RADIOterapia.phtml		segreteria@radioterapiaitalia.it

Latvia					
Governmental body	Radiation Safety Centre of the State Environmental Service	Rupniecibas Street 23, Riga, LV – 1045, Latvia	http://www.vvd.gov.lv/en/		vvd@vvd.gov.lv ; pasts@rdc.vvd.gov.lv
Lithuania					
Governmental body	State Nuclear Power Safety Inspectorate	VATESI, A. Goštauto g. 12, Vilnius	http://www.vatesi.lt/index.php?id=1&L=1	Asta Mensonė , Head of Public Communication Division	asta.mensone@vatesi.lt
	Environmental Protection Agency	Juozapavičiaus st. 9, LT-09311 Vilnius	http://gamta.lt/cms/index	Vytautas Naruševičius, head of Activity Planning and Public Information Division	v.narusevicius@aaa.am.lt
	Radiation Protection Centre	Kalvarijų 153, LT-08221, Vilnius	http://www.rsc.lt/index.php/pageid/510		rsc@rsc.lt
RW management organization	Radioactive Waste Management Agency	RATA, P. Lukšio str. 5, LT-08221 Vilnius	http://www.rata.lt/en.php/about_rata/general_information/	Rūta Jarašūnienė, public relations officer	r.jarasuniene@rata.lt
Nuclear power plant/owner of NPP	Visaginas Nuclear Power Plant project	VAE	http://www.vae.lt/en/pages/the_project_from_a_to_z		biuras@ie.lt
	State Enterprise Ignalina Nuclear Power Plant	Drūkšinių km., Visagino sav., LT-31500	http://www.iae.lt/en/about-us/	<u>Natalija Survila-Glebova, Acting Head of Communications</u>	natalija.survila@iae.lt
NGO	Lithuanian Radiation Protection Society		http://lrsd.rsc.lt/StartPageEN.htm	J. Žiliukas	j.ziliukas@rsc.lt
Luxemburg					
Governmental body	Ministère de la Santé, Division de la Radioprotection	Allée Marconi - Villa Louvigny, L-2120 - Luxembourg	http://www.ms.public.lu/fr/activites/radioprotection/index.html	SCIAMANNA Loredana, secretariat	secretariat.radioprotection@ms.etat.lu

Malta					
Governmental body	Radiation Protection Board	OHSA Building, 17 Edgar Ferro Street, Pieta' PTA 3153	http://ohsa.org.mt/Home/Sectors/RadiationProtection.aspx		ohsa.rpb@gov.mt
	Malta Environment and Planning Authority , The Waste, Air, Radiation and Noise Unit	St Francis Ravelin, Floriana, FRN1230, Sir Luigi Camilleri Street Victoria VCT 2700, Gozo	http://www.mepa.org.mt/home?l=1	contact form	http://www.mepa.org.mt/contactusform?id=7
Netherlands					
Governmental body	National Institute for Public Health and the Environment	RIVM, Antonie van Leeuwenhoeklaan 9, 3721 MA Bilthoven	http://www.rivm.nl/en		info@rivm.nl
RW management organization	Central Organisation for Radioactive Waste	COVRA N.V. Spanjeweg 1 4455 TW Nieuwdorp	http://www.covra.nl/		info@covra.nl
Producer of fuel, open/sealed sources	URENCO Stable Isotopes	P.O. Box 158,7600 AD Almelo	http://www.urencocom/page/63/URENCO-Stable-Isotopes.aspx		isotopes@URENCO.com
	URENCO Nederland	P.O. Box 158, 7600 AD Almelo	http://www.urencocom/page/49/URENCO-Nederland.aspx		almelo@URENCO.com
Poland					
Governmental body	National Atomic Energy Agency	PAA, ul. Krucza 36, 00-522 Warszawa	http://www.paa.gov.pl/en	Michał Koc, International Cooperation Division	sekretariat.GP@paa.gov.pl
Research organization	National Center for Nuclear Research	Narodowe Centrum Badań Jądrowych, ul. Andrzeja Sołtana 7, 05-400 Otwock, Świerk	http://www.ncbj.gov.pl/en/node/945	Marek Sieczkowski, spokesman	spokesman@ncbj.gov.pl

NGO	Fundacja Forum Atomowe		http://www.forumatomowe.org/about_us/	Lukasz Koszuk, president	fundacja@forumatomowe.org
Romania					
Governmental body	National Commission for Nuclear Activities Control	CNCAN, Libertatii Blvd., No. 14, District 5, Bucharest , - Lt. Zalic street., No. 4, District 6, Bucharest	http://www.cncan.ro/main-page/	Andreea-Nicoleta Preda; Felicia Adriana Dragan	nicoleta.preda@cncan.ro ; felicia.dragan@cncan.ro
RW management organization	Nuclear Agency&Radioactive Waste	D.I. Mendeleev Street no. 21-25, District 1, postal code 010362, Bucharest; Campului Street No.1, Mioveni, Jud. Argeş	http://www.nuclearagency.ro/en/		contact@andrad.ro ; contact@nuclearagency.ro
Technical support organization	S.C. EnergoNuclear S.A.	Str. Vasile Lascar, nr. 5-7, etajul 3, Sectorul 2, Bucuresti;	http://www.energonuclear.ro/	Nineta Balas, Official	office@energonuclear.ro nineta.balas@energonuclear.ro
Nuclear power plant/owner of NPP	Cernavoda NPP	NPP Cernavoda, 2 Medgidiei Street, PO Box 42 , Cernavoda, Romania	http://www.cne.ro/	Luminita Stanciu	lstanciu@cne.ro
	Nuclearelectrica S.A.	Nuclearelectrica , 65 Polona Street, 010494, Sector 1, Bucuresti, Romania, C.P. (PO Box) 22-102	http://www.nuclearelectrica.ro/en/home	Lavinia Rizea, PR Officer, Internal&International Cooperation, Media Relations Department	lizea@nuclearelectrica.ro
Research organization	National Institute for Physics and Nuclear Engineering - Horia Hulubei	IFIN-HH Magurele		Bogdan Vamanu	bvamanu@nipne.ro
Producer of fuel, open/sealed sources	Pitesti Nuclear Fuel Plant	FCN, 115400 Mioveni, Jud Arges, 1 Campului Street, Pitesti, Romania	www.fcn.ro	contact form	fcn@fcn.ro ; http://www.fcn.ro/contact/formular-de-contact/

Medical Institution	The Oncology Institute Prof. Dr.I. Chiricuta,	IOCN, 34-36 Republicii Street RO-400015 Cluj-Napoca.	http://www.iocn.ro/en		http://www.iocn.ro/en/modul--Contact.html
NGO	Romanian Nuclear Energy Association	RAAN-SITON, Bucuresti-Magurele;	http://aren.ro/en/	Iulian Pavel Nita; Ilie Turcu; Luminita Stanciu	nitai@router.citon.ro ; turcuqx@easynet.ro ; lstanciu@cne.ro
Slovakia					
Governmental body	Nuclear Regulatory Authority of the Slovak Republic	UJD, Bajkalska 27, P.O. Box 24, 820 07 Bratislava	http://www.ujd.gov.sk	Zuzana Hostovecka	info@ujd.gov.sk
Technical support organization	Abmerit-nuclear science and software	Hornopotočná 1, Trnava, 91701 Slovensko	http://www.abmerit.sk/en/index.html		abmerit@abmerit.sk
Slovenia					
Governmental body	Ministry of Health, Slovenian Radiation Protection Administration	URSVS, Ajdovščina 4, 1000 LJUBLJANA	http://www.uvps.gov.si/si/o_upravi/	dr. Nina Jug	nina.jug@gov.si
	Ministry of Agriculture and Environment, Slovenian Nuclear Safety Administration	URSJV, Litostrojska 54, 1000 Ljubljana	http://www.ursjv.gov.si/si/ursjv/	dr. Andrej Stritar	andrej.stritar@gov.si
	Administration of the Republic of Slovenia for Civil Protection and Disaster Relief	URSZR, Vojkova 61, 1000 Ljubljana	http://www.sos112.si/en/g/	Vesna Marčič	vesna.marcic@urszr.si
	National Institute for Public Health	NIJZ, Trubarjeva 2, 1000 Ljubljana	http://www.ivz.si/	Mitja Vrdelja	mitja.vrdelja@nijz.si
RW management organization	Agency for Radwaste Management	ARAO, Celovška c. 182. 1000 Ljubljana	http://www.arao.si/	Irena Daris	irena.daris@arao.si
Nuclear power plant/owner of NPP	Nuklearna elektrarna Krško	NEK, Vrbina 13, 8270 Krško	http://www.nek.si/	Ida Jerele Novak	ida.novak-jerele@nek.si ;

	GEN energija, d.o.o./Informacijsko središče GEN	GEN, Vrbinova 17, 8270 Krško	http://www.gen-energija.si/ ; www.svet-energije.si	Garcia Kosinac ; Tanja Jarkovič	tanja.jarkovic@gen-energija.si
Technical support organization	Institute of Occupational Safety	Chengdujska c. 25, 1260 Ljubljana-Polje	http://www.zvd.si/zvd/ozavodu/		info@zvd.si
Research/educational organization	Institute Jožef Stefan, Training Center for Nuclear Technology	IJS/ICJT, Jamova 39, 1001 Ljubljana	http://www.icjt.org/	Igor Jenčič	igor.jencic@ijs.si
	House of Experiments	HE, Trubarjeva 39, 1000 Ljubljana	http://www.he.si/index.php?lang=si	dr. Miha Kos	miha.kos@h-e.si
Medical Institution	University Medical Center Ljubljana, Department of Nuclear Medicine	UKC-KNM, Zaloška 7, 1000 Ljubljana	http://www4.kclj.si/index.php?t_id=73&id=334&o=2	dr. Katja Zaletel	katja.zaletel@kclj.si
	University Medical Center Maribor, Department of Nuclear Medicine	UKC-KNM, Ljubljanska ulica 5, 2000 Maribor	http://www.ukc-mb.si/oddelki-sluzbenote/klinika-za-interno-medicino/oddelek-za-nuklearno-medicino/	prim. Ludvik Puklavec	ludvik.puklavec@ukc-mb.si
	Institute of Oncology	OI, Zaloška c. 2, 1000 Ljubljana	http://www.onko-i.si/	Amela Duratović	aduratovic@onko-i.si

NGO	Cancer Patients' Association of Slovenia	DOBSlo, Poljanska c. 14, 1000 Ljubljana	http://www.onkologija.org/sl/domov/		dobslo@siol.net
	Nuclear Society of Slovenia	DJS, Jamova 39, 1001 Ljubljana	http://www.nss.si/		marko.cepina@fe.uni-lj.si
	Association of Ecological Movements	ZEG, Kardeljeva ploščad 1, Ljubljana	http://zveza-zeg.si/	Karel Lipič	zeglj@volja.net ;
	Focus Association for Sustainable Development	Focus, Maurerjeva 7, 1000 Ljubljana	http://www.focus.si/	Tomislav Tkalec	tomi@focus.si
	Greenpeace Slovenia	Kladezna 12, 1000 Ljubljana	http://www.greenpeace.org/slovenia/si/	Dejan Savič	dejan.savic@greenpeace.si
Other	Kvarkadabra- Science Interpretation Association	Kvarkadabra, Slovenska c. 15, Ljubljana	http://www.kvarkadabra.net/staticpages/index.php/predstavitev	Sašo Dolenc	info@kvarkadabra.net ; saso.dolenc@guest.arnes.si
Spain					
Governmental body	Nuclear Safety Council	CSN, Pedro Justo Dorado Delmans, 11 28040 Madrid	http://www.csn.es/index.php/en/	CSN Communications Department	comunicaciones@csn.es prensa@csn.es peticiones@csn.es
RW management organization	ENRESA	C/ Emilio Vargas 7, 28043, Madrid	http://www.enresa.es/	Teresa Palacio	tpaa@enresa.es
Sweden					
Governmental body	Ministry of Environment, Swedish Radiation Safety Authority	Strålsäkerhetsmyndigheten, SE-171 16 Stockholm,	http://www.stralsakerhetsmyndigheten.se/In-English/Facts-about-us/	Malin Nääs	malin.naas@ssm.se ; registrator@ssm.se
	Swedish Nuclear Power Inspectorate (SKI)				
	Swedish Radiation Protection Institute (SSI)	SSI, SE-171 16 Stockholm - Sweden	http://www.stralsakerhetsmyndigheten.se/		

	Swedish National Council for Nuclear Waste	Karlavägen 100 A, SE-103 33 Stockholm, Sweden			karnavfallsradet@gov.se
RW management organization	The Swedish Nuclear Fuel and Waste Management Company	SKB, Box 250, SE-101 24 Stockholm	http://www.skb.se/default_24417.aspx	Jimmy Larsson-Hagberg	jimmy.larsson-hagberg@skb.se ;
Nuclear power plant/owner of NPP	NPP Forsmark		http://corporate.vattenfall.se/om-oss/var-verksamhet/var-elproduktion/forsmark/forsmark-nuclear-power-plant/	Tomas Hägg, Claes-Inge Andersson	thg@forsmark.vattenfall.se cin@forsmark.vattenfall.se
	NPP Ringhals		http://corporate.vattenfall.se/om-oss/var-verksamhet/var-elproduktion/ringhals/ringhals-nuclear-power-plant/		inforinghals@vattenfall.com
	NPP Barsebäck (in decommissioning)	Barsebäck Kraft AB, Barsebäcksverket Box 524, SE-246 25 Löddeköpinge	http://www.barsebackkraft.se/index.asp?ItemID=1291		info@barsebackkraft.se
	OKG Aktiebolag	572 83 Oskarshamn	http://www.okg.se/		info@okg.eon.se
Technical support organization	Studsvik AB	Box 556, SE-611 10 Nyköping	http://www.studsvik.com/en/	Pål Jarness, CFO of Studsvik	studsvik@studsvik.se
Medical Institution	Skåne University Hospital	SE-205 02 Malmö, Sweden	www.skane.se/sus		sus@skane.se

United Kingdom					
Governmental body	Nuclear Decommissioning Agency	NDA, Herdus House, Westlakes Science & Technology Park, Moor Row, Cumbria, CA24 3HU		Bill Hamilton, Head of Stakeholder Communications	bill.hamilton@nda.gov.uk
	Public Health England, Radiation Protection Advice Service,	Centre for Radiation, Chemical and Environmental Hazards, Chilton, Didcot, Oxon OX11 0RQ	http://www.hpa.org.uk/radiation/	Andrew Tristem (Senior Press Officer)	chilton.pressoffice@phe.gov.uk
	Office for Nuclear Regulation	4N.2 Redgrave Court, Desk 26, Merton Road, Bootle L20 7HS	http://www.hse.gov.uk/nuclear/index.htm	"	ONRenquiries@hse.gsi
Nuclear power plant/owner of NPP	EDF Energy	Barnett Way, Barnwood, Gloucester, GL4 3RS; Hallard Count, Bridgewater, Somerset, TA6 4KN	http://www.edfenergy.com/about-us/energy-generation/	John Barnham, external communications Manager; Andrew Cockroft	john.barnham@edf-energy.com ; andrew.cockroft@edf-energy.com
Technical support organization	National Nuclear Laboratory	NNL,		Adrian Bull, Director of External Relations	adrian.j.bull@nnl.co.uk
	Culham Centre for Fusion Energy	CCFE, Culham Science Centre, Abingdon, Oxfordshire, OX14 3DB	http://www.ccf.ac.uk/CCFE.aspx		http://www.ccf.ac.uk/contact_us.aspx
	World Nuclear Transport Institute	Remo House, 310-312 Regent Street, London, W1B 3AX	http://www.wnti.co.uk/	Betty Bonnardel Azzarelli, Communications Project Manager	bettyba@wnti.co.uk
Research organization	British Institute of Radiology	48-50 St John Street, London, EC1M 4DG	http://www.bir.org.uk/	Carole Cross, Communications Manager	carole.cross@bir.org.uk
Producer of fuel, open/sealed sources	URENCO UK Limited	Capenhurst Chester, England, CH1 6ER	http://www.urengo.com/page/41/URENCO-UK.aspx		enquiries@cap.URENCO.co.uk

NGO	Cumbrians Opposed to Radioactive Environment	CORE, DRY HALL, BROUGHTON MILLS, BROUGHTON-IN-FURNESS, CUMBRIA, LA20 6AZ	http://www.corecumbria.co.uk/default.htm		info@corecumbria.co.uk
	Society for Radiological Protection	DS009, Dartington Hall, Devon, TQ9 6EN	http://www.srp-uk.org/about-us/committees		admin@srp-uk.org
Other	Health and Safety Executive		http://www.hse.gov.uk/pubns/index.htm		media.enquiries@hse.gsi.gov.uk
	Nuclear Industry Association	NIA, Carlton House 22a St James's Square, Londo, SW1Y 4JH	http://www.niauk.org/	Alastair Evans, communications officer	alastair.evans@niauk.org
Switzerland					
Governmental body	SERI- State Secretariat for Education, Research and Innovation	SERI, Effingerstrasse 27, CH-3003 Berne	http://www.sbf.admin.ch/index.html?lang=en,		info@sbfi.admin.ch
	IRGC - The International Risk Governance Council	IRGC, École Polytechnique Fédérale, CM1-517, Case Postale 99, 1015 Lausanne - Switzerland	http://www.irgc.org/about/history/	Marcel Bürkler, Project & Event Manager	marcel.burkler@irgc.org ; info@irgc.org
	Swiss Federal Nuclear Safety Inspectorate	ENSI, Industriestrasse 19, CH-5200 Brugg	http://www.ensi.ch/en/	contact form; Head of Communications: Sebastian Hueber	http://www.ensi.ch/en/contact-us/ info@ensi.ch

Table 3: EU Platforms, Associations & Projects					
IGD-TP	Implementing Geological Disposal of Radioactive Waste Technology Platform		http://www.igdtp.eu/	Raymond Kowe, Assistant Secretary	raymond.kowe@nda.gov.uk
SNE-TP	Sustainable Nuclear Energy Technology Platform		http://www.snetp.eu/	contact form	http://data.lgi-consulting.net/www/snetp/index.php?option=com_contact&view=contact&id=1&Itemid=3
NERIS	European Platform on Preparedness for Nuclear and Radiological Emergency Response and Recovery	NERIS - % CEPN 28 rue de la Redoute, 92260 Fontenay-aux-Roses, France	http://www.eu-neris.net/		sec@eu-neris.net
EURDEP	European Radiological Data Exchange Platform		http://eurdep.jrc.ec.europa.eu/Basic/Pages/Public/Home/Default.aspx		
MELODI	Multidisciplinary European Low Dose Initiative	Bundesamt für Strahlenschutz Postfach 10 01 49 D-38201 Salzgitter Germany	http://www.melodi-online.eu/index.html	Frank Hardemann Secretary SCK.CEN/Belgium	melodi@bfs.de

DOREMI	Low Dose Research towards Multidisciplinary Integration, European Network of Excellence	Commissariat à l'Energie Atomique et aux Energies Alternatives (CEA) DSV/IRCM/SRO/LRO 18, route du Panorama 92265 Fontenay-aux-Roses, France	http://www.doremi-noe.net/index.html	Mr. Asmorom OGBAZGHI CEA/France	asmorom.ogbazghi@cea.fr
ENEN	European Nuclear Education Network	ENEN Association Centre CEA de Saclay, INSTN - Bâtiment 395, F-91191 Gif-sur-Yvette, France	http://www.enen-assoc.org/	Mr Pedro Porras Dieguez Secretary General CEA/France	http://www.enen-assoc.org/en/top-menu/contact.htm ; sec.enen@cea.fr
ALLIANCE	European Radioecology Alliance		http://www.er-alliance.org/	contact form	http://www.er-alliance.org/contact-form/
NUGENIA	Nuclear Generation II&III Association	NUGENIA Secretariat c/o EDF, avenue des Arts, 53, B - 1000 Bruxelles, Belgium	http://www.nugenia.org/		secretariat@nugenia.org
EURADOS	European Radiation Dosimetry Group	European Radiation Dosimetry Group e.V. , Bundesallee 100, D-38116 Braunschweig	http://www.eurados.org/		office@eurados.org
OPERRA	Open Project for European Radiation research Area	Institute for Radiological Protection and Nuclear Safety (IRSN), 31, avenue de la Division Leclerc, B.P. 17 , F-92262 Fontenay-aux-Roses cedex, France		Jean-René Jourdain Project coordinator	jean-rene.jourdain@irsn.fr

NUSHARE	Project for Sharing&Growing Nuclear Safety Culture Competence		http://www.nushare.eu/		http://www.nushare.eu/
JRC – Institute of Energy and Transport	European Commission Directorate-General Joint Research Centre Institute for Energy and Transport	JRC IET, P.O. Box 2 NL-1755 ZG Petten Westerduinweg 3 NL-1755 LE Petten The Netherlands	http://iet.jrc.ec.europa.eu/	Darren McGarry; public relations and communication	darren.mcgarry@ec.europa.eu
JRC - Institute for Transuranium Elements	European Commission Joint Research Centre Institute for Transuranium Elements	JRC ITE, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany	http://itu.jrc.ec.europa.eu/	Gabriele Tamborini	jrc-itu-info@ec.europa.eu
AIPES	European Industrial Association for Nuclear Medicine and Molecular Healthcare	Avenue Louise 65 – Box 5 – Floor 4, B – 1050 Brussels, Belgium	http://www.whatisnuclearmedicine.com/Home	AIPES Nuclear Medicine Awareness Group, contact form	http://www.whatisnuclearmedicine.com/Foot-55-Credits%20-%20who%20are%20we%20?
ENSTTI	European Nuclear Safety Training&Tutorial Institute	12, rue de la Redoute 92260 Fontenay-aux-Roses - France	http://www.enstti.eu/index.php?option=com_content&view=featured&Itemid=101		contact@enstti.eu

II.2 Status quo in education, training and information at the level of information source

The link to questionnaire on ETI materials and activities was sent to 148 e-mail addresses; some e-mail addresses were irresponsive from the list of information sources. 12 additional questionnaires were filled in in person at the PIME conference in February 2014 and also these questionnaires were later inserted in the SurveyMonkey tool. Altogether we got about 1/3 (47) responses from 18 EU member states (Table 4). Some respondents skipped certain questions.

The number of answers from different countries varies quite substantially regardless if they are “nuclear” or “non-nuclear”, new member states or old member states. Due to the fact that respondents were anonymous we considered all responses as one group and were not able to analyse responses from the point of view of specific groups of information sources (regulators, industry, medical institutions, RWM agencies ...).

Table 4: List of countries					
Country	Answers	Country	Answers	Country	Answers
Austria	1	France	2	Malta	-
Belgium	4	Germany	1	Netherlands	-
Bulgaria	1	Greece	4	Poland	2
Croatia	-	Hungary	1	Portugal	-
Cyprus	-	Ireland	-	Romania	3
Czech Republic	4	Italy	-	Slovakia	1
Denmark	-	Latvia	1	Slovenia	6
Estonia	-	Lithuania	3	Spain	1
Finland	1	Luxemburg	-	Sweden	3
				United Kingdom	8

General data about the respondents

1. The type of organization

The most numerous are: NPPs or the NPPs' owners, regulatory bodies, research organizations and radioactive waste organizations. They represent about 60 % of the respondents. Among "other" are: professional RP societies (private organizations supporting members of the society), professional bodies, environmental radioactivity laboratory). There are only 3 ministries and only 2 NGOs among them.

Such a structure is understandable as education, training and information as well as communication with the public is important for the first group of organizations, while the ministries obviously take less interest in education, training and information activities.

Answer Choices	Responses	
Ministry of health or other similar national body	4.26%	2
Ministry of education or other similar national body	0.00%	0
Ministry of economy/energy or other similar national body	0.00%	0
Ministry of environment or other similar national body	2.13%	1
Regulatory body	19.15%	9
Research organization	12.77%	6
Technical support organization for NPPs	6.38%	3
Medical facility using IR and X-ray (diagnostic, therapeutic)	4.26%	2
Nuclear power plant/owner of NPP	21.28%	10
Producer or user of radiation sources, (food irradiation; ...)	2.13%	1
Radioactive waste and spent fuel management organization	8.51%	4
NGO	4.26%	2
EU international associations and platforms	2.13%	1
Other (please specify)	12.77%	6
Total		47

2. Ownership of the organization

74.5% of the respondents are public and 25.5% are private organizations.

3. Main activity of the organization

Most of the respondents are regulatory bodies, research and development organizations, and radiation protection organizations. There are also several organizations operating nuclear facility and some radioactive waste management or decommissioning organizations. 11 respondents proclaimed themselves as “Other”, like: electricity production, health care, supporting members of the society, regulator...

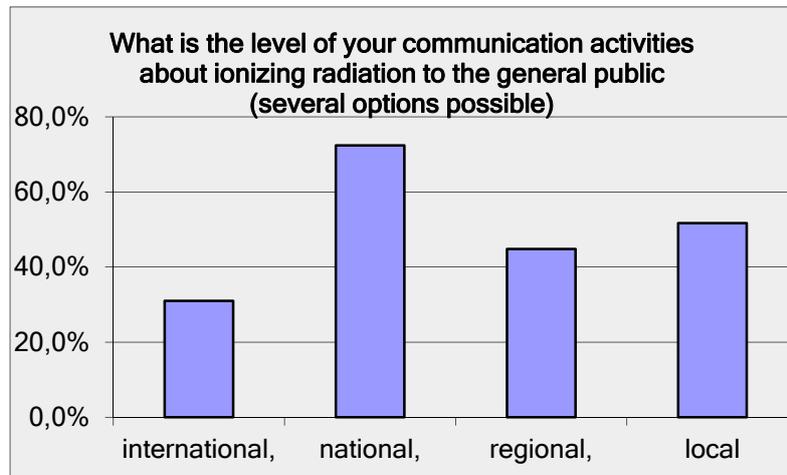
Regulatory body	8 (17 %)
Research and development	6 (12.8%)
Radiation protection	6 (12.8%)
Operating nuclear facility	4 (8.5%)
Radioactive waste management	4 (8.5%)
Education and training	2 (4.3%)
Medical applications with radioactive substances	2 (4.3%)
Technical support	2 (4.3 %)
Decommissioning	2 (4.3)

Aspects of communication with the public

4. Providing information or education/training about ionizing radiation to the general public

78.7% of the organizations provide information or education/training about ionizing radiation to the general public and 21.3% do not. Some of those who do not communicate directly to the public say that communication is not their mission, but they are sometimes consulted as experts by the media.

5. What is the level of your communication activities about ionizing radiation to the general public (several options possible)



72% of the respondents are active at the national level, 52% (also) at the local and 45% (also) at regional level. 31% are active at the international level.

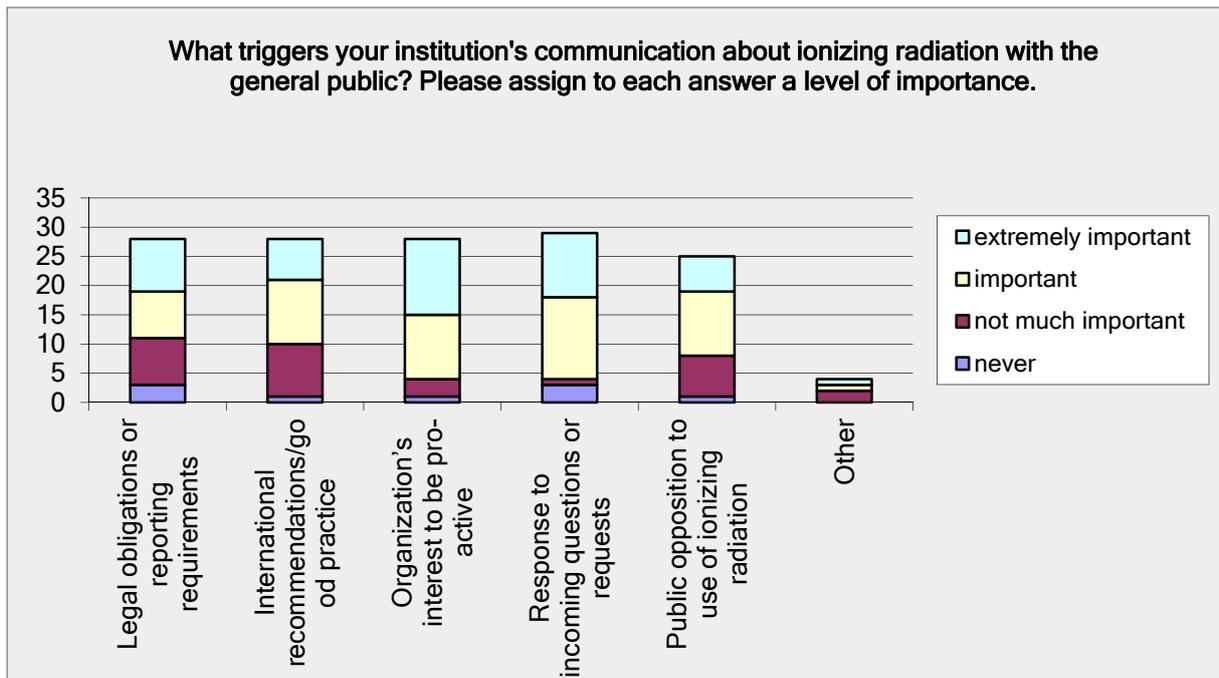
6. What is the share of information on ionizing radiation in your total public communication?

Answer Choices	Responses	
Less than 10%	20.69%	6
10 – 30 %	31.03%	9
31 – 50 %	13.79%	4
51 – 70 %	3.45%	1
71 – 90 %	3.45%	1
more than 90%	27.59%	8
Total		29

Communication on IR represents less than a half of the total public communication in most respondents. More than a half of the respondents (53%) answered that the share of information on IR represents less than 30% in their total communication and more than ¼ of respondents answered that the share of information on IR was more than 90%. The results indicate that the organizations can be divided into those which are specialized for

communicating about ionizing radiation and those which communicate about nuclear issues without many additional explanations about ionizing radiation.

7. What triggers your institution's communication about ionizing radiation with the general public? Please assign to each answer a level of importance.



The main trigger that makes organizations communicate with the public is their interest:

- to be proactive and
- to be responsive to incoming questions or requires.

The least relevant motives are legal obligations and international recommendations.

8. Which are the 3 most relevant purposes (chosen from the list of purposes) driving your organization's communication about ionizing radiation with the general public?

Answer Options	Response Percent	Response Count
To respond to legal requirements concerning informing of the public (e.g. in administrative procedures...)	31,0%	9
To inform people to avoid risk for their health	24,1%	7
To assure and/or coordinate crisis information in case of incident or accident involving IR	27,6%	8
To educate people about IR	55,2%	16
To reduce fear of ionizing radiation in the public	48,3%	14
To raise interest of the public for nuclear energy and radiation sources	17,2%	5
To empower people with knowledge on IR to competently participate in decision-making	13,8%	4
To report data from monitoring or concerning planned releases	13,8%	4
To achieve social acceptability for the organisation's activities	31,0%	9
To gain trust of the public in the use of ionizing sources and nuclear energy	27,6%	8
Other (please specify)	10,3%	3
<i>answered question</i>		29
<i>skipped question</i>		18

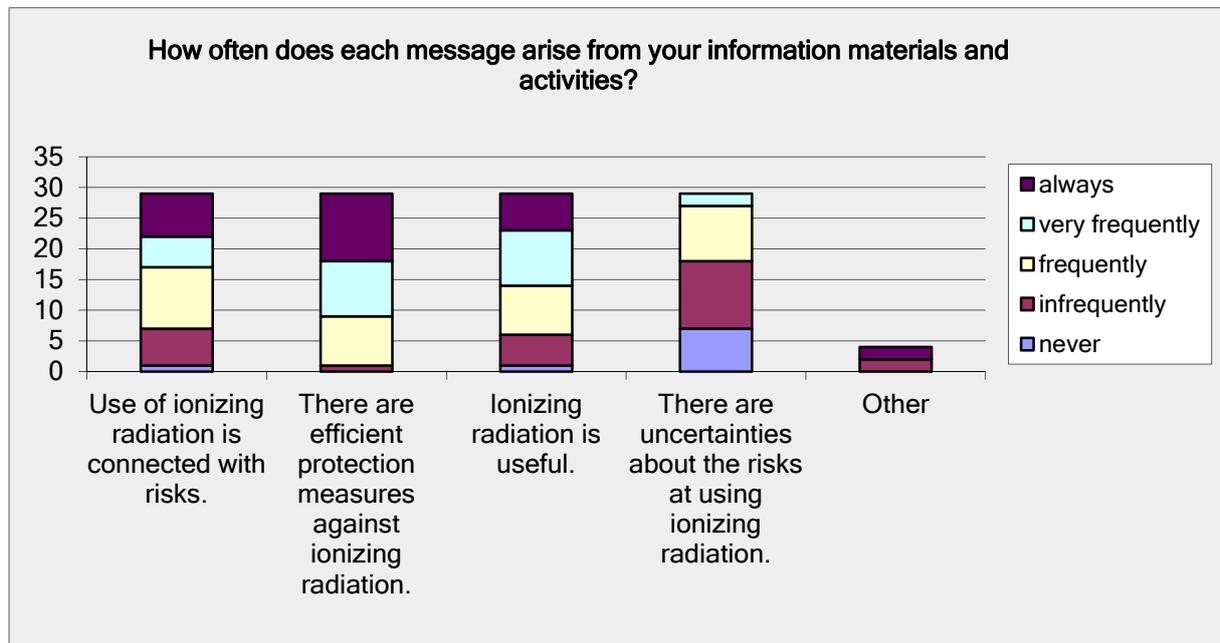
The main purpose of the communication with the public is:

- “to educate people of IR” (55% of the respondents chose this answer),
- “to reduce fear from IR” (48% of respondents),
- “to achieve social acceptability for the organisation’s activities” (31%) and
- “to respond to legal requirements concerning informing of the public (e.g. in administrative procedures...) (31%).

The least important purposes are:

- “to empower people with the knowledge on IR to participate in decision-making” competently and
- “to report data from monitoring or concerning planned releases”.

9. How often does each message arise from your information materials and activities?



The messages that arise most often from the materials and activities from the information sources are:

- “There are efficient protection measures against ionizing radiation.” (20 respondents tell it always or very frequently)
- “Ionizing radiation is useful.” (15 respondents tell it always or very frequently).
- “Use of ionizing radiation is connected with risks.”

The least frequently is communicated the fact:

- “There are uncertainties about the risks at using ionizing radiation.”

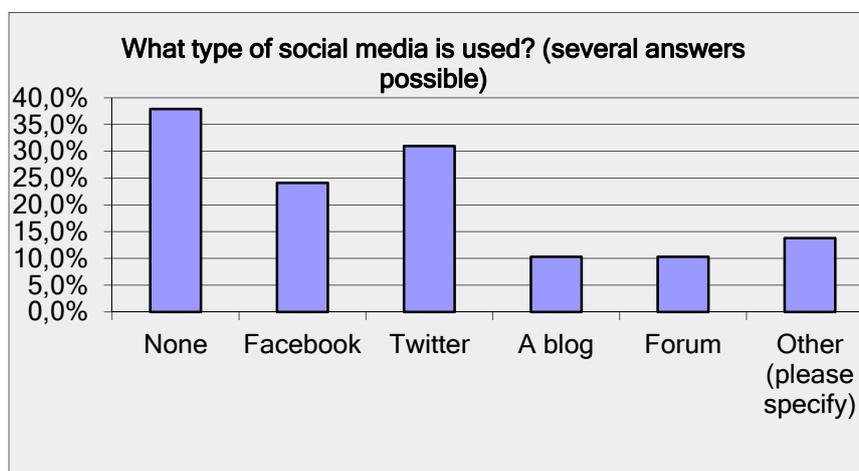
Types of communication media

10. What type of education, training and information materials/activities is used? (several answers possible).

Answer Options	Response Percent	Response Count
Written instructions	41,4%	12
Book, booklet	55,2%	16
Periodical magazine	20,7%	6
Information in mass media	55,2%	16
Flyer, poster	37,9%	11
DVD, CD, video	27,6%	8
Website	96,6%	28
Information centre	41,4%	12
Open door day	48,3%	14
Round table, workshop	31,0%	9
Science fair	27,6%	8
Summer school	17,2%	5
Cooperation with schools	65,5%	19
Cooperation with local community	55,2%	16
Other (please specify)	3,4%	1
<i>answered question</i>		29
<i>skipped question</i>		18

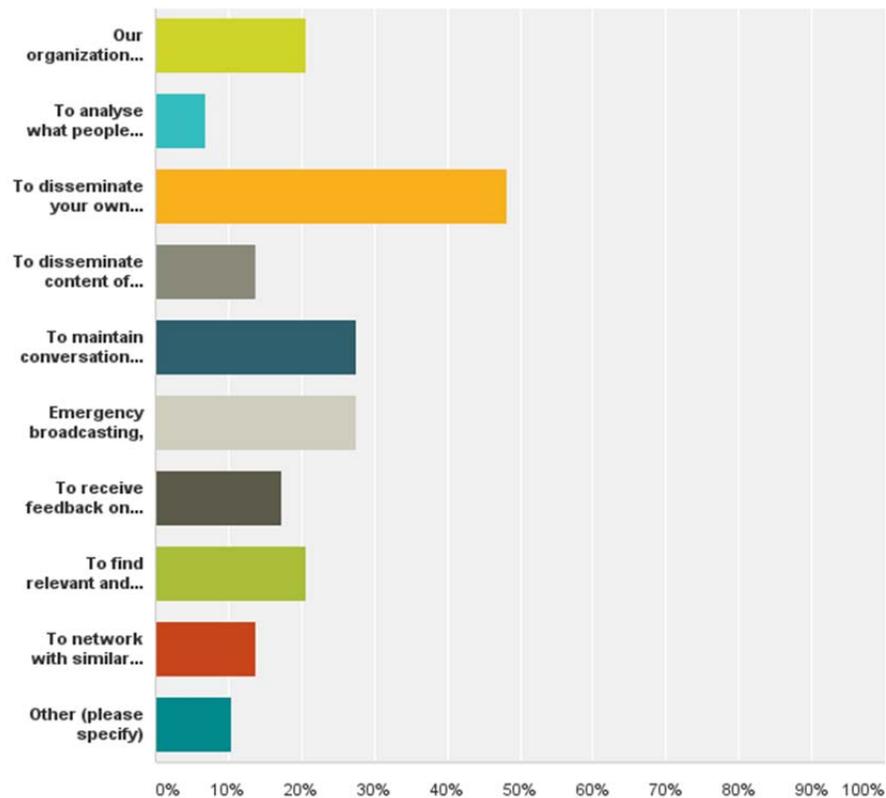
Website is the communication tool number 1 – used by 97% of the respondents. More “classical” communication tools like periodical magazines or DVDs, CDs are less frequently used, but books and articles in mass media are still used by more than a half of respondents. Cooperation with local community and schools is also rather popular.

11. What type of social media is used? (several answers possible)



38% of respondents do not use any social media. Twitter and Facebook are most popular and only 10 % write blog or 10% communicate at a forum. 14% answered they use website, mass media or You tube.

12. What purpose do you use social media for?



The respondents claim that social media are used mostly for dissemination of information, and less for receiving feed-back from the public or networking.

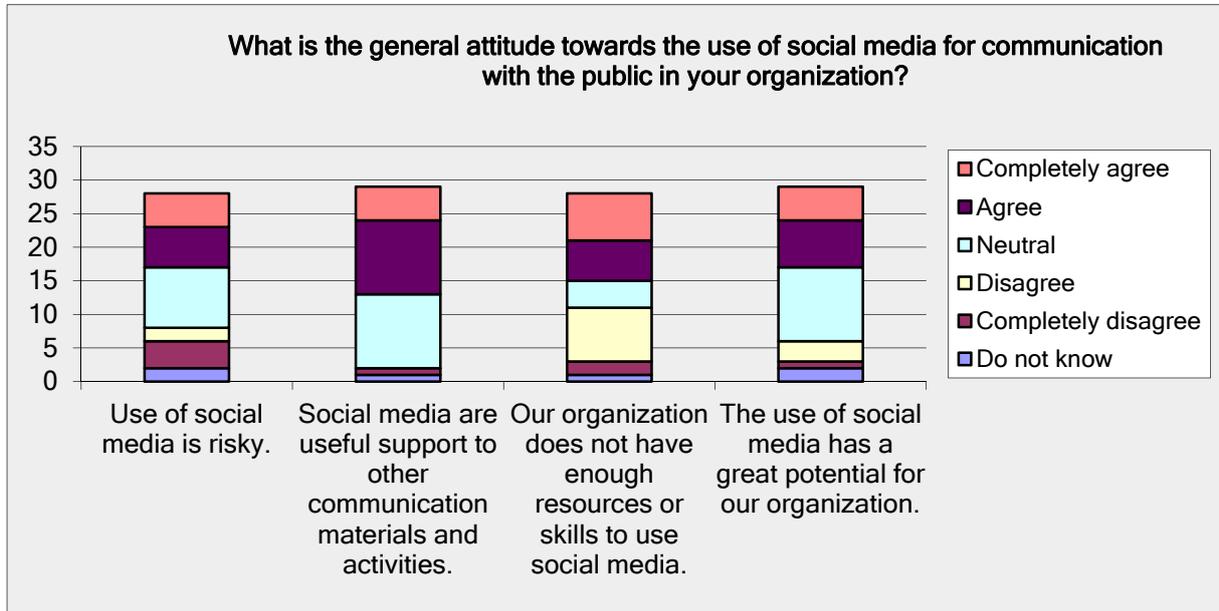
The main purposes for the use of social media are:

- To disseminate own contents (48%)
- To maintain conversation with people on particular topic (28%)
- Emergency broadcasting (28%)
- To find relevant and interesting content (21%)

Less important purposes are:

- To receive feedback on own activities from citizens (17%)
- To network with similar institutions and initiatives (14%)
- To disseminate contents of others (14%)
- To analyse what people talk about, monitoring (7%)

13. What is the general attitude towards the use of social media for communication with the public in your organization?



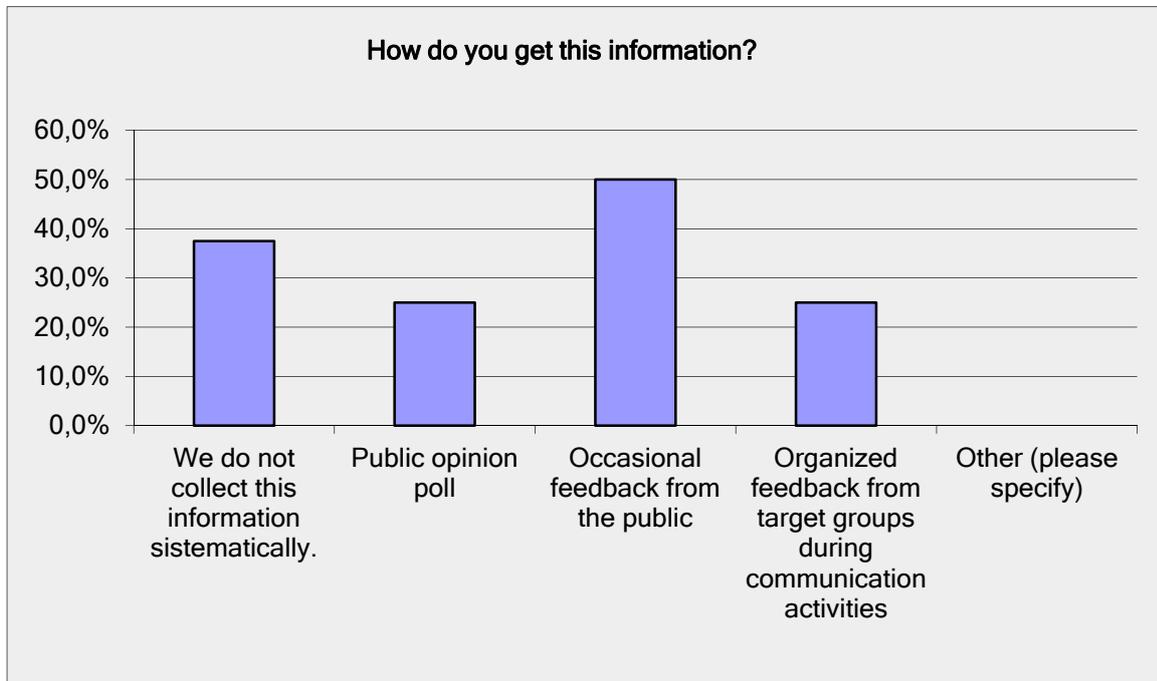
The respondents strongly agree that social media are useful support to other communication activities. But they also say that their organization does not have enough resources or skills to use them. To the least extent they agree that the use of social media is risky.

Needs of the public

14. Do you systematically investigate what information/knowledge on ionizing radiation the public needs or is interested in?

Most of the respondents (62 %) do not systematically investigate what kind of information/knowledge about ionizing radiation is needed or required by the public.

15. How do you get the information about the public needs and requirements regarding ionizing radiation?



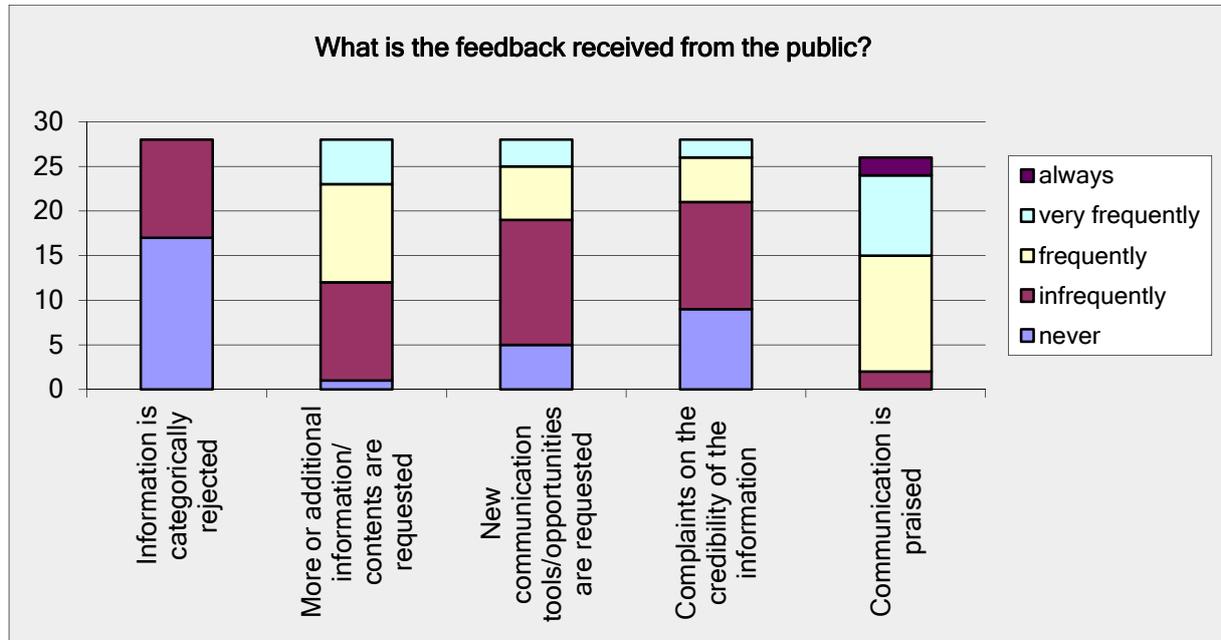
Usually the respondents get this information from the occasional feed-back from the public, 25% by public opinion polls, and 25% by organized feed-back from target groups.

16. What is the most wanted information/knowledge in the public? (several answers possible)

Answer Options	Response Percent	Response Count
Origin of ionizing radiation	29,6%	8
Characteristics of ionizing radiation	11,1%	3
Hazard/risk from radiation sources	70,4%	19
Effects on health and environment	81,5%	22
Use of ionizing radiation	14,8%	4
Types of radiation sources	11,1%	3
Ionizing radiation protection	37,0%	10
Benefits of the use of ionizing radiation	18,5%	5
Do not know	11,1%	3
Other (please specify)	7,4%	2
<i>answered question</i>		27
<i>skipped question</i>		20

The most wanted information is about the hazard/risk from radiation sources and the effects on health and environment. Information on origin of ionizing radiation and IR protection are also frequently required. The public is the least interested in characteristics, types, benefits and use of IR.

17. What is the feedback received from the public?



The public is quite grateful for information: 71% of respondents say that the information is most often praised. 61% of them say that it is never categorically rejected and 39% say it is infrequently rejected. The majority says that there are no or few complaints on the credibility of the information only 25% of the respondents say it happens more often. 57% of respondents say that the public very frequently or frequently requests additional information and 43% say that the public infrequently or never requests additional information. New communication tools are rarely requested.

Samples of ETI materials and activities

In the context of ETI material that is dealing with nuclear energy and radioactive waste, the main purpose of introducing information about ionizing radiation is to support the idea of radiation protection, safety of nuclear installations or risk. Most of the available publications included the message that ionizing radiation from nuclear power plants or radioactive waste management can be managed well and that in normal circumstances the public has no reason to be scared. In case of providing information about radon the risks and what to do to reduce risk is stressed. Public perception of this approach can be that ionizing radiation makes sense in the context of risk and it should be somehow prevented. Sometimes ionizing radiation is also explained in the context of radiation spectrum with no mention of risk. It is not surprising that people may have difficulties in merging these two concepts into one.

Most of the reported communication materials on IR are brochures, booklets, also web site applications or re-publishing EC information. Information is presented also through short articles in mass media and publications interesting for the general public (e. g. calendar), and in the form of DVD-s. There is a lot of education material about ionizing radiation on YouTube that is not produced by educational institutions, teachers or students. Some of them are very good.

ETI materials are dealing mostly with various aspects of nuclear energy and ionizing radiation is only a part of the material. Very few are dealing exclusively with IR. Basic data and concepts about ionizing radiation are usually presented very shortly, in a rather technical language. There are usually some schemes but there is no place to elaborate the concepts, e.g. dose and dose rate, deterministic or stochastic effects, half-time, life-time, natural and artificial radiation etc. Sometimes these facts wouldn't be necessary but if they are mentioned they should be explained more deeply because they are not a part of common knowledge.

Education about ionizing radiation is defined as an important objective of ETI materials and activities but it was found that education aspect was rather superficial. Most of ETI materials give information only as a fact. One of important aspects of education is also to provide opportunities for discussion about different possibilities of understanding of facts and about the information that public gets from other information sources. Survey of type and quality of information coming from information sources not directly connected with nuclear industry or regulation of this activity was not in the project program. ETI activities (e. g. workshops, laboratory experiments, science fairs) are more suitable for achieving this educational objective to provide opportunities for discussions and really influencing the standpoints. Some institutions already follow this communication strategy and stress ETI activities where participants get the opportunity to be actively involved in the process of discovering and discussing information (IRSN in France, CEZ in Czech Republic, GEN-energija in Slovenia, Nuclear Training Center of Institute Jozef Stefan, Slovenia, Fundacja Forum Atomowe, Polska). ETI materials are more useful as an information source for the public that has already attained a certain level of interest and wants to get more information. This also implies that ETI activities should provide basic information about ionizing radiation and ETI materials can be a little more demanding for readers.

Information sources are convinced that it is very important that ETI materials are easily accessible for all. They are distributed to interested public either on request or at meetings with the public. Some information sources produce specific materials for the local public but generally the same materials are distributed on local and on national level. Main types of activities are:

- excursions to NPP
- meetings with general public
- information centre
- seminars for teachers
- emergency drill, experiments for school children

ETI activities with objective to disseminate truth about nuclear energy and radiation are increasing lately. Usually they are not performed by the information sources as are defined in this survey but are often organized by groups of young people, students or young professionals. Experiments for illustration of ionizing radiation and explanation or discussion about the experiment are very popular. The target groups of this type of ETI activities are primarily school children and teachers. These activities can serve as an addition to standard school curriculum. In general it can be concluded that ETI materials and activities are developing and that the importance of activities increases in comparison with the importance of ETI materials.

II.3 Communication culture

Open interviews with responsible heads of organizations that represent information sources for ETI materials and activities were carried out in Poland (9), Romania (...), Slovenia (10) and Czech Republic (1). In some cases top managers were involved directly and in some cases they appointed the official representative of the organization. Following is the compilation of observations obtained by interviewers. The results are presented according to the leading questions and compared between different types of information sources.

1 Description of information sources involved in the survey

The following types of information sources were involved in the survey:

Ministry	1. Ministry of infrastructure - Energy directorate (SLO)
Regulatory body	1. Slovenian Nuclear Safety Administration (SLO) 2. The Slovenian Radiation Protection Administration (SLO) 3. National Atomic Energy Agency (POL)
Radioactive waste management organization	1. Agency for Radioactive Waste (SLO) 2. SURAO/RAWRA (CZ) 3. Nuclear Agency for Radioactive Waste (RO)
Nuclear power plant/Owner of NPP	1. Nuclear Power Plant Krško (SLO) 2. GEN energija – owner of NPP Krško (SLO)
Medical institution	1. Institute of Oncology (SLO)
Educational institution	1. Nuclear Training Center of Institute Jozef Stefan (SLO) 2. Poznan University of Technology (POL) 3. Collegium Civitas – University (POL)
Technical support organisation	1. Institute for Occupational Safety - Centre for physical measurements (SLO)
Research institution	1. Institute of Nuclear Chemistry and Technology (POL) 2. National Centre for Nuclear Research (POL) 3. POLATOM (POL)
NGO	1. Polish Nuclear Society (POL) 2. Environmentalists for Nuclear Energy (POL)
Financial organization	1. Financial fund for decommissioning (SLO)

Representatives of Slovene, Czech, Romanian and Polish information sources expressed positive attitude towards open communication about radiation. They all agreed to be interviewed. They recognize that communication with different public (target groups) is very important for their activities and for support of their missions. But the question about the successful way of communication and the way of reaching the public remains open.

2 Target groups addressed by the information sources

Groups of information sources described their target groups as follows:

Ministry	1. General public, Journalists, Interested public (SLO)
Regulatory body	1. General public, Journalists, Interested publics, NGOs, Unions, Responsible representatives at schools(SLO) 2. Local public, journalists (POL)
Radioactive waste management organization	1. Decision-makers and politicians, Journalists, Local public, National public, Professionals (nuclear), NGOs (SLO) 2. National and local decision makers and policy-makers, local public, professionals (nuclear), NGOs, radioactive waste producers (CZ) 3. Local public, local authorities, media, politicians, general public (RO)
Nuclear power plant/Owner of NPP	1. Decision makers and politicians, Students, Journalists, General public (SLO)
Medical institution	1. Patients, Employees, External workers, Visitors to hospital (SLO)
Educational institution	1. Students, Organized groups of visitors, Interested public (SLO) 2. Students, general public (POL)
Technical support organisation	1. Professionals working with IR, General public
Research institution	1. Students, general public, media (journalists) (POL), patients, medical doctors (POL)
NGO	1. General public, opponents to nuclear technology, students, teachers, decision-makers (POL)
Financial organization	1. Journalists (SLO)

Target groups in different countries and for the same group of institutions are almost the same. In the case of medical institutions the target groups are specific and related to the application of radiation sources in medical procedures. Medical institutions do not communicate with general public and journalists. Also educational institutions and NGOs do not see journalists as their important target groups. They address similar public, e.g. students, teachers. For the official governmental organisations (regulatory bodies and ministries) the most important target group includes journalists and also general public, since they need to show to the public that they protect the civil society against the adverse effects of ionizing radiation. For implementers (radioactive waste organizations, NPPs and

their owners) one of the most important target groups are decision makers and politicians as they depend on their decisions. NGOs are not recognized as important target groups. NGOs often oppose to nuclear energy and are therefore described as “difficult public”. Communication with professionals in the nuclear field is important for research and implementing organizations because of the feed-back regarding their work.

3 Analysis of the opinions and standpoints of representatives of information sources on the importance of communication activities for performance of the organizations

All interviewees completely agreed that communication helped them to fulfill their mission and that it is contributing to the trust of stakeholders and public in their professional competencies. Some of them would like to improve their ETI materials and activities, if they had enough resources. We can conclude that the awareness about the importance of communication is rather high, but in some organizations additional support in terms of human resources (knowledge and skills) and finance are needed.

Polish NGOs expressed an interesting opinion that society should be informed or consulted only when it is really necessary. They think that society is not in a position to take far-reaching decisions related to energy policy including decisions about nuclear issues. It is also almost impossible to give good knowledge about radiation and nuclear energy for most of the people.

Information sources pointed out that unreliable or even scientifically wrong information that is disseminated in the society, often by media, can produce a lot of troubles in communication of other, more reliable information. The only way to reduce this problem is to provide knowledge about ionizing radiation to young people while they are still at school. This would empower the future adult population to be able to choose between reliable and trustworthy information and manipulative information. The basic knowledge about ionising radiation and nuclear issues, which should be provided starting from the primary and secondary schools is the only rational starting point for any communication activities.

Information sources whose mission is to implement nuclear energy and achieve its public acceptance find that this objective can be achieved also without providing basic information on ionizing radiation. Public wants to be informed about the policy or construction plans, people want to be involved and keep their own opinion about radiation. Trust is more important than objective knowledge. Public attitude towards radiation is usually based on emotions, like fear, and objective knowledge does not necessarily change the emotions.

4 Influence of Fukushima accident on communication at the level of information sources

The strategy of communicating after the Fukushima accident has not substantially changed. Only in the time of crisis there was an increased interest from media and the public for

information and professional explanation. Information sources included some facts about the accident into their ETI materials or activities but did not change the main communication approach. Some of the information sources introduced more safety issues into their materials and activities

5 Factors of success in communication

We were able to define the following factors of success:

- Professional approach in communication, including openness, positive attitude, honesty, readiness for giving the answers in time. It is believed that professional approach increases trust and was defined as the main factor by most of the interviewees. It can be recognized by plain and understandable language and as much as possible personal contacts
- Comprehensibility of information and giving the correct scientific explanation are also ranked highly.
- Ability to understand and respect the standpoints and values of the public and willingness to adapt to public needs and interests. This also includes the ability to adapt to different target groups.
- Use of effective communication tools and channels specific for different target groups.
- Establish a sustainable and active link with local community and promoting win-win situations.
- Transparency of the organization's operation and professionalism in all organization's activities. This was recognized as the less important factor among all although it is generally claimed that transparency is a basic requirement for gaining public trust.
- Providing information and communication should never be associated with commercial interest.

Giving scientifically correct information and professional approach are more stressed by the governmental and implementing institutions and by the top management of the institutions. Professional communicators in the institutions stress more the open communication, understanding and respecting the public and quick response to information needs.

For representatives from educational institutions a balanced presentation of positive and negative aspects is very important. And representatives of regulatory bodies pointed out that the institution should have good public visibility in order to be reached by the interested public. In communication, both partners are important - the institution that is offering information and the public that requires the information.

III. Comments and conclusions

Only institutions directly involved in applications of sources of ionizing radiation for the benefit of the society and the governmental bodies providing safe use of ionizing radiation sources were considered as information sources in this survey. In fact, there are also other information sources, like students, teachers, scientists ... Although they were not in the scope of the present survey it should be taken into account that they represent a very important information source of a good quality.

Working group encountered rather big problems in directly motivating potential respondents to participate in the project. Although one can conclude from only a quick web survey that many organizations using or producing some type of radiation sources give some basic information about their activities, including also basics about ionizing radiation based on personal communication we conclude that the main obstacle is the justification of the time that is expected to be spent by people that are not partners in the project. Higher management may also be reluctant to permit giving the data if interpretation of data can't be controlled. Nevertheless we consider that the acquired data can be used for further elaboration and as a basis for recommendations for good practices of communication about ionizing radiation in EU member states.

Results reflect mostly the communication activities of nuclear facilities and governmental institutions. Most of them traditionally include some information on ionizing radiation. The focus of their ETI materials and activities is to explain physical aspects of radiation and stress that it is a natural phenomenon. Health and environmental impacts are mentioned in general statements that sources of radiation can be used safely and that technology to manage the risk is available. A tendency to increase public acceptability of use of radiation sources and nuclear energy simply by promoting a positive image of nuclear industry or giving basic knowledge is still present. Objective to increase the understanding of radiation effects on human health and the environment is not stressed – most of the respondents include some information about ionizing radiation but other issues are dominant in their ETI materials or activities. The purpose to increase the competency of citizens to take responsibility in decision-making is not yet a general objective.

The number of medical institutions or institutions producing radiation sources for health care was not big. Their ETI materials and activities pay more attention to health impacts of ionizing radiation and stress the effects of ionizing radiation on single person, while ETI materials from nuclear industry and associated public and governmental institutions stress the average effects on the population, in most cases on the national level. ETI materials and activities produced by medical institutions support decisions about personal health issues and people are usually much more motivated for personal issues than for issues relevant for the whole population. From the point of view of respective persons who wish to get some information, this population approach is certainly less efficient and may also be less credible. At the same time, most of the respondents communicate with the public because they want to satisfy the needs of the public and not because of legal national or international

obligations. This indicates that they are aware of the interest of the public as a whole group and also as individuals but take the traditional collective communication strategy.

There is a tendency to avoid communicating about the uncertainties about radiation risks and at the same time the respondents find that information about hazards/risks is most wanted. Similar discrepancy between the interests of the public and the contents of ETI materials and activities was found also for issues like benefits of use of radiation sources, origin and characteristics of radiation. Despite this the respondents have the impression that their ETI materials and activities are well accepted by the public. The responses of information sources probably show only their belief that they do well because they put a lot of efforts into ETI materials and activities. Most of them do not get enough feed-back from the public because they do not systematically investigate the public needs and interests and only a small part of the public requests usually a certain information actively. Even social media are not used enough for getting the feed-back. In general social media are perceived as time consuming and are used in combination with types of other communication media.

Interviews with heads of institutions or communication departments showed that information sources recognize the importance of the communication with public and stakeholders. The information sources are rather satisfied with their way of communication and do not plan to change it substantially. The attitude within institutions regarding the communication is very positive. It is based on several principles, such as: professionalism, correctness and comprehensibility, openness, completeness of information. Professionalism and scientific correctness is valued much more than the transparency of utility operation. It may seem surprising that transparency was not highly ranked among factors of success. This may indicate that information sources in our survey do not have enough information and sense for public interests. They also stress that good educational background in the public about ionizing radiation is very important for fair and successful communication. The trust between stakeholders and information sources is described rarely as another important factor, although international studies and research proved that this is the main trigger of acceptability of nuclear activities

Analysis of information sources, information materials and communication culture indicated that the respondents generally think that it is not necessary to include information about nuclear accidents (Fukushima, Chernobyl) into ETI materials and activities after the consequences of the accident have been taken under control. This attitude is understandable if we consider that most of the information sources were representatives of nuclear industry and the main objective of their ETI materials and activities was to increase acceptability of nuclear technology.

Good practices found or recommended:

- Explain the reaction of human body to ionizing radiation without unnecessary details about radioactive decay, the origin of radiation, types of radiation, benefits of ionizing radiation ...
- Start from the point that almost everything in nature (also living beings) is radioactive and because of this all living beings are exposed to some ionizing radiation, there is no risk because of this exposure.
- If explaining risk avoid talking about the risk for the whole population but explain individual risk.

- Establish a feed-back about ETI materials and activities and paying more attention to the needs and interests of public.
- Take into account that information is important to empower the public to take independent and informed decisions.
- Include basic information about ionizing radiation in curricula of compulsory schools, information sources as described in this research provide additional information that requires some basic scientific understanding of the topic, young generation should be the primary target group.
- ETI activities where the public can actively participate are more appropriate than ETI materials to empower the public to autonomously participate in decision-making.
- Only description of nuclear accidents and their causes is not useful but more attention may be paid to explanation of the consequences and risks that follow the accident.
- ETI materials and activities should be strictly separated from commercial interests of the information source.
- Information sources, especially the governmental ones, have to be known among the public in order to be able to establish communication.

IV. Inputs for Deliverable 1.1

EAGLE MS11- Methodology of data collection at the information sources

Authors: Metka Kralj (ARAO), Irena Daris (ARAO), Nadja Železnik (REC)

Date of issue: 15. 01. 2014

National Report on communication culture of information sources - Slovenia

Authors: Milena Marega, Nadja Železnik, Blanka Koron (REC)

Date of issue: 15. 10. 2014

Status quo in education, training and information materials and activities at the level of information sources, Analyses of computer assisted web questionnaire,

Authors: Irena Daris, Metka Kralj (ARAO)

Date of issue: 03. 12. 2014

Report on communication culture interview, SURAO, Czech Republic

Author: SURAO

Date of issue: January 2015

Report on communication culture interview, ANDR, Romania

Author: Daniela Diaconu

Date of issue: January 2015

Report on communication culture in Poland,

Author: Grazyna Zakrzewska

Date of issue: November 2015

V. Appendices

V.1 Appendix 1: List of information sources

Add additional lines to each of the type of information sources if necessary. Choose only the most relevant ones in case of many organizations of the same type.

Country: _____

Type of information source	Name of organization	Address	Contact person/ department to fill out the questionnaire	e-mail(s) of contact person
Competent governmental bodies for nuclear energy, nuclear safety and radiation protection (ministries, regulatory bodies, agencies , at national but also at regional or decentralized level)...				
Competent governmental bodies for education (ministries, regulatory bodies, agencies, at national but also at regional or decentralized level)...				
Competent governmental bodies for health (ministries, regulatory bodies, agencies, at national but also at regional or decentralized level)...				
Nuclear power plants and their owners				
Radioactive waste and spent fuel management organizations				

Technical support organization for NPPs (organizations providing expertise, professional output, independent technical or scientific advice, competent judgment, services and assistance to the operating organization)				
Research organizations in the field of nuclear science and radiation protection				
Producers of open/sealed sources				
Users of open/sealed sources (industry, research ...)				
Medical institutions/ nuclear medicine departments, radiation therapy departments ...				
Non-governmental organizations				

EU international associations and platforms

Name of association/platform	Address	Contact person/department	e-mail(s) of contact person
IGD-TP			
MELODI			
NUSHARE			
SNE-TP			
NUGENIA			
EUGENIA			
NERIS			
EURADOS			
EURAMET			
OPPERA			

V.2Appendix 2: Questionnaire on Education, Training and Information process

1 Country (drop-down menu):

Austria

Belgium

Bulgaria

Croatia

Cyprus

Czech Republic

Denmark

Estonia

Finland

France

Germany

Greece

Hungary

Ireland

Italy

Latvia

Lithuania

Luxemburg

Malta

Netherlands

Poland

Portugal

Romania

Slovakia

Slovenia

Spain

Sweden

United Kingdom

2 What is the type of your organization:

- Ministry of health or other similar national body
- Ministry of education or other similar national body
- Ministry of economy/energy or other similar national body
- Ministry of environment or other similar national body
- Regulatory body for health/radiation protection
- Regulatory body for education
- Regulatory body for economy/energy
- Regulatory body for environment
- Nuclear power plant/owner of NPP
- Technical support organization for NPPs
- Research organization in nuclear field
- Research organization in radiation protection
- Medical facility using IR and X-ray (diagnostic, therapeutic)
- Producer or user of radiation sources, (food irradiation; ...)
- Radioactive waste and spent fuel management organization
- NGO
- EU international associations and platforms
- Other

3 Ownership of the organization:

- private
- public

4 What is your organisation's main activity?

- Policy making
- Expertize for policy making
- Regulatory body
- Education and training
- Research and development
- Medical applications with radioactive substances and RTG examination
- Radiation protection
- Nuclear safety
- Operating nuclear facility
- Radioactive waste management and spent fuel management
- Technical support
- Representation of public interest
- Environmental protection
- Other:

5 Does your institution provide information or education/training about IR to the general public? -

- YES
- NO

If no, please explain:

6 What is the level of your communication activities about IR to the general public (several options possible):

- international,
- national,
- regional,
- local.

7 What is the share of information on ionizing radiation in your total public communication?

- Less than 10%
- 10 – 30 %
- 31 – 50 %
- 51 – 70 %
- 71 – 90 %
- more than 90%

8 What triggers your institution's communication about IR with the general public)? Please assign to each answer a *rough percentage* indicating the annual proportion it represents in your institution's communication about IR with the general public

A trigger of communication	Less than 10%	10-30%	31-50%	51-70%	71-90%	More than 90%
Legal obligations or reporting requirements						
International recommendations/good practice						
Organization's interest to be pro-active						
Response to incoming questions or requests						
Public opposition to nuclear industry						
Other						

9 Following is a list of possible purposes driving your institution's communication about IR with the general public. Please choose 3 most relevant purposes for your organization.

- To respond to legal requirements concerning informing of the public (e.g. in administrative procedures...)
- To inform people to avoid risk for their health
- To assure and/or coordinate crisis information in case of incident or accident involving IR
- To educate people about IR
- To reduce fear of ionizing radiation in the public
- To raise interest of the public for nuclear energy and radiation sources
- To empower people with knowledge on IR to competently participate in decision-making
- To report data from monitoring or concerning planned releases
- To achieve social acceptability for the organisation's activities
- To gain trust of the public in the use of ionizing sources and nuclear energy
- Other :

10 How often does each message arise from your information materials and activities?

Message from your ETI	always	very frequently	frequently	infrequently	never
Ionizing radiation is a natural phenomenon.					
Use of ionizing radiation is connected with risks.					
Use of ionizing radiation is managed successfully.					
There are efficient protection measures against ionizing radiation					
Ionizing radiation is useful.					
Benefits of using ionizing radiation surpass risks.					
Risks of using ionizing radiation surpass benefits.					
Ionizing radiation is useful but there are uncertainties about the risks.					
There are uncertainties about the risks at using ionizing radiation.					
Other:					

11 What type of ETI materials/activities is used? (several answers possible)

- Written instructions
- Book, booklet
- Periodical magazine
- Information in mass media
- Flyer, poster
- DVD, CD, video
- Website
- Information centre
- Open door day
- Round table, workshop
- Science fair
- Summer school
- Cooperation with schools
- Cooperation with local community
- Other

12 What type of social media is used? (several answers possible)

- None
- Facebook
- Twitter
- A blog
- Forum
- Other.....

13 For what purpose you use social media (several answers possible):

- To analyse what people talk about, monitoring,
- To disseminate your own content,
- To disseminate content of others,
- To maintain conversation with people on particular topic,
- Emergency broadcasting,
- To receive feedback on your activities from citizens,
- To find relevant and interesting content,
- To network with similar institutions and initiatives,
- Other

14 In your opinion, what is the general attitude towards the use of social media for communication with the public in your organization?

	Completely disagree	Disagree	Neutral	Agree	Completely agree	Do not know
Use of social media is risky.						
Social media are useful support to other ETI materials and activities.						
Our organization does not have enough resources or skills to use social media.						
The use of social media has a great potential for our organization.						
Management supports the use of social media.						

15 Do you systematically investigate what information/knowledge on ionizing radiation the public needs or is interested in?

- Yes
- No

16 If yes, how do you get this information? (several answers possible)

- Public opinion poll
- Occasional feedback from the public
- Organized feedback from target groups during communication activities
- Other

17 What is most wanted information/knowledge? (mark 3 most wanted)

- Origin of ionizing radiation
- Characteristics of ionizing radiation
- Hazard/risk from radiation sources
- Effects on health and environment
- Use of ionizing radiation
- Types of radiation sources
- Ionizing radiation protection
- Benefits of the use of ionizing radiation
- Do not know
- Other

18 What is the feedback received from the public?

	always	very frequently	frequently	infrequently	never
Information is categorically rejected					
More or additional information/ contents are requested					
New communication tools/opportunities are requested					
Complaints on the credibility of the information					
Communication is praised					
Other:					

19 How did your institution react in the context of the Fukushima accident regarding communication with the public?

- The institution is not responsible for communication with the public in case of nuclear incidents or accidents
- Communication upon demand from media or the public
- Systematic self-initiated communication
- Other:

20 Which media did your institution use to provide public information about the Fukushima accident? (several answers possible)

- None
- Leaflet
- Information on the website
- Video
- Press conference(s) or press release(s)
- Real-time feed of breaking information
- Interview in mass media with nuclear/radiological protection experts
- Article for the mass media
- Round table
- Public lecture
- Social media
- Other:

21 Which were important external sources of information on Fukushima for your organization? (several answers possible)

	National info-source	International info-source	Japanese info-source
Governmental institutions			
Non-governmental organizations			
Professional communications networks			
Scientific publications			
Expert organizations			
Social media			
Mass media			
Personal communications			
Other			

22 What was the main topic of your communication on Fukushima accident in 2011?

	March 2011	April - December 2011	2012 and later
Health and environmental impacts in the directly affected areas			
Health and environmental impacts in your country			
Health and environmental impacts elsewhere in the world			
Psychological impacts			
Long-term health and environmental impacts			
Economic impacts			
Impacts on nuclear energy policy			
Other			

23 What was the most important challenge for your organization in communication about Fukushima?

- Building or maintaining trust in your organization
- Communicating of relevant and balanced data
- Finding reliable sources and reliable information
- Dealing with uncertainties in the course of events
- Making technical information comprehensible to general public
- Obtaining feedback from the general public
- Contact with the media
- Other

24 Have changes been introduced by your institution in your ETI materials for general public (lectures, leaflets, website information, etc.) after the Fukushima accident?

- YES
- NO

If yes, please specify:

**V.3Appendix 3:
Information on samples of ETI
materials and activities**

Questionnaire A: Information on samples of ETI materials

Provide the description of the samples of your ETI materials that you send to us. Fill the form for each one of ETI material.

Organization/publisher: _____

Type of ETI material: _____

Title: _____

Year of publication: _____

Year of updating: _____

Your evaluation of quality of this ETI material:

1	2	3	4	5
---	---	---	---	---

1 What is the main purpose of this ETI material (choose only 1 most suitable answer)

- To respond to legal requirements concerning informing of the public (e.g. in administrative procedures...)
- To inform people to avoid risk for their health
- To assure and/or coordinate crisis information in case of incident or accident involving IR
- To educate people about IR
- To reduce fear of ionizing radiation in the public
- To raise interest of the public for nuclear energy and radiation sources
- To empower people with knowledge on IR to competently participate in decision-making
- To report data from monitoring or concerning planned releases
- To achieve social acceptability for the organisation's activities
- To gain trust of the public in the use of ionizing sources and nuclear energy
- Other :

2 What aspects of ionizing radiation are stressed in this ETI material? (several answers are possible)

- Ionizing radiation as a natural phenomenon.
 - Use of ionizing radiation in favour of humans.
 - Benefits of using ionizing radiation.
 - Risks connected with use of ionizing radiation.
 - Risks of ionizing radiation are mentioned on pages
-
- Impact of ionizing radiation to human health and environment.
 - Safety measures to avoid negative impact.
 - Safety culture.
 - Scientific uncertainties regarding ionizing radiation
 - Scientific uncertainties of ionizing radiation are mentioned on pages
-
- Other:

3 Which is the target group of this ETI material?

- General public
- Children
- Young people
- Women
- Teachers
- Journalists
- Decision-makers
- NGOs
- Other ...

4 Where is this ETI material mostly distributed?

- Mostly at local level
- Mostly at national level
- Both equally

5 What kind of representation is used to explain facts about ionizing radiation? (several answers possible)

- Text and images
- Tables, charts
- Cartoon
- Video
- Interactive computer programme

- Instructions how to make an experiment, measurement or observation
- Other

6 What is the level of complexity of this ETI material? (one answer)

- All information included, no prior knowledge of natural sciences needed
- Compulsory education knowledge of natural sciences needed
- Requires advanced knowledge of natural sciences
- Other:

7 What is the distribution channel used (several answers possible)

- Available on the website
- Available in the Info center
- Delivered via post according to the list of recipients
- Can be ordered free of charge and sent via post
- Delivered at conferences, round tables, visits
- Available at public places
- Available at info points
- Other

8 How many people get this ETI material?

- Up to 100/year
- 100 – 1000/year
- 1001 – 5000/year
- 5001 – 10.000/year
- More than 10.000/year
- Not known

Additional comments on this ETI material to help us to evaluate it:

Questionnaire B: Information on samples of ETI activities

Provide the description of your ETI activities that you perform for communicating with public. Fill the form for each one of ETI activity.

Organization: _____

Type of ETI activity: _____

Title: _____

Duration of activity: _____

Frequency of activity. _____

First year of public presentation: _____

Your evaluation of quality of this ETI activity:

1	2	3	4	5
---	---	---	---	---

1 What is the main purpose of this ETI activity (choose **only 1** most suitable answer)

- To respond to legal requirements concerning informing of the public (e.g. in administrative procedures...)
- To inform people to avoid risk for their health
- To assure and/or coordinate crisis information in case of incident or accident involving IR
- To educate people about IR
- To reduce fear of ionizing radiation in the public
- To raise interest of the public for nuclear energy and radiation sources
- To empower people with knowledge on IR to competently participate in decision-making
- To report data from monitoring or concerning planned releases
- To achieve social acceptability for the organisation's activities
- To gain trust of the public in the use of ionizing sources and nuclear energy
- Other :

**2 What aspects of ionizing radiation are stressed in this ETI activity?
(several answers are possible)**

- Ionizing radiation as a natural phenomenon.
- Use of ionizing radiation in favour of humans.
- Benefits of using ionizing radiation.
- Risks connected with use of ionizing radiation.
 - Explain how risks are presented.

-
- Impact of ionizing radiation to human health and environment.
 - Safety measures to avoid negative impact.
 - Safety culture.
 - Scientific uncertainties regarding ionizing radiation.
 - Explain how uncertainties are presented.

-
- Other:

3 Which is the target group of this ETI activity?

- General public
- Children
- Young people
- Women
- Teachers
- Journalists
- Decision-makers
- NGOs
- Other ...

4 Where is this ETI activity mostly taking place?

- Mostly at local level
- Mostly at national level
- Both equally

5 What kind of representation is used to explain facts about ionizing radiation? (several answers possible)

- ETI materials
- Exhibits
- Discussion
- Lecture
- Interactive computer programme
- Demonstration of experiment and explanation
- Demonstration of experiment and discussion
- Instructions how to make an experiment, measurement or observation
- Other

6 What is the level of complexity of this ETI activity? (one answer)

- All information included, no prior knowledge of natural sciences needed
- Compulsory education knowledge of natural sciences needed
- Requires advanced knowledge of natural sciences
- Other:

7 On what occasions is this ETI activity performed (several answers possible)

- Permanent exhibition
- Event organized by your organization
- Included in other public events
- Organized event at request of public
- Other

8 How many people are involved in this ETI activity?

- Up to 100/year
- 100 – 1000/year
- 1001 – 5000/year
- 5001 – 10.000/year
- More than 10.000/year
- Not known

Additional useful comments on this ETI activity to help us to evaluate the activity:

V.4 Appendix 4: Questionnaire on communication culture

The questionnaire represents a guideline for the interviewer who is free to carry out the interview in his own way, according to his relation with the interviewee, to the situation etc. It is up to him how to start the interview (introduction of himself and the Eagle project, purpose of the interview, order and explanation of the questions ...

The suggested questions are open which means that the interviewee has the possibility to give a broader explanation of organization's communication policy and its background.

The questions in brackets identify the goal of the question and the "minimum" answer sought in order to provide information for the national report.

- 1** Who are the most important target groups of public for your organization?
 - a. Name them, rank them according to the importance and briefly describe their activities connected with your organization.
 - b. Describe each group's attitude towards IR.
 - c. Describe your communication with them (activities, materials, frequency ...).

- 2** In your opinion, is communication helping to fulfil your organization's mission? Explain your point of view and describe your experience.

- 3** What role should the public have in decision making regarding the use of ionizing radiation and/or nuclear energy?
(Should the public be only informed on the use of ionizing radiation and/or nuclear energy? Or should the public be informed and consulted on the use of ionizing radiation and/or nuclear energy in some particular cases when it is much affected? Or should the public be broadly educated, informed and should participate in the decision making concerning all relevant issues on ionizing radiation?)

- 4** What are the main factors of success in communication of your organization with the general public?
(Name at least 3 factors; explain more about each, esp. is the success factor achieved, planned or only hopelessly wished, how you implement them in practice ...)

- 5 What are the main misconceptions in the public's understanding of IR? How these misconceptions influence achieving of your organization's mission?
(Illustrate with examples, explain about it.)
- 6 Do you measure confidence of the public in your organization in general and in your information materials and activities? Results, comments?
(Is the confidence measured systematically or occasionally? How, what methods do you apply ...)
- 7 *In your opinion, what are the main challenges for your organization in communication on IR with the public?*
- 8 Are you and your staff trained for communication with the public? What type of communication training would you need additionally?
(What courses have you and your staff attended, frequency, who is involved, do you support additional training ...)
- 9 What changes of communication strategy have been made after the Fukushima accident? Describe briefly!

National Report on communication culture of information sources

Country: _____

3 Description of information sources involved in the survey

(list of information sources participating in the survey, types of information sources, working positions of interviewees, portion of information sources that participated in the survey, general impression of interviewer on attitudes of information sources towards the survey, communication competence and skills of information sources...)

4 Target groups addressed by the information sources

(comparison between different information sources, importance of specific target groups, national and local aspects, “difficult” public, key characteristics of communication with particular target groups ...)

6 Short summaries of the interviews

4 Analysis of the opinions and standpoints of representatives of information sources on the importance of communication activities for performance of the organizations

(comparison of opinions from different groups of information sources, positive or negative experience with communication activities, evaluation of importance of communication activities, scope of communication, level of support to communication activities ...)

7 Influence of Fukushima accident on communication at the level of information sources

8 Factors of success in communication

(make a list of all success factors mentioned, rank them according to frequency and importance, define requirements for implementation of proposed factor of success, achievement or feasibility of success factors ...)

7 Conclusions