

RICOMET 2016

Risk perception, communication and ethics of exposures to ionising radiation

International conference: RICOMET 2016

Risk perception, communication and ethics of exposures to ionising radiation

June 1-3, 2016, Hotel Caro, Bucharest, Romania



These projects have received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreements No: 604521, 604984 and 605140. The CONCERT EJP receives funding from the EURATOM research and training programme 2014-2018 under grant agreement No: 662287.

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Table of Contents

Programme	7
EAGLE	17
OPERRA.....	19
PLATENSO	22
CONCERT	25
 P 2.1. Guidelines for information sources for improvement of solutions for information materials and activities about ionizing radiation.....	27
<i>Metka Kralj, Irena Daris, Nadja Železnik, Milena Marega, Radko Istenič, Daniela Diaconu, Grazyna Zakrzewska, Claire Mays</i>	
P 2.2. Improving media relations and delivery of information on ionizing radiation risks: the EAGLE stakeholder statements.....	28
<i>Claire Mays, Jaroslav Valuch</i>	
P2.3. Good practices for public communication, education, training and information about ionizing radiation	29
<i>Daniela Diaconu, Marin Constantin, Tanja Perko, Catrinel Turcanu, Claire Mays, Geneviève Baumont, Nadja Železnik, Grażyna Zakrzewska-Kołodziejczyk</i>	
P 2.4. Lessons for better education and information material based on implementation of pilot actions	30
<i>Nadja Železnik, Daniela Diaconu, Marin Constantin, Grażyna Zakrzewska-Kołodziejczyk</i>	
PP 1.1. Biological dosimetry in Europe is it necessary according emergency responding authorities?	31
<i>Sylwester Sommer</i>	
PP 1.2. Low dose of radiation risk in Polish media space and in Polish Nuclear Energy Program versus recently updated results of INWORKS.....	32
<i>Sylwester Sommer</i>	
PP 1.3. The utility of the concept of mental models related to ionizing radiation in the process of the Polish nuclear power program (PNPP) development.....	33
<i>Stanisław Latek, Sylwester Sommer, Grażyna Zakrzewska-Kołodziejczyk</i>	
PP 1.4. Socio-Economic Impact and Perception Analysis of the Nuclear Power Plant Programme in Poland.....	34
<i>A.Miśkiewicz, K. Iwińska</i>	
PP 1.5. Value Frames of Nuclear Technology Acceptance.....	35
<i>Drago Kos, Boštjan Bajec, Kristina Egumenovska, Marko Polič, Nadja Železnik</i>	
PP 1.6. Gauging risk perception - developing the CONCERT public-facing web-survey	36
<i>Ilaria Pecchia, Nathalie Impens, Tanja Perko, Deborah Oughton, Francois Rollinger, Tatiana Duranova, Mauro Grigioni, Simon Bouffler</i>	

PP 1.7. Developing a Research Strategy on Nuclear Energy Related Social, Societal and Governance Issues in Hungary	37
<i>Anna Vári, Zsuzsanna Koritár, Zoltán Ferencz</i>	
PP 1.8. Strategic Aspects of the Social Research in the Development of the Romanian Nuclear Sector	38
<i>Marin Constantin, D.Diaconu, A. P. Iliescu, A. Constantin</i>	
PP 1.9. Local partnerships: achieving stakeholder consensus on short-lived waste disposal in Belgium	39
<i>Frans Nys</i>	
PP 1.10. Citizen-based radiation measurement in Europe: supporting informed decisions regarding radiation exposure for emergencies as well as in daily life.	40
<i>Azby Brown, Genevieve Baumont, Petr Kuča, Jan Helebrant</i>	
PP 1.11. NUCLEU2020 – A network of H2020 National Contact Points (NCP)	41
<i>Sofia Guedes Vaz</i>	
PP 1.12. Civil society involvement in public information about nuclear activities in Romania	412
<i>Codruta Nedelcu</i>	
P 3.1. Status of SSH research on nuclear energy	423
<i>Phil Richardson, Kjell Andersson</i>	
P 3.2. PLATENSO network and Virtual Information Centre	44
<i>Meritxell Martell, Martin Durdovic</i>	
P 3.3. Forming national research strategies for coordination of social, societal and governance issues in nuclear energy	45
<i>Nadja Železnik, Piotr Stankiewicz</i>	
S 1.1. Some recent developments concerning the ethics of radiological protection.....	46
<i>Friedo Zölzer</i>	
S 1.2. “Good science for better policy making” – a reflection on the idea of integrating social sciences and humanities into energy research.....	47
<i>Gaston Meskens</i>	
S 1.3. Strategic Research Agenda on How to Integrate Perceived and Actual Risk in Stakeholder Communications in Radiation Protection	48
<i>Yuliya Lyamzina</i>	
S 1.4. Social and Citizen Science: Civil Society Giving Shape to Research for Safe Long Term Radioactive Waste Management	49
<i>Gilles Hériard-Dubreuil, Nadja Železnik, Johan Swahn, Claire Mays</i>	
S 2.1. Education Project in Ionizing Radiation	50
<i>Geneviève Janssens, B. Boeykens, M. De Cock</i>	
S 2.2. The experience gained within the EAGLE project as a contribution to the implementation of the programme of Polish nuclear energy	51
<i>Grażyna Zakrzewska-Kołodziej, Stanisław Latek, Sylwester Sommer, Agnieszka Miśkiewicz</i>	
S 2.3. An Innovative Vision on Education and Training Programs in Radiological Protection, Nuclear and Radiation Safety	52
<i>Isabel Paiva, Octavia Monteiro Gil, Mariana Baptista, Mario Reis, Pedro Vaz</i>	

S 3.1. Ethically justified decision-making process in nuclear and radiological emergency	53
<i>Marie Claire Cantone, Matteo Andreozzi</i>	
S 3.2. The importance of integration of economic valuation of social issues related to radiation protection.....	54
<i>Eloïse Lucotte</i>	
S 3.3. Socio-technical management of big nuclear accidents	55
<i>Philip Thomas</i>	
S 3.4. Psychological distress amongst refugees following a nuclear leak: Data from Miyagi, Japan following the Fukushima accident	56
<i>Robin Goodwin, Masahito Takahashi, Shaojiing Sun, Menachem Ben-Ezra</i>	
S 4.1. Ethical Perspective on Turkish Environmental Impact Assessment for Nuclear Energy.....	57
<i>Sabahat Aslan, Semra Kabasakal, Suna Kilicci</i>	
S 4.2. ‘Framing’ the arguments for/against nuclear energy used in public discourse and its influence upon public opinion.....	58
<i>Adrian-Paul Iliescu</i>	
S 4.3. Stakeholder involvement in development of a new nuclear power plant project in Lithuania	59
<i>Audrius Simonis, P. Poskas</i>	
S 4.4. Perception of Power and Interest in Decisions about Nuclear Energy Usage	60
<i>Marko Polič, Boštjan Bajec, Kristina Egumenovska, Drago Kos, Nadja Železnik</i>	
S 4.5. The decision to extend the operational life of two nuclear power plants in Belgium: the opt-out on the phase-out?	61
<i>Edwin Latré, Tanja Perko, Peter Thijssen</i>	
S 4.6. Governance issues that challenge research in social sciences and humanities related to nuclear sector in Slovakia – insights gathered within the PLATENSO project national level activities.....	62
<i>Peter Mihók, Gabriel Bianchi, Viera Rosová</i>	
S 5.1. Radioactive Waste Management in the Czech Republic – stakeholders’ engagement.....	63
<i>Lucie Steinerova</i>	
S 5.2. Radiological informed consent form: a view from the patient’s corner	64
<i>Carpeggiani Clara, Paterni M., Terranova G., Picano E.</i>	
S 5.3. Unlocking Societal Constraints in the Implementation of Environmental Remediation Projects	65
<i>Meritxell Martell, Horst Monken-Fernandes, Tanja Perko, Patrick O’Sullivan, Nadja Železnik</i>	
P 4.1. RP Science, Values and Societal Response: Where social sciences and humanities could help.....	66
<i>Ted Lazo</i>	
P 4.2. Integrating Social Sciences and Humanities (SSH) in radiation protection research: Developing a Strategic Research Agenda for SSH in the EU H2020 CONCERT project.....	67
<i>Catrinel Turcanu, Tanja Perko, Gaston Meskens, Caroline Schieber</i>	

P 6.1. The potential and the challenge to expanding technical democracy.....	68
<i>Susan Molyneux-Hodgson</i>	
P 6. 2. Culture, Practice and Justification: Issues for the Humanities/Social Sciences in Medical Radiation Protection.....	69
<i>Jim Malone</i>	
P 9.1. Nuclear Transparency Watch; Citizen control over nuclear safety any policy	70
<i>Jan Haverkamp</i>	
P 9.2. A model for civil society engagement in governance of ionizing radiation risks: ANCCLI changes the game in French nuclear accident preparedness.....	71
<i>Jean Claude Delalonde, Yves Lheureux, Claire Mays</i>	
P 9.3. Ionizing radiation risk policies: A perspective of a policy actor	72
<i>Pavel Gantar</i>	
P 9.4. HoNESt: A new History of Nuclear Energy in its interaction with civil society	73
<i>Albert Presas i Puig</i>	
P 12.1. Public Information Responses after Terrorist Events (PIRATE)	74
<i>Piet Sellke</i>	
P 12.2 We share the goal of minimizing harm to the public: journalists' recommendation to the authorities	75
<i>Peter Rickwood</i>	
List of Contributors.....	76
List of Participants.....	79
Notes	82

Programme

Legend:

P – plenary

A – abstract

S – session

PP – poster presentation

Posters in the exhibition hall:

- Biological dosimetry in Europe is it necessary according to emergency responding authorities? (A: PP 1.1.)
Sylwester Sommer
- Low dose of radiation risk in Polish media space and in Polish Nuclear Energy Program versus recently updated results of INWORKS (A: PP 1.2.)
Sylwester Sommer
- The utility of the concept of mental models related to ionizing radiation in the process of the Polish nuclear power program (PNPP) development (A: PP 1.3.)
Stanisław Latek, Sylwester Sommer, Grażyna Zakrzewska-Kottuniewicz
- Socio-economic impact and perception analysis of the nuclear power plant Programme in Poland (A: PP 1.4.)
Agnieszka Miśkiewicz, A.Miśkiewicz, K. Iwińska
- Value frames of nuclear technology acceptance (A: PP 1.5.)
Marko Polič, Drago Kos, Boštjan Bajec, Kristina Egumenovska, Marko Polič, Nadja Železnik,
- Gauging risk perception - developing the CONCERT public-facing web-survey (A: PP 1.6.)
Ilaria Pecchia, Ilaria Pecchia, Nathalie Impens Tanja Perko, Deborah Oughton, Francois Rollinger, Tatiana Duranova, Mauro Grigioni and Simon Bouffler
- Developing a research strategy on nuclear related social, societal and governance issues in Hungary (A: PP 1.7.)
Zoltan Ferencz, Anna Vári, Zsuzsanna Koritár, Zoltán Ferencz
- Strategic aspects of the social research in the development of the Romanian nuclear sector (A: PP 1.8.)
Marin Constantin, Marin Constantin, D. Diaconu, A. P. Iliescu, A. Constantin
- Local partnerships: achieving stakeholder consensus on short-lived waste disposal in Belgium (A: PP 1.9.)
Frans Nys
- Citizen-based radiation measurement in Europe: supporting informed decisions regarding radiation exposure for emergencies as well as in daily life (A: PP 1.10.)
Azby Brown, Genevieve Baumont, Petr Kuča, Jan Helebrant
- NUCLEU2020 – A network of H2020 National Contact Points (NCP) (A: PP 1.11.)
Sofia Guedes Vaz
- Civil society involvement in public information about nuclear activities in Romania (A: PP 1.12.)
Codruta Nedelcu

Tuesday May 31, 2016

SLAVICI ROOM

13:30 – 17:00 Final EAGLE Consortium meeting, *Organiser: Tanja Perko, EAGLE (by invitation)*

19:00 – 21:30 EAGLE Consortium meeting – working dinner

Wednesday June 1, 2016 – DAY 1

08:00 - 09:15 Registration

08:00 - 09:15 WELCOME COFFEE (*Eminescu Lobby*)

09:15 - 09:40 OPENING OF THE CONFERENCE Plenary No. 1

EMINESCU ROOM

Welcome words

- By *Daniela Diaconu, INR, Chair of the organising committee*
- By *Ioan Ursu, ANCSI, National Authority for Scientific Research and Innovation, Romania*
- By project coordinators:
 - **CONCERT:** *Thomas Jung, BFS, Germany*
 - **OPERRA:** *Jean-Rene Jourdain, IRSN, France*
 - **PLATENSO:** *Kjell Andersson, KARITA Research, Sweden*
 - **EAGLE:** *Tanja Perko, SCK•CEN, Belgium*
- Nomination of **"The RICOMET declaration committee"** *Edward Lazo, OECD-NEA, France*
- Introduction to the corner for collecting SSH ideas (post-it) - **"My ideas for Social Sciences and Humanities (SSH) Strategic Research Agenda (SRA)"**

09:40 - 10:00 European Commission view

EMINESCU ROOM

EURATOM Research and Training Programme
Magdalena Gadomska, EC

10:00 - 11:00 Plenary No.2

EMINESCU ROOM

FP7 EAGLE (*Enhancing Education, Training and Communication Processes for Informed Behaviors and Decision-Making Related to Ionising Radiation Risks*)

Results and future perspectives

- Introduction with presentation of the project
Tanja Perko, SCK•CEN, Belgium
- How to improve communication and coordination of information sources related to ionising radiation - collected results (A: P 2.1.)
Metka Kralj, ARAO, Slovenia
- Recommendations and guidelines for developing media relations for communication about ionising radiation (A: P 2.2.)
Claire Mays, SYMLOG, France
- Guide for good practices for public communication, education, training and information (A: P 2.3.)
Daniela Diaconu, INR, Romania
- Collected solutions for improved risk governance in the field of IR (A: P 2.4.)
Nadja Železnik, REC, Slovenia

11:00 - 12:00 Different perspectives that people in the room will be bringing to the presented results in the first part

(Three parallel reflection workshops)

Objective: To get an input and agreement for the EAGLE final deliverables and recommendations

CALINESCU ROOM	SLAVICI ROOM	SORESCU ROOM
How to improve communication and coordination of information sources? <i>Moderated by Radko Istenič, IJS, Slovenia</i>	Recommendations and guidelines for developing media communication <i>Moderated by Jaroslav Valuch, social media consultant, Czech Republic</i>	Guide for good practices for public communication, education, training and information <i>Moderated by Marin Constantin, INR, Romania and Grazyna Zakrzewska, ICHTJ, Poland</i>

12:00 – 12:20 Summary of the reflection workshops and conclusions

Nadja Železnik, REC, Slovenia

EMINESCU ROOM

12:20 - 12:55 Oral presentations of posters (3 min each poster)

Chair: Ilma Choffel de Witte, IRSN, France

- Biological dosimetry in Europe is it necessary according to emergency responding authorities? (A: PP 1.1.)
Sylwester Sommer, INCTJ, Poland
- Low dose of radiation risk in Polish media space and in Polish Nuclear Energy Program versus recently updated results of INWORKS (A: PP 1.2.)
Sylwester Sommer, INCTJ, Poland

EMINESCU ROOM

- The utility of the concept of mental models related to ionizing radiation in the process of the Polish nuclear power program (PNPP) development (A: PP 1.3.)
Stanisław Latek, INCTJ, Poland
- Socio-economic impact and perception analysis of the nuclear power plant Programme in Poland (A: PP 1.4.)
Agnieszka Miśkiewicz, INCTJ, Poland
- Value frames of nuclear technology acceptance (A: PP 1.5.)
Marko Polič, University Ljubljana, Slovenia
- Gauging risk perception - developing the CONCERT public-facing web-survey (A: PP 1.6.)
Ilaria Pecchia, ISS, Italy
- Developing a research strategy on nuclear related social, societal and governance issues in Hungary (A: PP 1.7.)
Zoltan Ferencz, CSSH AS, Hungary
- Strategic aspects of the social research in the development of the Romanian nuclear sector (A: PP 1.8.)
Marin Constantin, INR, Romania
- Local partnerships: achieving stakeholder consensus on short-lived waste disposal in Belgium (A: PP 1.9.)
Frans Nys, MONA, Belgium
- Citizen-based radiation measurement in Europe: supporting informed decisions regarding radiation exposure for emergencies as well as in daily life (A: PP 1.10.)
Azby Brown Kanazawa Institute of Technology and Safecast, Japan
- NUCLEU2020 – A network of H2020 National Contact Points (NCP) (A: PP 1.11.)
Sofia Guedes Vaz, FCT, Portugal
- Civil society involvement in public information about nuclear activities in Romania (A: PP 1.12.)
Codruta Nedelcu, ARIN, Romania

12:55 - 13:45 LUNCH AND POSTER SESSION

13:45 - 16:00 Plenary No. 3

EMINESCU ROOM

FP7 PLATENSO (*Platform for Enhanced Societal Research related to nuclear energy in Central and Eastern Europe*)

Results and future perspectives

- Introduction with presentation of the project
Kjell Andersson, KARITA Research, Sweden
- Status of SSH research on nuclear energy (A: P 3.1.)
Phil Richardson, Galson Sc., United Kingdom, presented by Kjell Andersson, KARITA Research, Sweden
- PLATENSO network and Virtual Information Centre (A: P 3.2.)
Jiri Vinopal, ISAS CR, Czech Republic

- Strategies and scenarios (A: P 3.3.)
Nadja Železnik, REC, Slovenia
- Panel discussion
Gaston Meskens, SCK•CEN, Belgium
- Summary
Kjell Andersson, KARITA Research, Sweden

16:00 - 16:30 COFFEE BREAK

16:00 - 16:30 'Get to know each other' – Meeting of the founding members of SSH Platform (By invitation) Organiser: *Tanja Perko, SCK•CEN, Belgium*

16:30 - 18:30 Research in the field of Protection Social Sciences and Humanities related to ionizing radiation (5 Parallel Sessions)

CALINESCU ROOM	EMINESCU ROOM	SORESCU ROOM
<p>Session 1: (16:30-17:45) Integration of social sciences and humanities in radiation protection research <i>Chair: Tatiana Duranova, VUJE, Slovak Republic</i></p> <p>Some recent developments concerning the ethics of radiological protection (A: S 1.1.) <i>Friedo Zölzer, ZSF JCZ, Czech Republic</i></p> <p>Good science for better policy making: a reflection on the idea of integrating social sciences and humanities into energy research (A: S 1.2.) <i>Gaston Meskens, SCK•CEN, Belgium</i></p> <p>Strategic Research Agenda on how to integrate perceived and actual risk in stakeholder communications in radiation protection (A: S 1.3.) <i>Yuliya Lyamzina, IAEA, Austria</i></p> <p>Social and Citizen Science: Civil Society Giving Shape to Research for Safe Long Term Radioactive Waste Management (A: S 1.4.) <i>Gilles Hériard-Dubreuil, Mutadis, France presented by Claire Mays, Symlog, France</i></p>	<p>Session 2: (16:30-17:30) Rising education, training and communication about ionizing radiation <i>Chair: Geneviève Baumont, IRSN, France</i></p> <p>Education project in ionizing radiation (A: S 2.1.) <i>Geneviève Janssens, KU Leuven, Belgium</i></p> <p>The experience gained within the EAGLE project as a contribution to the implementation of the programme of Polish nuclear energy (A: S 2.2.) <i>Grażyna Zakrzewska-Kołodziej, ICHTJ, Poland</i></p> <p>An innovative vision on education and training programs in radiological protection, nuclear and radiation safety (A: S 2.3.) <i>Isabel Pavia, CTN IST UTL, Portugal</i></p>	<p>Session 4: (16:30-18:30) Decision making and nuclear policy <i>Chair: Albert Presas i Puig, H2020 HoNESt project, Spain</i></p> <p>Ethical perspective on Turkish environmental impact assessment for nuclear energy (A: S 4.1.) <i>Hayrettin Kilic, NC Mercin, Turkey</i></p> <p>'Framing' the arguments for/against nuclear energy used in public discourse and its influence upon public opinion (A: S 4.2.) <i>Adrian-Paul Iliescu, FP BU, Romania</i></p> <p>Stakeholder involvement in development of a new nuclear power plant project in Lithuania (A: S 4.3.) <i>Audrius Simonis, LEI, Lithuania</i></p> <p>Perception of power and interest in decisions about nuclear energy usage (A: S 4.4.) <i>Marko Polič, University of Ljubljana, Slovenia</i></p> <p>The decision to extend the operational life of two nuclear power plants in Belgium: the opt-out on the phase-out? (A: S 4.5.) <i>Edwin Latré, University of Antwerp and SCK•CEN, Belgium</i></p>

<p>Session 5: (17:45-18:30) Stakeholder and public engagement in decisions related to nuclear technologies, <i>Chair: Piet Sellke, DIALOGIK, Germany</i></p> <p>Radioactive waste management in the Czech Republic – stakeholders' engagement (A: S 5.1.) <i>Lucie Steinerova, SURAO, Czech Republic</i></p> <p>Radiological informed consent form: a view from the patient's corner (A: S 5.2.) <i>Clara Carpeggiani, IFC CNR, Italy</i></p> <p>Unlocking societal constraints in the implementation of environmental remediation projects (A: S 5.3.) <i>Horst Monken-Fernandes, IAEA, Austria</i></p>	<p>Session 3: (17:30 – 18:30) Societal ethical and economic aspects of nuclear emergencies, <i>Chair: Eduardo Gallego, UPM, Spain</i></p> <p>Ethically justified decision-making process in nuclear and radiological emergency (A: S 3.1.) <i>Marie Claire Cantone, UNI MI, Italy</i></p> <p>The importance of integration of economic valuation of social issues related to radiation protection (A: S 3.2.) <i>Eloise Lucotte, IRSN, France</i></p> <p>Socio-technical management of big nuclear accidents (A: S 3.3.) <i>Philip John Thomas, University of Bristol, United Kingdom</i></p> <p>Psychological distress amongst refugees following a nuclear leak: Data from Miyagi, Japan following the Fukushima accident (A: S 3.4.) <i>Robin Goodwin, Warwick University, United Kingdom</i></p>	<p>Governance issues that challenge research in social sciences and humanities related to nuclear sector in Slovakia – insights gathered within the PLATENSO project national level activities (A: S 4.6.) <i>Peter Mihók, UMB, Slovak Republic</i></p>
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EVENING Dinner on your own in downtown Bucharest or at Caro Hotel

18.30 – 19:15 Project meeting CONCERT Task 2.6 (task members)
Organiser: Tanja Perko, SCK•CEN, Belgium

SORESCU ROOM

19:30 – 21:00 EAGLE Advisory Board Meeting with Management Committee (by invitation)
Organiser: EAGLE project coordinator, Tanja Perko, SCK•CEN, Belgium

Thursday June 2, 2016 – DAY 2

Integration of social sciences and humanities in radiation protection research, with implications for practice

EMINESCU ROOM

08:30 - 09:30 Plenary No. 4

Chair: Sisko Saloma, STUK, Finland

The what, why and how of integrating social sciences and humanities into radiation protection research

- Science, values and societal response: Some examples of RP decision making where social sciences and humanities could help (A: P 4.1.)
Edward Lazo, OECD-NEA, France
- An overview on how strategic research agendas were created in different platforms
Jean-René Jourdain, IRSN, France
- Integrating Social Sciences and Humanities (SSH) in radiation protection research: Developing a Strategic Research Agenda for SSH in the EU H2020 CONCERT project (A: P 4.2.)
Catrinel Turcanu, SCK•CEN, Belgium

09:30 - 10:30 Plenary No. 5

Moderator: Gaston Meskens, SCK•CEN, Belgium

Round table discussion with management of platforms about integration of SSH in their domain

- *Jacques Repussard, Multidisciplinary European Low Dose Initiative, MELODI (P 5.1.)*
- *Hildegard Vandenhove, European Radioecology Alliance, ALLIANCE*
- *Thierry Schneider, European Platform on preparedness for nuclear and radiological emergency response and recovery, NERIS (P 5.2.)*
- *Werner Rühm, European Radiation Dosimetry Group, EURADOS*

10:30 - 10:45 COFFEE BREAK

10:45 - 15:45 Plenary No. 6

Chair: Michiel Van Oudheusden, SCK•CEN, Belgium

10:45 – 11:45 In search of Strategic Research Agenda for SSH in radiation protection: Broadening and deepening

- The potential and the challenge to expanding technical democracy (A: P 6.1.)
Susan Molyneux-Hodgson, University of Sheffield, United Kingdom
- Culture, practice and justification: Issues for the humanities/social sciences in medical radiation protection (A: P 6.2.)
Jim Malone, Trinity College Dublin, Ireland

11:45 – 12:45 Open space workshop to collect the input for Strategic Research Agenda (SRA) in Social Sciences and Humanities (SSH) in Radiation Protection

Coordinated by Michiel Van Oudhesden, SCK•CEN, Belgium

12:45 - 13:45 LUNCH and POSTER SESSION

13:45 - 15:00 Continuation

Open space workshop to collect the input for SRA in SSH in Radiation Protection

Coordinated by Michiel Van Oudhesden, SCK•CEN, Belgium

EMINESCU ROOM

15:00 - 15:45 Plenary

Brief reporting of collected ideas, delivery to platform

*Chairs: Susan Molyneux-Hodgson, University of Sheffield, United Kingdom
and Michiel Van Oudhesden, SCK•CEN, Belgium*

15:45 - 16:15 COFFEE BREAK

16:15 - 17:45 Plenary No. 7

Chaired by founding members

Proposal for a Platform for social sciences and humanities in research related to ionising radiation

16:15 - 17:15 Presentation of the idea and open discussion in small groups about it

17:15 - 17:45 Plenary feedback from groups

17:45 – 19:00 NERIS – WG Communication meeting

SORESCU ROOM

*Organiser: Eduardo Gallego, Politecnica University Madrid, Spain
(By invitation: For members of the WG NERIS platform only)*

20:00 – 22:30 Conference dinner at the Mogosoia Palace

(Bus departure 19:30)

Friday June 3, 2016 – DAY 3

Moving closer to policy and decision making

EMINESCU ROOM

08:30 - 9:30 Plenary No. 8

Moderated by Gaston Meskens, SCK•CEN, Belgium

Response to workshop ideas: Reflection discussion with representatives of technical platforms (leads of SRA working groups)

- Jacques Repussard, Multidisciplinary European Low Dose Initiative , MELODI
- Hildegard Vandenhove, European Radioecology Alliance , ALLIANCE
- Thierry Schneider, European Platform on preparedness for nuclear and radiological emergency response and recovery, NERIS
- Werner Rühm, European Radiation Dosimetry Group, EURADOS

Hot topics in ionizing radiation: Policy making and decision making

09:30 - 11:00 Plenary No. 9

Chair: Edwin Latré, University Antwerp and SCK•CEN, Belgium

Can civil society directly influence decision making and policy?

- Nuclear Transparency Watch; Citizen control over nuclear safety and policy (A: P 9.1.)
Jan Haverkamp, NTW
- A model for civil society engagement in governance of ionizing radiation risks: ANCCLI changes the game in French nuclear accident preparedness (A: P 9.2.)
Jean Claude Delalonde, ANCCLI, France presented by Claire Mays, SYMLOG, France
- Ionizing radiation risks policies: A perspective of a policy actor (A: P 9.3.)
Pavel Gantar, former minister and former president of the Slovenian parliament, Slovenia
- A new history of nuclear energy in its interaction with civil society (A: P 9.4.)
Albert Presas i Puig, H2020 HoNESt project, Spain

11:00 - 11:30 COFFEE BREAK

11:30 - 12:15 Plenary No 10

Moderated by Claire Mays, SYMLOG, France

Can civil society directly influence decision making and policy?

- Where and how can ionizing radiation policy and decisions be shaped by those outside the usual sphere of authority?
- Where and how must they be shaped by society?
- How can SSH research forward the situation?

12:15 - 13:00 Plenary No. 11

Chair: Edward Lazo, OECD-NEA, France

The RICOMET Declaration

- **Last Year and This Year**

Tanja Perko, Coordinator EAGLE and Chair RICOMET Scientific Programme, Belgium

- **Plenary discussion: What should it be and contain?** (*deliberation by RICOMET 2016 declaration committee*)

13:00 - 13:45 LUNCH

13:45 - 14:25 Plenary No. 12

Chair: Iztok Prezelj, University of Ljubljana, Slovenia

Radiological terrorism: When ionizing radiation invades the public space

- Dirty bomb: Public behavioral intentions and information needs (A: P 12.1.)
Piet Sellke, DIALOGIK, Germany
- We share the goal of minimising harm to the public: Journalists' recommendations to the authorities (A: P 12.2.)
Peter Rickwood, Atomic Reporters, Austria

14:25 - 14:45 Closing with reporters from different sessions

Chair: Daniela Diaconu, INR, Romania

EAGLE

Education, training and information (ETI) for the public are key factors in the governance of ionising radiation (IR) risks, as are the opportunities for dialogue and stakeholder involvement in decision making. EAGLE is a coordination and support project under FP7-EURATOM that aims to bring forth and share information and communication strategies supporting informed societal decision-making. In this project a network of stakeholders reviews national and international data, tools and methods, as well as institutional work, in order to identify education, information and communication needs and coordination possibilities at European level.

The EAGLE project is a stakeholder driven project. There are 11 consortium members in the project from eight European countries, representing old and new Member States. The consortium team covers a wide range of expertise domains and joins together the nuclear industry, nuclear research organisations, academic institutions, mass media professionals, non-governmental agencies and authorities. EAGLE includes a Stakeholder Representatives Group (SRG) and a Stakeholder Advisory Board (SAB). The SRG is a consultation body representing information sources, channels, and receivers from the various countries in the project. Through workshops and other consultation means the SRG reflects on the project working documents and results, and provides feedback regarding their relevance and usefulness in practice. The EAGLE SAB consists of a range of stakeholders and helps ensuring that the project's approach is tailored to the diversity of stakeholders involved in communication processes. At the moment, there are more than 100 stakeholders from all over Europe actively involved in the project and the network is growing on a monthly basis.

EAGLE brings together representatives of the nuclear community, users of ionising radiation, authorities, mass and social media, and informed civil society, from a range of European countries with or without a nuclear energy programme. The project engages members of social and traditional media in a series of national and international dialogues and analyses education, training and information from the point of view of the final recipients of information: the EU citizens.

EAGLE reviews existing research on ETI for all EU Member states. In addition, it conducts opinion polls, interviews and workshops in selected European countries. The 'mental model' approach was employed to investigate potential differences between the attitudes and perceptions of professionals and the public. Public opinion surveys related to communication about ionising radiation were conducted in different EU countries in order to identify people's attitudes, opinions, concerns, needs and views. Public understanding and knowledge related to ionising radiation was also assessed. EAGLE supports citizen-centred communication. It assesses the current dissemination of ionising radiation information to the public and provides practical guidance tools for best practices supporting the ideal of participative, citizen-centred communication.

The results of the project highlight the large gaps between the public's appraisal and the intentions of those who are providing information on IR risk. Mutual learning by all stakeholders is therefore required. Communication about ionizing radiation is still too much seen as a one - directional transfer of information from a source to a receiver. On the one hand, communication by users of IR is mainly inspired by the idea that the general public should be 'educated' by 'explaining them the facts' and by assisting people to 'better understand' nuclear technology. On the other hand, citizens miss the recognition by the technical experts of being a competent stakeholder. Journalists require faster and more transparent communication about ionising radiation and are very reluctant to communicate with public relations representatives. They appeal for experts to be trained for media communication. New media speed up, decentralise and

diversify information provision while offering platforms for direct citizen participation, expression and feedback.

The EAGLE project identified several areas for further improvements of communication about ionising radiation:

- i.) Public opinion research related to ionising radiation in EU is mainly focused on attitudes towards nuclear energy and omits other applications or challenges of IR. EAGLE suggests identifying the actual impacts of IR in everyday life and focusing on meaningful issues for the public.
- ii.) Societal communication about IR risks has become more complex, extensive and multi-directional. EAGLE suggests that more attention should be given to joint learning and participative problem-solving.
- iii.) EAGLE identified the need for institutions to adapt by including specialised personnel, new practices and new policies related to communication and public involvement.
- iv.) The ideal of communication about radiological risks is to support the stakeholders to make informed decisions and to establish two-way communication and joint problem solving. To be able to take an informed decision, people need a certain level of issue understanding. Research shows that communication related to IR will not trigger enough attention to be heard or recalled by people with low levels of knowledge; consequently they will not be able to engage in the decision-making processes. From this point of view, teachers in schools and other people involved in education programs hold an important role in communication about IR.
- v.) EAGLE highlighted that all IR fields, medical, industrial and nuclear energy applications of ionising radiation research, would benefit from participatory nuclear risk governance. This would include, among other things, enabling citizens to weigh on nuclear research policy by setting priorities and inputting values.
- vi.) EAGLE calls for integration of social and ethical aspects into core scientific and nuclear research and development.
- vii.) EAGLE consortium members recognised the need to establish a strong network of academics and professionals in the form of a **European Platform for the integration of Social Sciences and Humanities (SSH) in research related to Ionising Radiation (IR)**. This aligns with the call for transdisciplinary and inclusive research related to ionising radiation and the ongoing process of development of a Strategic Research Agenda for Social Sciences and Humanities in radiation protection.

Introductory paragraph

The OPERRA (Open Project for European Radiation Research Area) project aims to build up a coordination structure that has the legal and logistical capacity to administer future calls for research proposals in radiation protection on behalf of the European Commission. Among OPERRA's initiatives are the set-up of a sustainable organization to manage radiation protection research in Europe; the involvement of key partners in radiation protection as well as national and international funding agencies; and the enrollment of universities and academic partners, notably from new EU Member States, major stakeholders and authorities as well as other technical platforms inside and outside Euratom.

1. Nature and scope of the project

The final objective of the OPERRA proposal is to build up an innovative mechanism for the joint programming and implementation of radiation protection research in Europe. The joint programming instrument that will be proposed to the European Commission will be designed as a tool that may be applicable to all fields of research in radiation protection. OPERRA will lead to the implementation of joint programmes, based on public-public partnerships with increased efficiency and consistency, as well as better visibility and attractiveness at the world level.

The OPERRA consortium includes members of the European High Level Expert Group and the DoReMi network of excellence that set the policy goals, formulated with a number of experts the initial strategic research agenda on low-dose risk research and led the initiative of establishing the MELODI Association for the long-term and sustainable integration of low-dose risk research in Europe. Also, most of the OPERRA's partners are members of sister associations involved in radiation protection research, for example Alliance for radioecology or NERIS for nuclear emergency management.

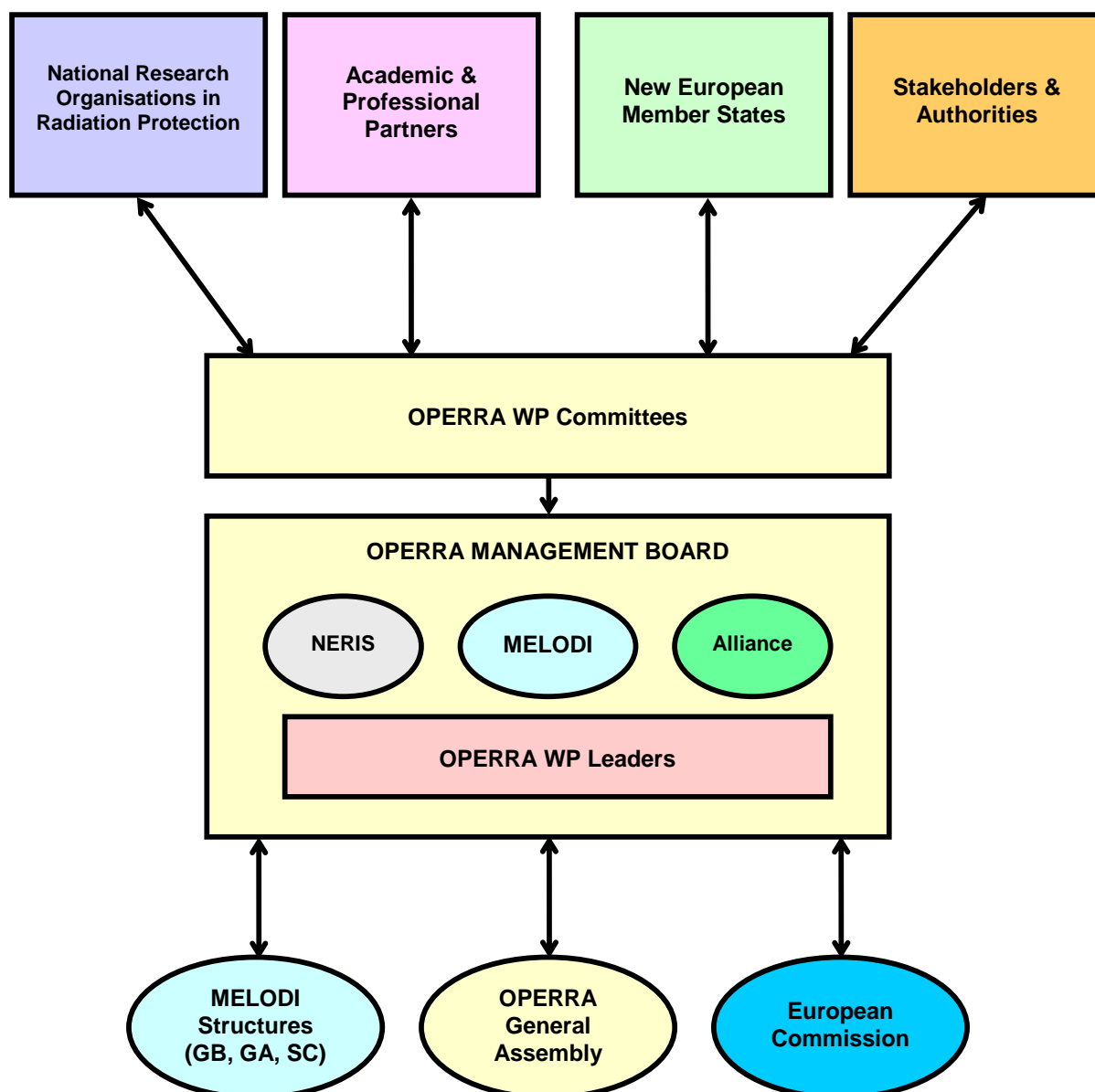
2. Activities

In the context of the future Horizon 2020 approach, the European Commission is looking for umbrella structures (legal entities/associations) to delegate some of the tasks related to the management of Community research programmes to third parties. Tasks to be performed by these umbrella structures include managing all or some of the phases in the lifetime of a launched project in Horizon 2020, budget, implementation, gathering and collating information required by the Commission and preparing recommendations for the Commission. The outsourcing of these management tasks will allow Community programmes to become more effective by simplifying procedures and optimising costs of research coordination.

OPERRA will exploit the synergies of EURATOM and other EC programmes considering the most relevant joint program areas and mechanisms for funding joint activities. The project will also strengthen the links with national funding programs as well as the European education and training structures. It will take steps towards a greater involvement of new Member States who could benefit from increased participation in the radiation research programmes. OPERRA will serve as an example on how to integrate research activities in Europe and in the rest of the world within the radiation research community and other scientific areas. The provision of the results from OPERRA will help the integration of European-funded research activities from various funding schemes, thus widening the European Research Area.

3. Expected results

At the end of the OPERRA project, activities leading to the implementation of a federating body with an appropriate legal and financial structure and scientific advisory board is expected, to organise joint programming of radiation protection research and education and training in a number of domains (low-dose risk research, radioecology, nuclear emergency management, medical and occupational radiation protection, dosimetry, etc.). To ensure the success of the OPERRA project, the consortium will involve and be in close contact with major bodies active in radiation protection, as shown in the figure below.



Joint programming of radiation protection research and E&T, though respecting the specificities of each particular domain and related SRA, will help in the clarification of priorities for research over the entire scope of radiation protection, taking into account stakeholders, societal needs, and decision-makers on the one hand, and researchers on the other hand. Advantages of this joint programming are multiple:

- Enhanced visibility of European radiation protection research and education and training at the global level, facilitating cooperation with countries affected by past accidents or having a legacy of former activities.
- Enhanced cooperation between research institutes and academic institutions, and extension towards the new Member States, with the aim of consolidating a European Research Area in the field of radiation protection.
- Creation of synergy between national and European-funded research activities.
- Enhanced cooperation between third countries such as Japan and USA and the MELODI Association, as European Member States research representative on low-dose risk.
- A single point of contact for the other European Technology Platforms that have activities touching upon issues of radiation protection such as IGD-TP (radioactive waste management) and SNE-TP (nuclear technology).
- Optimal use of existing and new infrastructures, also outside of the radiation protection field, aimed at creating operational and financial synergies.
- Enhancement of output by merging international and national research funds.
- A more common vision on the needs and implementation of radiation protection legislation.
- A joint effort to maintain and transfer knowledge and expertise in the field of radiation protection by linking with networks active in the domain of education and training.

4. Societal impact

Given the limited resources available in Europe and globally for research on radiation protection, every opportunity should be taken to develop synergies between research in different areas and to ensure that research is relevant to the common concerns of researchers, authorities and other stakeholders. The OPERRA consortium will bring together many of the major European players in radiation protection research and related research platforms to maximise coordination of research efforts, identify research methodologies and techniques/approaches that have not been effectively applied and to provide strategic direction and leadership in this area of importance in energy production, medicine and a range of other uses beneficial to the European population. Radiation workers, patients and the public are rightly concerned that their health and the environment are not compromised unduly by the various uses (or indeed misuses) of ionising radiation and radioactive materials. OPERRA aims to address these concerns by promoting research that will ensure that health risks are better understood and quantified, and that identifies improved approaches to radiation protection in relation to occupational, medical, environmental and accidental exposures.

PLATENSO

Kjell Andersson, Karita Research

PLATENSO (Building a platform for enhanced societal research related to nuclear energy in Central and Eastern Europe), a project funded by the Seventh EURATOM Research and Training Programme (FP7) on Nuclear Energy of the European Commission, aims 1) to provide a proposal for a European Platform for Socio-Economic matters linked to nuclear technology and 2) to develop recommendations for research strategies in EU New Member States (NMS).

Developing the EU future energy system will meet social and political challenges. For this reason, the participation of not only engineers and natural scientists but also of social sciences and humanities (SSH), policy makers and other stakeholders should contribute to address nuclear energy issues in a broad manner. The PLATENSO project will help opening up broader research approaches that can build new networks, escape from narrow framing, enrich communication and avoid the compartmentalization of research interests. PLATENSO also aims to improve the prerequisites for future participation in Euratom projects in the countries involved, not only for the project participants but also for research establishments overall. The focus is on social, societal and governance issues. Here a few results achieved in the project are summarized.

Review of lessons learned

In PLATENSO an exploration has been undertaken of how PLATENSO countries can learn from earlier experiences in national programmes and EU research projects with regard to social, societal and governance issues of importance for nuclear-energy-related developments. The conclusions can be seen as a first attempt to formulate possible research areas for the anticipated platform for social, societal and governance matters.

Interesting efforts have been made, mostly in nuclear waste management (NWM), to give localities and regions knowledge about their own future with and without proposed installations (e.g. France, Sweden, Switzerland, and UK). Experiences of social and societal issues at the local and regional levels can feed into efforts in other countries and in areas other than NWM, although concrete results can in most cases not be transferred. Regarding social and societal issues at the national and EU levels surprisingly little has been done and this seems to be a green field of research for PLATENSO research strategies.

In the governance area there are many experiences of public participation, but these tend to be in the narrow field of siting controversial NWM facilities. Research needs to be broadened to include all decision making phases and other types of nuclear installations but also to become tailored, addressing specific conditions for different phases including experiences of the challenges of involving regulators and NGOs. A core issue is how informal public participation processes are, or should be, linked to the legal and political decision making system. It is concluded that the Arnstein legacy ("the more participation, the better") may be too idealistic and too rigid. Instead the idea of "safe space" has been put forward, meaning a process where participating stakeholders can be confident that they are not intended to reach, or even recommend, common solutions but only to participate for clarification and mutual understanding.

Networking between research institutions in NMS

PLATENSO aims to improve the prerequisites for future participation in Euratom projects in the countries involved, not only for the project participants but also for research establishments overall. A network with research institutions in NMS has been established through PLATENSO National Contacts (NC). They are the points of departure for the establishment of national level platforms for the promotion of networking and coordination of research and education activities. As a result of PLATENSO initiatives, national networks have been launched in eight countries.

The science, politics and ethics of nuclear technology assessment

Despite the maturity of nuclear science & engineering, any assessment of technical and social systems needs to deal with inherent uncertainties, which set fundamental limits to the understanding and forecasting technological and social phenomena. As a central activity of PLATENSO, interactive workshops focus on the science, politics and ethics of nuclear technology assessment by starting from an analysis of nuclear risk governance and linking these insights to the question of how approaches to knowledge generation and decision making could generate societal trust.

Research strategies

Building on lessons learned, mapping of research institutions, results from investigation of nuclear risk governance and an exploration of possible nuclear energy scenarios in Europe and the research needs they bring with them, strategies are developed for research in governance, social and societal issues in which participation in EU programmes should be an integral part. A special effort is made to test the national strategies and to indicate how they can be implemented in NMS. The research strategies have thus been confronted with the broader political, social and economic context to identify how they correspond with actual social, societal and governance problems, needs and challenges of nuclear energy development in the EU.

The full potential of institutes, universities and other organizations in NMS is so far underutilised. PLATENSO is expected to contribute to a clear identification of the capabilities of research institutions in developing research programmes with regards to governance in nuclear energy. From this insight and the development of scenarios and research strategies, it is expected that research organizations in NMS will benefit from the results of the PLATENSO project and consequently, be able to contribute more fully to EU research programmes.

Proposal for a Nuclear Energy Social Platform (NESP)

Following the PLATENSO Description of Work, participants in the project have taken the initiative to form a Working Group to explore the possibilities to establish a Nuclear Energy Social Platform (NESP). It is expected that this initiative will sustain over the end of project.

The intention is to bring nuclear issues to the general energy governance debate in a more deliberate and reflexive way without taking premature standpoints. The idea is that NESP, while being a platform for multi-disciplinary research should be problem driven by needs appearing from current programmes and future challenges in the nuclear area. The ambition of the Working Group is to propose statutes for a non-profit association with the aims to:

- promote SSH studies related to decision making in nuclear matters of importance for governments, regional and local authorities, industry, NGOs and other relevant stakeholders
- give guidance for future research, especially EU research programmes
- provide an effective link between natural sciences, social sciences and the humanities
- boost education, training, knowledge sharing and information initiatives

The detailed NESP work programme will be updated on a regular basis taking into account progress made in the on-going work areas and the needs of the participants. The initial topical work areas for NESP are open for discussion but tentatively it is suggested to implement three action areas: decommissioning, nuclear waste management and development of Generation IV reactors, the ALLEGRO Project in particular. These areas have a number of challenges and research themes in common, such as governance and acceptance, social local and regional effects.

For example, on the regional and local levels, information is needed for planning purposes, such as labor force and employment, infrastructure, property values, tourism, image, etc.

CONCERT



A Virtual Information Centre

One important component of the platform will be a Virtual Information Centre (VIC) which is already operational and provides an idea of the type of platform which can be made available in the future. The contribution of PLATENSO to establishing research networks in NMS is realized through events at the European level and development of the Virtual Information Centre for sharing information and contacts.

The Horizon 2020 project 'CONCERT-European Joint Programme for the Integration of Radiation Protection Research' is operating as an umbrella structure for the research initiatives jointly launched by the radiation protection research platforms MELODI, ALLIANCE, NERIS and EURADOS. CONCERT is a co-funded action that aims at attracting and pooling national research efforts with European ones in order to make better use of public R&D resources and to tackle common European challenges in radiation protection more effectively by joint research efforts in key areas.

CONCERT was granted a five-year funding from the European Commission (6/2015-5/2020) to establish this umbrella structure based on the strategic work already done in the fields of low dose risk research (MELODI), radioecology (ALLIANCE), nuclear emergency preparedness (NERIS), dosimetry (EURADOS) and medical radiation protection.

The Federal Office of Radiation Protection (BfS) in Germany is coordinating CONCERT. The Management Board currently consists of 28 National Programme Managers and Programme Owners (POM) from 22 EU Member States plus Norway and the four already mentioned EURATOM Research Platforms. Another 10 POM have expressed interest to join the CONCERT consortium soon.

CONCERT is organized in seven Work Packages, three mainly concerned with joint programming and organising as well as administering open research calls, three dedicated to integrative activities such as access to research infrastructure, education and training and stakeholder involvement as well as dissemination of radiation protection research results and finally one on coordination of CONCERT itself.

By joint programming, defining joint research priorities and road mapping CONCERT is guiding radiation protection research in Europe. This joint effort is performed with a strategic perspective on supporting excellent science, on building and maintaining high competence in radiation and radiation protection science as well as further promoting integrative and multidisciplinary research on a European level. CONCERT contributes to the sustainable integration of European and national research programmes in the field of radiation protection. A crucial step is, of course, to initiate and fund concerted joint research actions.

Based on the platform Strategic Research Agendas (SRAs) and joint programming, CONCERT will develop research priorities, align them with priorities from participating Member States and will seek further input from society and stakeholders. It will reach out to engage the wider scientific community in its projects, aiming to answer the needs in radiation protection for the public, occupationally exposed people, patients in medicine, and the environment.

CONCERT will support the implementation of the revised European Basic Safety Standards by giving best possible advice based on evidence from research.

Aim of CONCERT is to set in motion the convergence of the three focusing forces scientific community, national agencies and research institutions, and EURATOM policies in order to achieve new breakthroughs in radiation protection research.

CONCERT strives for a better integration of the radiation protection scientific community at the EU level, leading to a better coordination of research efforts and the provision of more consolidated and robust science based policy recommendations to decision makers in this area. In the long-term, these efforts will translate into additional or improved practical measures in view of the effective protection of people and the environment.

Within CONCERT two major open RTD calls of approximately 10 M€ in spring 2016 and 7 M€ in spring 2017, respectively, will be launched. Universities and research institutes from all over Europe have the opportunity to join in research consortia and submit proposals. CONCERT, as a co-fund action (70% EC and 30% national funding), is aiming at integrating national and European research programmes.

Next to research, education and training activities closely linked to research will be carried out by CONCERT to build and maintain the high level of competence in radiation sciences and radiation protection in Europe. In addition, CONCERT will make best use of the available research infrastructures in Europe, mainly by enhancing the visibility of infrastructures and facilitating access to them.

Finally, CONCERT has the mission to further reduce uncertainties in the assessment and management of radiation risks to the environment and to humans by targeted science. To achieve this CONCERT will initiate an open exchange of knowledge and information between science, regulation and society.

CONCERT is open to new national Programme Owners and Programme Managers at any time. Please contact: CONCERT_BfS[at]bfs.de

P 2.1. Guidelines for information sources for improvement of solutions for information materials and activities about ionizing radiation

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Abstract

Ionizing radiation has been an intriguing issue for scientists, engineers and general public from the moment of its discovery. However, except for qualified specialists, the basic knowledge and understanding about this ubiquitous natural phenomenon is still rather inadequate or even false. The need to provide good, understandable and trustful information about ionizing radiation in order to support the quality of democratic and inclusive decision-making related to radiation risks has been fully recognized by policy-makers, as well as by information sources in nuclear industry and medicine.

Analysis of information materials and activities prepared by information sources in EU countries was one of the activities of project EAGLE (Enhancing Education, training and communication processes for informed behaviors in decision-making related to ionizing radiation risks) under the EURATOM Framework Program 7 of European Commission. Primary information sources included in the analysis were nuclear power plants, waste management organizations, technical support organizations, regulatory bodies, ministries, medical institutions. Results of the analysis were compared and integrated with the results of analysis of public perception of ionizing radiation, and analysis of media approach and attitudes to ionizing radiation issues.

Recommendations for information and communication strategies for information sources were prepared in order to improve the quality of education and training materials available for general public. The following guidelines for improving education and training materials are proposed:

Adjust the materials and activities to the target public, e.g. school children, local population living near nuclear facility, decision-makers, NGOs ...

Don't try to take over the role of education institutions or school textbooks – provide relevant and interesting information that can't be reached by other means.

Activities are more efficient than written materials.

Put technical or medical use of radiation sources in context with natural background radiation.

Clearly distinguish and stress the distinction between risks, hazards and actual danger.

Provide situations where people will feel free to have their own opinion and to be curious about ionizing radiation.

The guidelines will be presented in detail at the conference and an interactive session will be organized to discuss specific issues and to give the conference participants the opportunity to co-create guidelines applicable in EU member states.

P 2.2. Improving media relations and delivery of information on ionizing radiation risks: the EAGLE stakeholder statements

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Abstract

The EAGLE module 'Mass media and social media: Move towards mutual understanding' brought together journalists, science communicators, and information sources in nuclear and non-nuclear Member States. They reviewed actual risk communication approaches and media articles, sharing challenges and best practices. For this presentation, we combed through the transcripts of EAGLE dialogue workshops to pick up the participants' recommendations on improving the transfer of information from official sources to the public, through any and all media, in times of crisis or every day. These stakeholder statements highlight technical, ethical, organizational and human dimensions of such communication. They show that citizen-centered communication on ionizing radiation risks must be an ongoing process.

The full analysis reflecting RICOMET 2016 discussion will be available here:

Mays C, Valuch J, Condi C, Miśkiewicz A, Zakrzewska G, Constantin M, Diaconu D, Daris I, Kralj M and Zeleznik N (2016) Outcome of dialogues: agreed recommendations and guidelines for developing media relations for IR communication EAGLE Deliverable Report 2.5. To be published online: <http://eagle.sckcen.be/en/Deliverables>

P2.3. Good practices for public communication, education, training and information about ionizing radiation

Daniela Diaconu¹, Marin Constantin¹, Tanja Perko², Catrinel Turcanu², Claire Mays³, Geneviève Baumont⁶, Nadja Železnik⁴, Grażyna Zakrzewska-Kołodziej⁵

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Abstract

In the post - Fukushima context, the EAGLE project proposed to identify ways for an improved education, training and communication about the ionizing radiation in order to support the citizens of the EU in making informed decisions in any situation involving IR risks.

An extended overview at EU level of the current status-quo in the general public attitudes, concerns and needs related to IR communication, confirmed by direct discussions with members of the general public which took place during the interviews of the national surveys in Belgium, France and Slovenia, as well as during the mental models investigation in four countries with different history, culture and nuclear programs (France, Poland, Romania and Romania) revealed the major deficiencies of the current communication process:

- modest level of knowledge of IR, its effects and associated risks;
- mistrust in institutional sources and journalists and discontent on their performance during crisis situations

Solutions applicable at EU level in the education and communication process for a population better prepared to take informed decisions when a IR situation occurs have been discussed with institutional sources and mass media during four national workshops, organized in the same countries in which the mental models. Their recommendations were translated by the EAGLE partners in good practices answering the major concerns and needs of the public, namely:

- enhance the role of education on IR in schools
- make available diverse means and opportunities for education and information of the entire population, at any time.
- build confidence by the institutional sources and maintain it during normal situation
- adapt information and communication in order to be understood by laypeople
- continuous collaboration of institutional sources with mass media for an efficient communication during crisis
- actively involve scientists and civil society in the communication process

Each good practice is illustrated by relevant examples with a proved positive impact collected from the EAGLE countries.

P 2.4. Lessons for better education and information material based on implementation of pilot actions

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Abstract

EAGLE project aims to investigate different aspects of communication, education and information on ionizing radiation related to nuclear energy production, medical and other applications, natural occurring ionizing radiation; it also looks at important issues during normal and emergency situations. For the purpose of EAGLE project diverse material and activities have been collected and identified. As part of the investigations three pilot actions were implemented in practice in three countries (either education or information intervention) in order to test the concrete use of the communication material, to evaluate its impact, and finally to improve it. The outputs and lessons learnt from these pilot actions will be directly used for upgrading and preparing the final version of the communication recommendations.

The pilot actions were implemented in three project countries – Poland, Romania and Slovenia, where different stakeholders groups and material were engaged:

- In Poland the pilot action was conducted in the area of information, dealing with media in which some information material was assessed and its usability was analysed.
- In Romania the pilot action was performed with teachers by testing of teaching material developed in by professional in the area.
- In Slovenia the educational material and information program was tested with student of higher classes of secondary school which correspond approximately to the average education level in Slovenia.

In all three pilot actions the recommendations were collected for the improvement of future activities within education, training and communication. The approaches to the pilot actions, main results and lessons learnt will be presented.

PP 1.1. Biological dosimetry in Europe is it necessary according emergency responding authorities?

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Abstract

Biological dosimetry allows us to estimate the absorbed dose of radiation by scoring morphological changes in chromosomes of peripheral blood human lymphocytes. There are many cytogenetic and molecular biology methods utilized in biological dosimetry. This approach is the only one when physical dosimetry was not possible or failed. The information obtained about the dose is very valuable as they can be useful for medical treatment and for estimation of stochastic effects of radiation.

There are biological dosimetry laboratories in most European countries and new labs have been established recently e.g. in Lithuania. Unfortunately not all laboratories are recognized by emergency responding authorities as vital part of radiation protection system. Some of them exist only because of enthusiasm and engagement of particular people. Their situation is difficult as maintenance of lab itself and knowledge and skills of specialist cost money. But there is no possibility to create such a laboratory from day-to-day. If country does not maintain biological dosimetry lab then in case of radiological emergency can ask for a hand of IAEA which can activate RANET network or WHO with BioDoseNet. Both networks are not very active and such help can be delivered with significant delay.

Fortunately as a result of two European Projects: MULTIBIODOSE and RENEB the European Biodosimetry Network has been founded recently. The RENEB network has done huge work in harmonization of methods, preparing methods to triage mode, so that network possessed very high throughput capacity necessary in mass casualty scenarios, a lot of work was done in QM and QA and in coordination of efficient cooperation. Even though the network has been very active for many years, some of the responsible authorities denied to come for free of cost (accommodation and travel cost were covered by RENEB) demonstration workshop organized in the end of 2015 in Brussels. That was clear demonstration that biological dosimetry is not important for some emergency response policy-makers.

PP 1.2. Low dose of radiation risk in Polish media space and in Polish Nuclear Energy Program versus recently updated results of INWORKS

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Abstract

The presentation will include description of the problem of the low dose of radiation as it is presented in Polish media space and by Polish Nuclear Energy Program and the data which one can obtain from these sources will be combined with the recent data of INWORKS – The International Collaborative Study of Cancer Risk among Radiation Workers in the Nuclear Industry, the '15-Country Study'.

The media space concerning ionizing radiation and nuclear subjects in Poland are dominated by several institution:

- National Centre for Nuclear Research – scientific institute with actively working Education and Training Division which offers: lectures and lessons, sightseeing tours in Maria Reactor, didactic labs, training courses, printed and web available materials and press releases about radiation;
- Department of Nuclear Energy of Ministry of Energy – is responsible for Polish Nuclear Energy Program and tries to frame public opinion about ionizing radiation and nuclear technologies by different means of communication;
- PGE EJ1 - is a subsidiary of PGE Capital Group, directly responsible for development of the investment process and site investigation for the construction of the first Polish nuclear power plant. The company is engaged in dissemination of knowledge about ionizing radiation and nuclear industry, especially in the communities of people who live around possible location of nuclear power plant. The company possesses actively acting press department and Internet portal about nuclear energy;
- National Atomic Energy Agency – nuclear authority body. The Agency is responsible for the radiation situation assessment and for radiation emergency situation. It is often asked to give expertise about radiation risks and radiation incidences;
- Institute of Nuclear Chemistry and Technology, Central Laboratory for Radiation Protection, Institute of Nuclear Physics – these organizations employ many experts in radiation field who often are asked about radiation technologies and radiation protection.

General picture of risk of low dose of radiation, which media can get from above mentioned organizations is that risk if exists is negligible and better is not talk much about the issue not to frighten laypeople. There are given many examples supporting this standpoint: one of them are results of the '15-Country Study' conducted for many years in 400 000 nuclear power plants workers (Cardis et al.2007) which generally shows no additional cancer incidence (even leukemia) in this group. In 2015 (Leuraud et al.) the results of farther study of this cohort was published, which show that there is additional cancer incidence in the group of nuclear workers. The question how that new data can affect radiation protection media coverage in Poland will be discussed.

PP 1.3. The utility of the concept of mental models related to ionizing radiation in the process of the Polish nuclear power program (PNPP) development

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Abstract

On 28th January 2014, the Council of Ministers has adopted the Polish nuclear power program (PNPP). It is evident that the introduction of nuclear power into the national power system requires public support. The public acceptance of PNPP can be attained by carrying out a wide information and education campaign.

In the first part of presentation short history of the unsuccessful attempts to construct the first NPP in Poland is shown. Then information about new Polish Nuclear Power Program (PNPP), its main assumptions and framework schedule are presented. Also the series of informative and educational actions, which have been implemented to enhance public knowledge on nuclear power are characterized.

The projects supported by EURATOM, like EAGLE, have brought essential help in development of socially-oriented programs in the country, planning the actions that allow understanding of the necessity of nuclear energy and increase public participation.

One of very promising and potentially useful tools, which can be used in the field of communication and education about IR is the EAGLE project covering, among others, the identification of mental models of understanding IR by the general public.

History of mental models, the examples of their using in different areas including IR cognition by general public have been given in presentation. The results of several individual interviews conducted in Poland in the frames of EAGLE project (Task 3.2.) are quoted. One of the findings is that even if people have heard something about radiation in the school, they are not able to explain what ionizing radiation is. Their knowledge on that concept is superficial.

In conclusion the opinion was formulated that even evident limitations and imperfection of mental models exist, their careful using and analysis of results obtained can help in realization of the specific actions (information, communication, education) aimed to consolidate in public consciousness such essential concepts like ionizing radiation. This is a key factor in the process of planning and implementation of nuclear power in Poland.

PP 1.4. Socio-Economic Impact and Perception Analysis of the Nuclear Power Plant Programme in Poland

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Abstract

The assessment of socioeconomic impact of the Nuclear Power Plant Programme in Poland is one of the key issues enabling an effective implementation of the programme.

The aim of the paper is to present an approach to a social research focused on stakeholders activity, key-experts knowledge and perceived information of different groups. Studies of peoples' perceptions of technological risk are crucial in respect to the nuclear power plants (NPPs) impacts' assessment. Chosen methodological approach combines information from both qualitative and quantitative data - the result will be spectrum of knowledge from existing data (public opinion polls) and the qualitative sociological research. Impact assessment of a NPP programme in Poland should be analyzed through socially-valued aspects of the physical environment, cultural values and the social structure itself.

There will be used a quantitative-qualitative approach in order to gain the understanding of different groups' subjectivity. The interviews will be conducted using Q-methodology [1, 2], and will measure respondents' opinions, beliefs, attitudes towards NPP. Using a form of multivariate analysis, a Q-study will allow elicitation of a population of viewpoints characterizing the Polish context and understand the opinions shared by experts and some stakeholders. The Focus Group Interviews will be based on discussion with stakeholders in proposed site locations. The basic goals of utilizing FGI technique are gathering general information about the studied issue, formulating and preliminarily verifying hypotheses, as well as working out solutions within a defined problem area. At the same time, use of this method allows taking advantage of a group dynamics, thanks to which the conclusions may be much richer and more complex than a situation in which interviews with respondents would be done individually.

Moreover, the aim of the paper is also an assessment of economic impact of nuclear programme in Poland using two different economic models: the general equilibrium model (CGE) and Input-Output (IO) model.

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[2] Webler T, Danielson S, Tuler S. 2009. Using Q method to reveal social perspectives in environmental research [Internet]. Social and Environmental Research Institute.

Acknowledgement

The research was done in the scope of the IAEA Research Contract No: 18541/R1 and under an international co-financed project No 3518IAEA/15/2016/0 by the Ministry of Science and Higher Education.

PP 1.5. Value Frames of Nuclear Technology Acceptance

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Abstract

Public acceptance of risky or unpleasant objects is becoming increasingly hard to achieve in any modern society. Especially after TMI, Chernobyl or Fukushima accidents/disasters, public in the majority of developed countries is showing great dislike for NPP and in many countries existing NPP cease to work and plans for the new ones are abandoned. Social acceptability of such facilities remains beyond the control of social, political or expert institutions. This paper draws on the internet survey conducted in autumn 2015/spring 2016 on different groups of stakeholders (e.g. NGOs, former local partnerships, governmental administration, education and research, expert groups) asking people about their attitudes to different scenarios of possible futures of nuclear energy usage in Slovenia (1. Phasing out nuclear power, 2. Continuation of the current situation, 3. Increased usage of nuclear energy based on generation 4 reactors), as studied in PLATENSO project. Besides evaluation of the three scenarios with the help of semantic differential scales, participants were given also the Kahle's value (LOV) and Inglehart's materialism-post-materialism scales as well as list of factors that could influence decision making. Attitudes toward nuclear energy usage scenarios were confronted with values orientation, perceived influencing factors and stakeholder's groups affiliations. Study represents part of the subjective validation of three scenarios proposed in PLATENSO project.

Keywords: attitudes, materialism, post-materialism, nuclear energy, values

PP 1.6. Gauging risk perception - developing the CONCERT public-facing web-survey

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Abstract

The earlier OPERRA project was successful in implementing an eSurvey of stakeholder views on research topics and priorities of greatest relevance to radiation protection in Europe. It was mainly addressed to a well-informed scientific audience but also included non-scientists responders. OPERRA eSurvey was a good starting point for reflections on the experience gained in writing, running and analysing an eSurvey.

Drawing on such experience, CONCERT WP 5.3 is presently investigating the interaction with the civil society. The ongoing designing and implementation of a survey will provide an effective instrument to collect the perception of radiation risk amongst a wide range of people who are not radiation specialists. Data will shed light on a better understanding of risk perception and will help to identify a more effective way to communicate with civil society. The public facing survey will be posted on the CONCERT web site in June 2017.

The poster shows the design and the up-to-date development of the CONCERT survey starting from the basic assumptions derived from the past experience of OPERRA eSurvey and the insights into risk perception and radiation protection offered by previous analysis in this area.

PP 1.7. Developing a Research Strategy on Nuclear Energy Related Social, Societal and Governance Issues in Hungary

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Abstract

PLATENSO is a project funded by the Seventh EURATOM Research and Training Programme on Nuclear Energy of the European Commission (FP7). One of its main objectives is to develop recommendations for research strategies on social, societal and governance (SSG) issues related to nuclear energy generation in Central and Eastern European (CEE) countries. Another objective is to create a network of research actors, - in the broadest sense, - in CEE countries. The paper summarises the results of the Hungarian case.

In order to identify topics and resources for future research two approaches were combined. First, on the basis of reviewing the history of nuclear energy and former SSG research in Hungary, several research gaps and recommendations were formulated. Second, a decision conference was organised, which was aimed at eliciting ideas and proposals from researchers active in the SSG field. Participants included representatives of universities, research institutions and civil society organisations.

The project and the decision conference in particular, was successful by facilitating the generation of a number of ideas in an efficient way. It helped identify not only research topics and resources, but also ways of overcoming main obstacles (e.g., shortage of funding, lacking access to information). We also consider it rather important that a dialogue has been launched among researchers of the field. Participants reached a consensus on the vast majority of issues and welcomed the setting up of the PLATENSO Network.

Participants of the project include universities, research organisations, government agencies and civil society organisations (CSOs) from 9 new and 4 old member states.

PP 1.8. Strategic Aspects of the Social Research in the Development of the Romanian Nuclear Sector

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Abstract

The development of the nuclear power introduces some social and political challenges in EU member states, ranging from substantially increasing the use of nuclear energy, including new reactor concepts, to phasing out. A description of the current situation in nuclear sector of Romania, existing and currently planned nuclear facilities, is presented in order to define the national context for the analysis of the social, societal and governance related research. At the same time, the state of the art of this research is discussed in terms of practices and resources. Five scenarios for the future development of the nuclear power in Romania are defined. Taking into consideration all these elements, the paper proposes a strategic vision on the medium term development of the social, societal and governance research. The objectives, the main research themes, and a set of recommendations for the implementation are defined and discussed.

PP 1.9. Local partnerships: achieving stakeholder consensus on short-lived waste disposal in Belgium

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Abstract

MONA is the Dutch acronym for 'Mol consultation on nuclear waste', the partnership between the municipality of Mol and ONDRAF/NIRAS, of which several associations and Mol residents are members. They work together to give the Mol population a voice in nuclear issues.

In Belgium, the handling of radioactive waste is taken care of by ONDRAF/NIRAS, the Belgian Agency for Radioactive Waste and Enriched Fissile Materials. ONDRAF/NIRAS is a public institution, responsible since 1981 for the safe management of all radioactive waste produced in Belgium.

Until 1996 ONDRAF/NIRAS applied a site selection approach purely based on technical criteria for the siting of a surface disposal facility for low and intermediate-level short-lived waste (in short: Category A waste). The factual basis provided by scientific experts is only one factor in decision-making processes next to others such as money, emotions, stakeholder pressure and mobilisation, strategic understanding or diplomacy. The objective and rational approach didn't work and ONDRAF/NIRAS realized that decision-making in a democratic environment is essentially a process of negotiation. Recognition of all factors involved is crucial in reaching a solution that is acceptable to all or at least to a majority of the parties concerned.

This assumption, as well as the failure of the formerly used top-down approach, led to a drastic change in the decision-making process for siting a category A waste disposal facility in Belgium. ONDRAF/NIRAS concentrated its activities on the development of local partnerships, like MONA, to facilitate project proposals in areas where interest in hosting a disposal facility was expressed.

Through the partnership MONA, the local community of Mol enters into direct dialogue with the ONDRAF/NIRAS experts. In view of the fact that any decision taken or advice offered by this partnership would be carried by the community at large, the representation of the local community needed to be as broad as possible. Not only local politicians, but also delegates from environmental, cultural, (socio)economic and other locally based organisations were invited to participate.

On the poster MONA presents the partnership between a local community and a public institution cooperating to reach an acceptable solution on short-lived radioactive waste for all parties involved.

PP 1.10. Citizen-based radiation measurement in Europe: supporting informed decisions regarding radiation exposure for emergencies as well as in daily life.

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Abstract

In the wake of the Fukushima Daichi NPP disaster, citizen-science based radiation data collection efforts have proved very important in filling information gaps for the public. The technical abilities and organization of citizen groups has been increasingly recognized by governmental institutions, first responders, and international bodies, many of whom have expressed interest in integrating citizen efforts into disaster response plans as already highlighted in the Eagle project. Evidence shows that citizen data gathering can develop basic public knowledge for emergencies and a better understanding of how to deal with radiation in daily life, for example in regions which have a significant presence of radon. This poster will describe promising developments in citizen-based radiation data gathering in Europe which have the potential to contribute to understandable public information, communication, and education, with a particular focus on projects in the Czech Republic and in France which use the Safecast system. In addition, areas will be pointed out where integrating citizen science efforts are potentially the most useful and likely to succeed in the future while maintaining the independence of the citizen groups themselves.

Key words:

Ionizing radiation knowledge, citizen science, public communication and education, disaster response, Fukushima

PP 1.11. NUCLEU2020 – A network of H2020 National Contact Points (NCP)

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Abstract

The NUCL-EU 2020 is a H2020 CSA (Coordination and Support Action) project aiming to create an European wide active network of EURATOM NCPs. The ultimate objective of NUCL-EU 2020 is to ensure support to Horizon 2020 potential applicants, raising awareness about potential topics and increase the average quality of proposals submitted under the EURATOM Framework Programme for Research and Innovation and the overall success rate at EU level. For this to happen there is a need for: i. to consolidate the network of EURATOM NCPs enhancing their competence, through training and sharing tools and best practices; and ii) let stakeholders – prospective EURATOM applicants – know of the existence and potential support of NCPs and in particular of a network of NCPs. For promoting more effective and successful participation in Horizon 2020, NUCL-EU 2020 offers training, partner search tools and brokerage events. NUCL-EU 2020 wants to contribute to a step forward on the R&D landscape at EU level.

PP 1.12. Civil society involvement in public information about nuclear activities in Romania

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Abstract

In the field of nuclear activities in Romania the information is rather provided by the energy industry. There are some NGOs involved in such process but their audience in mass media was poor.

The new tools of social media offer now good possibilities to spread more widely information among large categories of public. But it is important also to pay attention and provide right information in order to don't be manipulative.

How can civil society offer real information to public? This is a challenge now in Romania and the civil society in Romania expects that EAGLE results will be part of the answer.

The poster shows the experience of ARIN NGO in risk communication on some nuclear issues.

P 3.1. Status of SSH research on nuclear energy

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Abstract

In PLATENSO an exploration has been undertaken of how PLATENSO countries can learn from earlier experiences in national programmes and EU research projects with regard to social, societal and governance issues of importance for nuclear-energy-related developments. Here some conclusions with focus on issues for future initiatives and research are highlighted.

Research in social, societal and governance issues related to different energy futures with more or less nuclear energy as part of a sustainable energy system needs considerable empowerment to be able to contribute to societal energy-related decision making in the future. The frequently more or less non-existent social and socio-economic parts of the decision making basis in site selection processes for nuclear installations need to be developed. Local communities should be empowered in several ways, their requirements need to be identified and the related legislative issues should be investigated.

There are many relevant experiences in the governance arena, but these tend to be in the narrow field of siting controversial nuclear waste management facilities. Research needs to become both broadened (to include all decision making phases and other types of nuclear installations) and more tailored to address specific conditions for different phases, experiences of the challenges of involving regulators and NGOs, and to linking informal processes to existing legal systems.

There are a number of different models for research infrastructure which have been used to address social, societal and governance issues. They are clarifying examples which can be referred to when developing country-specific research strategies.

P 3.2. PLATENSO network and Virtual Information Centre

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Abstract

The aim of the paper is to present results of the PLATENSO project regarding the establishment of the network and the Virtual Information Centre. The first part of the presentation will focus on the PLATENSO international network of research institutions in eight Central and Eastern European countries. The purpose of establishing the network, its range, members and main activities will be described as well as the expectations concerning future research in the field of social sciences and humanities regarding nuclear energy. Apart from international networking activities in recent years, attention will be paid to the impact of the PLATENSO network on national research agendas in participating countries.

The second part of the presentation will be dedicated to presenting the Virtual Information Centre as the online space to bring the capabilities, knowledge and expertise together from diverse groups in New Member States to facilitate cooperation among them and with Old Member States. Overall, the creation of the PLATENSO network aims to improve the prerequisites of future research activities in the field of social, societal and governance of nuclear energy in New Member States in a sustainable manner.

P 3.3. Forming national research strategies for coordination of social, societal and governance issues in nuclear energy

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Abstract

The development of energy policies, programmes and projects takes place in a social and societal context and these aspects should therefore be an integrated part of research and development programmes. However, research strategies regarding social, societal and governance aspects of nuclear energy are very rarely addressed even in more developed countries. But they assure coordinated approach with optimisation of related expenses, emphasise the importance of social research on nuclear as an important factor of national decision-making processes concerning the future of nuclear energy and therefore improve the acceptability of associated projects.

All the central and eastern European (CEE) countries are currently facing challenges to take certain decisions in the nuclear matters: it might be continuation of the existing nuclear energy sector, building new units or shutting down operating nuclear power plants, or even taking a leading role in the development of new reactor generations. Whichever direction the policy decisions will be taken, a reflection on the social, societal and governance issues should be taken.

Within PLATENSO project research strategies for eight CEE countries have been prepared and included:

- analysis of the national situation regarding nuclear energy from a societal point of view,
- the main objectives and goals with regard to nuclear development, and
- measures for fulfilling these including available funds and human resources, time dependencies and necessary support.

The strategies were tested in the Czech Republic, Slovakia and Poland to evaluate their compatibility with existing conditions (both legal/administrative and socio-cultural). The testing consisted of stakeholder workshops and desk research (policy document analysis). In addition also discussion with interested researchers, governmental officials and other related stakeholders took place. It allowed for drawing some general conclusions about the role of research strategies combining social sciences with nuclear research in CEE countries, with the focus on chances and obstacles for implementing them.

The presentation will focus on the proposed strategies and discuss the question of their role in socio-political practice.

S 1.1. Some recent developments concerning the ethics of radiological protection

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Abstract

In 2013, the International Commission on Radiological Protection (ICRP) established a task group on Ethics of Radiological Protection (TG94). After extensive consultations, and discussions in a number of smaller fora, it recently shared its first draft report with the International Radiation Protection Association (IRPA) for pre-consultation at the 14th International IRPA Congress in Cape Town, South Africa. The document first reviews the history of radiation protection, especially the development of the three main principles of radiological protection (justification, optimisation, dose limitation), with a view to underlying ethical issues. It then identifies four core values (beneficence/non-maleficence, prudence, justice, human dignity) that have driven this development, although they have rarely been made explicit. It goes on to discuss the key concepts of reasonability and tolerability as intermediates between the fundamentals of the system and its implementation. And finally it introduces three procedural values (accountability and transparency, stakeholder involvement) which are supposed to guide the practice of radiological protection.

As a prelude to the work of TG94, ICRP together with IRPA organised a series of regional workshops, in which the ethics of radiological protection was examined from different perspectives. Pertinent questions were also discussed in the 2nd International Symposium on Ethics of Environmental Health, which was held in 2014 in conjunction with an OPERRA Workshop on Ethics of Radiological Protection. In this meeting, two sessions were set aside for the identification of topics for future research on ethics of radiological protection, i.e. for the creation of a preliminary research agenda. These range from the ethics of radiation research, through ethical questions of the system of radiological protection and its implementation, to the ethics of risk communication and decision making.

Both documents are here presented and reviewed in some detail.

S 1.2. “Good science for better policy making” – a reflection on the idea of integrating social sciences and humanities into energy research

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Abstract

When it comes to evaluating energy technologies, obviously science has a key role to play in generating knowledge to inform that evaluation. Especially in the case of evaluating energy technologies that bring along a risk to human health and a burden to the environment, the responsibility of science as policy advice extends beyond the traditional criteria of objectivity and independence. The reason is that the existence of knowledge-related uncertainties puts fundamental limits to understanding and forecasting technological, biological and social phenomena in the interest of risk assessment. Scientific research to inform policy in a responsible way therefore not only needs to take into account these uncertainties but, given the risk-inherent character of that technology, also the various value judgements related to its (eventual) use. It is now generally accepted that this kind of scientific research cannot solely rely on the natural, engineering and technical sciences alone. ‘Good science for better policy making’ is science that generates policy-supportive knowledge in a ‘holistic’, transdisciplinary and participatory way, synthesising insights from natural, engineering and technical sciences with those from social sciences and humanities on the one hand and with those from citizens and actors from civil society on the other hand. From this perspective, the presentation will (1) analyse the ethical reasons to ‘integrate’ social sciences and humanities into research that traditionally relies on natural, engineering and technical sciences, (2) present a view on practical implementation and (3) draw conclusions for the case of energy governance.

S 1.3. Strategic Research Agenda on How to Integrate Perceived and Actual Risk in Stakeholder Communications in Radiation Protection

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Abstract

Purpose: Radioactive waste management projects, specifically the remediation of radiologically contaminated sites, present challenging risk assessment communication issues for the affected members of the public and other stakeholders. Actual and perceived risks are important considerations for decision-making bodies as well as for stakeholders and members of the public who are impacted by radiologically contaminated sites. It is well established that public and stakeholder acceptance of risks, and the efforts to reduce them, rely not only on an understanding of the scientific assessment of risk (e.g. dose measurements and calculation of effective dose) but also on the risk perceptions influenced by factors such as dread, volition and familiarity. There is a strong contemporary need for an integrated approach in effectively addressing public concerns about the potential risks involved in a remediation.

Method: Publishing IAEA guidance for "Integration Perceived and Actual Risk in Stakeholder Communications in Radiation Protection" with examples and case studies from the integration of risk perception surveys and actual risk assessments from selected Member States. The Integrating Perceived and Actual Risk in Stakeholder Communications (IPARSC) project is proposed by IAEA to develop and deliver tools to support integration of actual and perceived risk in project communications. This will be achieved by augmenting existing efforts for actual risk assessment (dose calculations and safety assessments) with a deliberate process methodology to quantify perceived risks held by members of the public and other stakeholders.

Future research suggestions: To design, plan, conduct survey, collect and analyse the data, present results on perceived risk in interested/selected IAEA Member states. As an outcome, publish IAEA guidance on "Integration Perceived and Actual Risk in Stakeholder Communications in Radiation Protection" with examples and case studies from the integration of risk perception surveys and actual risk assessments from selected Member States. This project will provide a basis for developing IAEA tools and methods to assist member states to better define the risk communication products and their delivery.

Conclusions: Combining actual risk assessments (i.e. calculated dose) with perceived risk assessments (i.e. prevalence of risk perception factors) will enable project representatives to develop more holistic risk communications that are a) explanatory of actual risk and b) responsive to perceived risk. Ultimately, enhancing public risk acceptance by an integrated perceived and actual risk communications should allow actual risk reduction measures to proceed more efficiently, and thereby increase the protection of health and safety for the local population.

S 1.4. Social and Citizen Science: Civil Society Giving Shape to Research for Safe Long Term Radioactive Waste Management

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Abstract

Today, actors of European governance, practice and R&D on ionizing radiation applications move to coordinate. Not only are natural scientists, technical and state-mandated stakeholders in play. Civil Society organizations ensure that the full complexity of societal dimensions is taken into account. Researchers in social sciences & humanities (SSH) engage as mediators and fully concerned contributors.

Two transdisciplinary initiatives in radioactive waste management (RWM) and 7 priority SSH topics agreed with Civil Society (CS) may enlighten RICOMET discussion of a new “European SSH Platform”.

JOPRAD prepares a proposal for a Joint Programming Initiative (JPI) on RW disposal grouping operators, technical organizations supporting nuclear safety regulators, and research entities. Civil Society weighs in on JPI design, actual scope, content, and priorities, and means by which CS can go on contributing to governance of future R&D.

JOPRAD is one example of how diverse actors set up a platform to shape future R&D—in a 2.5 year stepwise process. Developing and agreeing an actor-relationship structure, management rules, funding mechanisms, and collegial decision-making process for technical and transversal activities under the JPI is a significant undertaking. Likewise, considerable effort is devoted to getting the societal input to this design.

In the SITEX-II technical radwaste expertise network, CS participates in strategic research agenda-setting. Input reflects the complex, multi-dimensional nature of RWM, spanning scientific and technical challenges, socio-economic and ethical concerns, and intergenerational decision-making seeking a safe very long-term solution. Seven topics highlight need for SSH and also, citizen science (direct involvement of non-professional scientists in producing trustworthy and reliable scientific knowledge):

- Knowledge transfer and interpretation
- Uncertainty, epistemology and social trust
- Mobilizing collective intelligence throughout RWM implementation
- Socio-technical hybridization of geological disposal implementation strategies
- Safety culture
- Ontological and axiological commitments of geological disposal stakeholders
- Background democratic culture of geological disposal implementation

The 7 topics could potentially be translated to other radiological protection challenges like nuclear safety; crisis and post-emergency management; NPP decommissioning; environmental monitoring...

S 2.1. Education Project in Ionizing Radiation

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Abstract

Nuclear physics is compulsory in the physics curriculum in upper secondary schools in Flanders (Belgium). Due to the strict regulations concerning ionizing radiation sources, only theoretical lessons are possible at school.

The STUUR-nuclear physics project at KU Leuven provides a specially equipped lab for a class group to perform measurements on ionizing radiation in a safe environment. Experiments earlier developed at University Utrecht are adapted to study the behavior of α , β^- , β^+ and γ -radiation.

Classes of max. 24 students come to the University lab for half a day to perform experiments. After an introduction with special attention to safety, groups of two students are formed. Three groups work in a constellation of three different experiments, each on one of the following subjects: distance, absorption, β -energy in a magnetic field.

In a first introductory experiment a set of well suited absorption plates are positioned between the source and the counter-tube of a GM-counter. The aim is to learn how to handle the sources and the counter-tube, and to determine the nature of the radiation(s) of a specific source.

The second experiment is one of the three mentioned above, and is performed with the same source. Comprehensive worksheets are provided to guide them safely through the measuring method, elements of inquiry based learning are built in.

A third experiment is possible, depending on the time available and of the level of the groups, as a rotation in the same constellation.

All groups observe ionizing traces of α -radiation in a Wilson cloud chamber. We start a discussion of the physical conditions for the appearance of traces, as well as the energy of the particles of different daughter nuclei in a single radiation source.

Teachers receive detailed information on beforehand to prepare their students, and get a copy of the results to rely in the classroom discussions afterwards.

In the past two years of the project, a total of 745 students got the opportunity to enrich their theoretical knowledge about ionizing radiation with practical handling. These experiments improve their understanding of radiation, detection methods, protecting and safety procedures. They were incited to think about applications and danger of radiation sources.

S 2.2. The experience gained within the EAGLE project as a contribution to the implementation of the programme of Polish nuclear energy

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Abstract

Poland has started to develop nuclear power programme in 2009 with the Resolution No. 4/2009 of the Council of Ministers. The document of the Programme of Polish Nuclear Power, prepared by Government's Commissioner for Nuclear Energy, was adopted by Polish Government in January 2014.

In parallel the development of the new repository for low and intermediate level radioactive waste is ongoing. Both programs need extensive educational, information and communication activities to ensure conscious participation of the society in the decision making. The changes in public attitudes after the Fukushima accident need special attention and appropriate planning of actions with the public, especially in places of future investments.

The projects supported by Euratom, like PLATENSO and EAGLE, bring a lot of help in development of socially-oriented programs in the country, planning the actions that allow understanding of the necessity of nuclear energy and increase public participation.

The paper presents the results of EAGLE, aimed at actions to strengthen educational, training and communication processes in the country developing nuclear programme, to establish informed behaviour and decisions related to ionizing radiation risk. The basis for EAGLE project was building dialogue groups composed of different stakeholders who contributed to the project outcomes. Important role played the group of journalists cooperating in evaluation of existing ETI materials and their improvement.

The discussion on the role of the media and information sources in everyday and crisis situations and their cooperation in identifying good and bad practices to stimulate mutual adjustments, were the aims of the meetings. On the basis of the common protocol developed in the scope of project, mental models of understanding of ionising radiation were elaborated and assessed. Special attention was paid to the evaluation of status quo in education in Poland, the content of curricula and their modifications, as a starting point in building the society who will be able to formulate its opinions on both the threats and advantages brought by the use of nuclear energy. Both in the opinion of decision-makers, as well as the information sources, the projects, such as EAGLE, formulating conclusions on the state of education, communication and information in Poland, based on solid international cooperation can substantially help in achieving the ambitious objectives, such as development of nuclear energy in country.

S 2.3. An Innovative Vision on Education and Training Programs in Radiological Protection, Nuclear and Radiation Safety

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Abstract

Generations of experts in radiological protection, nuclear and radiation safety, radioactive waste management and environmental radioactivity issues are approaching the retirement age. Their theoretical and practical knowledge, skills and competences will be lost in time once they were not transferred to future generations of experts in these areas. Due to shortage of youngsters applying for degrees in some engineering careers, universities that were of great importance in teaching and training radiation protection and other technical and scientific related subjects, have reduced the number of core disciplines or even eliminated full courses, contributing to the crisis of competences and skills seen today all over Europe and in the USA. Regardless of the future scenarios, namely:

- i) More modern NPP's and reactor concepts that will demand more radiation protection and safety, or
- ii) The phasing out of the nuclear power generation programs that will face the huge task of decommissioning and consequent waste management implementation programs,

the preservation of knowledge, competences and skills is of paramount importance because problems do exist, need to be dealt with and also because radiological protection and safety is part of our daily lives.

Radiological accidents with sealed sources all over the world and the last two major nuclear emergencies, Chernobyl and Fukushima, have also awake the need to introduce new disciplines in E&T curricula. Future professionals must also acquire new skills and competences, including the recognition of developing new communication tools with a well-informed public opinion whose decisions can affect the all society.

Therefore, , besides the engineer, energy options, chemistry, physics and health disciplines, new E&T programs should include, new subjects in the such as the consequences of practical applications of the legislation, the impact of the social sciences, the ethics of the radiological protection, the paramount role of the media and the new social media communication tools.

The new professionals, whatever their background will have to develop new strong skills to allow them to integrate the new dialogues so crucial between the different stakeholders not only during and after a radiological and/or nuclear emergency but also to strength the continuous efforts to implement, reinforce and preserve a common language of communication between the different communities involved.. The new master's degree program on radiological protection and safety developed at IST-Portugal will be presented. Other new E&T European programs that are linked or had inspired the Portuguese program will also be referred.

S 3.1. Ethically justified decision-making process in nuclear and radiological emergency

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Abstract

This work aims at providing a conceptual framework to promote reflections and discussions on the ethical dimensions about preparedness and response to nuclear and radiological emergency. A good decision for actions to be undertaken in case of emergency is in general considered as both an ethical and an effective decision. This kind of decision should be obtained by evaluating and choosing among alternatives, within a defined set of rules for our ethical behavior, and by considering its capability to accomplish the most important goals.

In activities of preparedness to nuclear emergency, an effective approach strategy requires anticipating decision-making needs, as well as keeping exercise plans and in advance arrangements alive, e.g. the last completed exercise of the NEA series (INEX 4) was focused on consequence management and the transition to recovery.

The impact of 2011 Fukushima events increased the attention to the importance for effective crisis communication and a new exercise of the NEA series (INEX 5) is now focusing on notifications, communications, and interfaces to handle catastrophic events involving radiation and natural disasters.

Risk management needs a better evaluation of the ethical basis for the risk assessment, towards a really integrated approach, considering the technical risk assessment together with social and ethical aspects, avoiding fragmentation of the decision making process.

The nature and complexity of nuclear emergency, make hard to provide clear rules for the decision-making and judgment process, if ethical dilemmas are faced and confronted only at the beginning of the emergency when the decisions are pressing and the time to decide is dramatically reduced. Ethical aspects should be considered in advance – before the emergency – for their clear recognition and for reinforcing ethically driven pathways. The question of ethically justified decision making processes is part of our general experience, although not explicitly addressed, up to now, by the main documents on nuclear emergency. Decision-making is the core of nuclear and radiological emergency management. In order to avoid the risk that ethical issues will not be adequately addressed and, at the same time, to contribute assuring optimal protection for health and for environment, we are required to consider, discuss, and clearly articulate the inclusion of ethical objectives in the main documents on nuclear emergencies and related exercises.

S 3.2. The importance of integration of economic valuation of social issues related to radiation protection

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Abstract

Five years after the triple catastrophe of Fukushima, we observe that some of the post disaster decisions that have been taken at that time are now challenged by the population. For instance, in evacuation areas, money had been spent to decontaminate the living places, permitting the social and economic activities to relocate, a priori. Nevertheless, we now observe that a great majority of the population does not want to return. It suggests that, maybe, the decontamination spending could have been more useful in relocating these persons in another place and in better conditions. Then, to make the best trade-offs, it is necessary to better know the cost and benefits of each spending. The fear of residual contamination in the living places and the impossibility of attending again the nature places - which remain heavily contaminated - are two possible explanations of the unwillingness to return. When decontamination and people's relocation decisions were made, decision makers probably not took into account these sociological aspects which seem to be very important. The main reason for that is probably the difficulty to take into account something as immaterial as the welfare of living somewhere. The main insight of economics is to develop methods to measure these intangible issues and give them a monetary unit comparable with any other aspects of the decision such as the cost of the decontamination process or the cost of people's relocation.

The presentation enlightens the interest and the results of a series of studies aiming at measuring the social aspect of different issues (for instance, the economic valuation of psychological distress linked to a medical treatment, the economic valuation of environmental impact of a landscape modification...). It then focuses on an evaluation of the intangible value of the territory which aims to give pieces of information to help the decision makers to choose the optimal decontamination strategies.

S 3.3. Socio-technical management of big nuclear accidents

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Abstract

The response to a big nuclear accident lies at the intersection between science, engineering and social science, including particularly economics. The paper will present the results of the UK's 4-university NREFS project (<http://www.nrefs.org/>), which assessed how best to respond after a big nuclear accident such as Chernobyl or Fukushima Daiichi using a variety of quantitative methods: J-value (<http://www.jvalue.co.uk/>), optimal economic control and a combination of the computer codes PACE and COCO2 produced at Public Health England. The results show that the life expectancy lost through radiation exposure after a big nuclear accident nuclear accident can be kept small by the adoption of sensible countermeasures, while the downside risk has limits even in their absence. Nearly three quarters of the 116,000 members of the public relocated after the Chernobyl accident would have lost less than 9 months' life expectancy if they had remained in place, and only 6% would have lost more than 3 years of life expectancy. Neither figure is insignificant, but even the latter is comparable with life expectancy differences between different parts of the UK. The J-value shows that far too many people were relocated after both the Chernobyl and the Fukushima Daiichi accidents. Remediation methods can be cost-effective, but relocation of large numbers following a big nuclear release brings its own risks to health and well being and should be used sparingly, a message coming from all three of the quantitative methods used. There is a need to understand and hence demystify the effects of big nuclear accidents so that decision makers are not pressurised into instituting draconian measures after the accident that may do more harm than good. Loss of life expectancy and J-value appear to be good ways of communicating the level of risk to lay people and professionals alike. A formal research programme to test the explanatory power of these parameters to different stakeholders could prove very valuable.

S 3.4. Psychological distress amongst refugees following a nuclear leak: Data from Miyagi, Japan following the Fukushima accident

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Abstract

A number of factors help contribute to responses following a nuclear accident. Alongside the sheer magnitude of the event these include the demographics of those moving away from the most affected areas, uncertainty about their opportunity to return, discrimination towards those most associated with the risk and the broader cultural setting in which the accident occurs. Coping with any disaster is likely to be partly dependent on social networks and the opportunity to return to employment as well as pre-accident levels of physical activity. We report data collected after the 2011 Great Japan earthquake, tsunami and nuclear accident, where the 330 000 who relocated following the event included sizeable populations from the Fukushima prefecture. In this paper we first report a multi-level analysis of factors contributing to psychological distress amongst 22,000 refugees in Miyagi Prefecture, one year after the earthquake (time 1: response rate 73%). Alongside demographic variables, family and building loss, illness history and physical activity following the earthquake we compare psychological distress and dysfunctional behaviours amongst those moving from Fukushima compared to those from Miyagi prefecture, as well as the role of support from household visitors and family members in ameliorating distress. Results indicate a particular mental health burden on refugees from Fukushima, despite relatively low levels of household damage or family loss in this Prefecture. We repeated this analysis with a subsample of 12 600 of the same respondents who completed a similar questionnaire one year later (time 2). Those with a psychological supporter T1 were less willing to report severe mental illness at T2 (OR .58). Support from a friend T1 was particularly significant for less risk of mental illness T2 (OR .66). Our discussion considers the particular challenges following those moving away from a nuclear leak as well as cultural aspects of resilience to disaster in contemporary Japan.

S 4.1. Ethical Perspective on Turkish Environmental Impact Assessment for Nuclear Energy

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Abstract

On December 11, 2013, The Turkish Ministry of Environment and Urban Planning issued a four thousand pages of a cut and paste Environmental Impact Assessment (EIA) report for the Akkuyu nuclear power plant and nuclear fuel fabrication complex project located on Turkey's Mediterranean coastline, in the Mersin providence, which will be built on a build-own-operate (BOO) basis by Russian company Rosatom.

The Akkuyu- EIA is a critical document to the licensee as well as all stakeholders. It is intended to identify and assess all the environmental and socio-economic impacts of a 4800 MW nuclear power plant. The report approved by the Turkish Government failed to provide a comprehensive assessment of establishing and clearly identifying, with scientific integrity, the likely impacts of this project in the region.

To have any legitimacy of an EIA, it must be prepared truthfully, transparently, independently and any issues that arise must be discussed openly and resolved in public meetings and approved by local communities before it is finalized. But local people living in the Akkuyu area and Mersin who are opposed to the Akkuyu project were prevented by police from participating in the public hearings.

So far, numerous complaints have already been filed against the Ministry of Environment and Urban Planning in the Mersin High Court. These complaints seek to challenge the scientific integrity of the EIA report on the following grounds; misrepresentation of or failure to itemize the radioactive inventory and projected releases into the environment; incomplete information about the toxic chemicals which will be injected into the cooling system throughout the nuclear complex; misleading information about the cooling water's temporal and chemical effects on marine life; lack of details on an emergency evacuation plan in case of a sewer accident; lack of a comprehensive waste management plan; unspecified insurance coverage for the nuclear complex as well as noncompliance with third party liability requirements. Coupled with these complaints are allegations that signatures on some sensitive reports contained or referred to in the EIA have been falsified.

The aim of this paper is shed a light on inefficient and irresponsible radiation protection assessments for Akkuyu nuclear energy complex.

S 4.2. 'Framing' the arguments for/against nuclear energy used in public discourse and its influence upon public opinion

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Abstract

Public acceptance/rejection of nuclear activities is relevant and valuable only if it is genuine, i.e. based on adequate information and right reasons, not on misguided data or arguments that can circulate in the media and politics. Reaching informed consent is a major component of promoting nuclear energy, but, due to well-known causes, it is also a very hard to achieve objective. The arguments used both by defenders and by critics of nuclear energy are extremely varied (extending from statistical, engineering or economic to political, cultural and psychological), but in many cases doubtful or unreliable. Using Lennart Sjöberg's distinction between 'promoters and protectors', one can say that promoters of nuclear energy tend to develop the subject-matter in frames that inspire reassuring conclusions, while protectors tend to treat them in frames conducive to alarming ones. My first point is that one major task of social sciences is to assess the extent to which the arguments presented to the general public are sound and reliable, not inadequate and manipulative, according to the right or wrong frames implicitly used in them; text analysis, critical thinking and ethical analysis of implications should be used in this respect. In particular, I propose an agenda of investigation of the 'frames' (in George Lakoff's terms) used in the disputes on nuclear matters, frames that shape the thinking of the public and stimulate its consent or rejection of nuclear energy. In order to illustrate the procedure of frame analysis and assessment, I examine two arguments. One is against nuclear energy: Oreskes's recent argument against a so-called 'new denialism', which, I show, is based on a Manichaeian frame and involves at least one error of interpretation. The other is pro nuclear energy: the 'irrational fear' argument, which is also based on misinterpretations (but on different ones). I end by indicating a series of shortcomings of the discussions embedded in another frequently used frame, the 'compensation' frame (used, for instance, in the argument that 'nuclear risks are compensated by benefits'). This would hopefully show how important and fruitful is for social sciences to examine and evaluate the frames that shape public attitudes towards nuclear activities.

S 4.3. Stakeholder involvement in development of a new nuclear power plant project in Lithuania

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Abstract

The only one nuclear power plant (NPP) with two RBMK-1500 reactors the Ignalina NPP was in operation till 2010. At the end of 2004 the Unit 1 and at the end of 2009 the Unit 2 were shutdown.

At the end of 2006 three energy companies from Lithuania, Latvia and Estonia conducted a feasibility study concerning implementation of a new NPP project in Lithuania. The project comprises construction of a new NPP and the related infrastructure in Lithuania.

The JSC "Visaginas NPP project" (further – VAE) was established in August 2008 and took over the preparatory works. The Lithuanian Government conducted direct negotiations with potential strategic investors early in 2011.

In July of 2011, the Strategic Investor Hitachi Ltd. (Japan) for the development of the project based on the Hitachi-GE ABWR technology was selected. The Government has agreed the Concession Agreement with the Strategic investor and Project company for the VNPP Project in May 2012.

On 16th July 2012, the Parliament decided to conduct an advisory referendum on the construction of a new NPP, which was held in Lithuania on 14th October of 2012, alongside parliamentary elections.

The results of the referendum show that 52.58 % of registered voters (turnout) participated in the referendum. The proposal was rejected by 65% of voters, only 35 % supported construction of the new NPP in Lithuania. According to Article 8 of Referendum Law, the Parliament should make the decision within 1 month after the referendum; therefore, the decision on the referendum results has not yet been made.

VAE was promoting some activities to gain public and business acceptance but the results of the referendum demonstrated that it was not enough dialog and discussions between promoters and sceptics.

After the referendum the negotiation between Lithuania, Latvia, Estonia and the Strategic Investor was started on how to reduce the budget of the new NPP Project. Future negotiations and the Project development are pending.

In the PLATENSO project, the social aspects concerning construction of the new NPP in Lithuania were analysed in the context on the East European Region. This information, the results on the resident survey in 2008, results of the referendum, VAE activities for promotion the project, main stakeholders and their involvement in development of a new NPP project in Lithuania will be highlighted in the presentation.

S 4.4. Perception of Power and Interest in Decisions about Nuclear Energy Usage

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Abstract

In this contribution possible futures of nuclear energy usage in Slovenia is discussed. Especially after recent Fukushima accident/disaster, nuclear policy in some countries is changing, also due to public dislike even for existing NPP, not to mention constructing a new one. In decisions about nuclear issues different interests of various stakeholders are confronted. Those stakeholders have different power in decision making about nuclear issues. In this study we are researching perceived power/interest characteristics of different institutions. The paper is based on the internet survey conducted in autumn 2015/spring 2016 on different groups of stakeholders (e.g. NGOs, former local partnerships, governmental administration, education and research, expert groups) asking people about their attitudes to different scenarios of possible futures of nuclear energy usage in Slovenia (1. Phasing out nuclear power, 2. Continuation of the current situation, 3. Increased usage of nuclear energy based on generation 4 reactors), as studied in PLATENSO project. Besides evaluation of the three scenarios with the help of semantic differential scales, participants had to evaluate power and interest of different institutions/stakeholders regarding decisions about nuclear future of Slovenia. Attitudes toward nuclear energy usage scenarios were confronted with power/interests in decision making about these scenarios. There appeared great differences in perceived power and interest of different institutions/stakeholders, government having the greatest power, and NGO and health sector the lowest. Study represents part of the subjective validation of three scenarios proposed in PLATENSO project.

Keywords: attitudes, interest, power, nuclear energy,

S 4.5. The decision to extend the operational life of two nuclear power plants in Belgium: the opt-out on the phase-out?

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Abstract

Nuclear energy policy in Belgium gradually became a more salient issue, as different events over the past years fueled the debate on nuclear energy production (e.g. Fukushima nuclear accident, cracks in nuclear reactors, threat of nuclear terrorism, etc.). On 30th of November 2015 a law was adopted in Belgium that allows the nuclear power plants Doel 1 and Doel 2 to remain open for another 10 years. These were supposed to be closed in 2015; however after a short operational break they will continue to produce nuclear energy until 2025. This decision -taken by government and industry- could be interpreted as potentially amending the phase-out policy enacted in the law of 2003. In this paper an in-depth study of the decision to extend the lifetime of these two nuclear power plants is conducted. The objectives of this study are twofold: (1) to explain the decision making process by taking into consideration its history; (2) to study the public opinion and the debate of political elites on this subject. Different types of data and methods are combined. A qualitative analysis of printed media allows us to study political (elite) debate. Furthermore, public opinion surveys collected by the Belgian Nuclear Research Centre (SCK•CEN) make it possible to gauge public opinion on the matter over the last ten years. The normative implications of the findings will be discussed.

S 4.6. Governance issues that challenge research in social sciences and humanities related to nuclear sector in Slovakia – insights gathered within the PLATENSO project national level activities.

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Abstract

Activities carried out within the PLATENSO project at a national level were aimed at preparation of draft National strategies for research of Social, Societal and Governance issues related to nuclear energy sector development. In Slovakia, preparation of this National Strategy followed strict rules and patterns for strategic planning. Slovak PLATENSO team aimed to identify and group all the different strategic issues which currently challenge research in social sciences and humanities (SSH) related to nuclear sector development, resp. nuclear radiation in Slovakia (note: these strategic issues are further referred as 'findings' or 'challenges'). Due to limited capacities in the PLATENSO project, these findings (challenges) could not be sufficiently explained in the project Deliverables, and are therefore also orally disseminated in 2016 at the RICOMET and SENIX conferences.

This presentation explains the context and rationale of those PLATENSO project findings from Slovakia which are relevant for the RICOMET conference topic and audience. Namely, the presentation is focused on i. challenges in involvement of Slovak stakeholders in research or implementation of activities in the recent EURATOM's governance projects, and ii. challenges which recently emerged in Slovakia with regards to availability of funding for research in SSH related to nuclear radiation. This presentation deals with the questions such as:

Do the Slovak stakeholders have capacities and willingness to be involved in SSH research related to nuclear sector development?

To what extent is the future national level SSH research related to nuclear sector development in Slovakia dependent on the Euratom funding?

This presentation will also give a brief overview of the other PLATENSO project findings from Slovakia (note: some of these findings, for example those concerning challenges in accreditation of interdisciplinary research by the Slovak Ministry of Education, will be in more details presented at the SENIX Conference in Sweden on 13-15 June 2016).

S 5.1. Radioactive Waste Management in the Czech Republic – stakeholders' engagement

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Abstract

SURAO's mission as a state organisation is to ensure the safe disposal of radioactive waste in the Czech Republic. There have been 3 repositories of LILW in operation for several decades and ongoing DGR siting process from 1990's.

The candidate sites have been designated for possible geological investigation based on its geological characterisation – granitic rock - and the surrounding villages are therefore obliged to become involved. The beginning of geological works lead to severe opposition of the local people. Petitions against repository were signed, happenings organised, but mainly local referenda were carried out, resulting always in clear rejection of the repository and all activities related with the potential construction of the repository. Geological works at preselected sites were soon interrupted by governmental moratorium. Lack of trust for, and confidence in the Czech state is general societal challenge. Experience here was similar to what has been seen in some other countries: a lack of trust in levels of government; increased public distrust resulting from perceived attempts or from earlier attempts to impose a facility. Such factors counteract efforts to build the mutual trust and cooperation that are so important in a siting process.

A new start for dialogue in the last years - SURAO is aiming for the start of a new fair, transparent and open siting process, in which the role of municipalities and all other stakeholders is meaningful and strengthened and which would bring added value for the communities involved from the beginning of geological works. Thanks to the international projects there was initiated the establishment of the Working Group for Dialogue on Deep Geological Repository - national stakeholders group - which is a kind of advisory group of the Governmental Council for Energy Strategy and Raw Materials. The main aim is to strengthen the role of the local players in the siting process and to increase the transparency of the siting process.

S 5.2. Radiological informed consent form: a view from the patient's corner

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Abstract

Background: In radiological informed consent (RIC) form, the communication of doses and risks is often based on a highly specialized technical language, often difficult to understand even for practitioners and prescribers. As a result, physicians and patients are not aware of radiation doses and risks even in highly specialized centers; prescribers and practitioners do not include radiation dose and cancer risk in the risk-benefit assessment of their indications to testing. Scientific societies have recently developed recommendations on how to prepare a clear and informative RIC form, but we need best practices templates for validation, dissemination and standardization, also listening to the patient (final end-user) expectations and needs.

Aim: To identify the features of a next generation RIC form based upon patients' demands and needs.

Methods: A sample of 20 subjects (11 men, ages 50±18 years) were tested with 2 different RIC forms for chest CT: A- first generation form (with 3 pages detailed description of procedure risks); B- a second generation form with a simplified text with tables and figures developed adopting the Federal Plain Language Guidelines. At the end of each session the subjects was asked to list their major comments and criticisms of the 2 forms.

Results: The patients found the RIC form B (second generation) much more readable and informative, and scored significantly better in a structured mini-questionnaire comprehension test than the original one. They listed the following limitations in their free comments (listed in descending order of frequency): 1- still too much time consuming (on average > 10 minutes); 2- still too difficult; and boring; 3- it should focus only on radiation risk and treat separately other risks. The suggestions were (in descending order of frequency): 1- prepare a video format rather than a written text; 2- put it on smart phone or tablet platform with color 3-D graphics instead of percentages and absolute numbers; 3- to make it short (< 3 minutes); 4- to add an interactive section with frequently asked questions.

Conclusion: RIC should be transparent, clear, easy to understand and not misleading, and these mandatory requirements are best achieved with a simple and fast visual format on mobile platform. The time-consuming, wordy and boring paper-based informed consent forms are more likely to miss the point of transferring vital information for shared decision making and patient empowerment.

S 5.3. Unlocking Societal Constraints in the Implementation of Environmental Remediation Projects

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Abstract

It has been noticed in recent years that uranium mining and milling operations became of great concern to different stakeholders. An attempt was made to get a better understanding on the arguments/perceptions of different stakeholders in relation to these activities. After consultation to over one hundred entries in electronic sites it has been found that the expressed concerns could be grouped in four major categories: i) long term issues environmental consequences (uranium mines remain dangerous after closure); ii) burden to indigenous people; iii) influence of historical legacy sites and iv) use of biased or uncomplete scientific evidence. Two of these arguments particularly focus on aspects that are closely related to the remediation, rehabilitation and restoration of these sites. Therefore, dealing with the legacies from the past and avoiding the transfer of undue burdens to future generations is something that is not only an ethical/moral obligation of the present generation but also something that impacts the future of the industry. In the context of sustainability principles; environmental remediation aligns with the United Nations Sustainable Development Goals (SGD's). Of particular relevance it correlates with SDG 15 that involves, among other points, the protection, restoration and promotion of sustainable use of terrestrial ecosystems. However, remediation projects can be halted by different public attitudes that include but is not restricted to: i) limited technical knowledge and understanding of the problem and process; ii) concern related to the waste disposal on-site; iii) differing demands and concerns of stakeholder groups; iv) negative experience with D&ER programmes and v) lack of support from governmental authorities to implement remediation programmes. These constraints have been captured during the implementation of the CIDER (Constraints to Decommissioning and Environmental Remediation) Phase I Project and are discussed in a recent International Atomic Energy Agency (IAEA) publication entitled "Advancing Implementation of Decommissioning and Environmental Remediation Programmes - CIDER Project: Baseline Report". In order to overcome these constraints different approaches can be offered. These include: i) identification of the existing level of knowledge and understanding in a specific community related to remediation programmes and jointly (implementers, regulators and representatives of local communities) framing the problem by sharing information about the problem and presenting an overall perspective before embarking on possible solutions; ii) agreement on the ground rules to establish a dialogue; iii) use of independent facilitator(s); iv) explaining and discussing alternative approaches including not doing anything; v) conducting dialogue with specific stakeholders in small groups, vi) considering the provision of independent experts or financial resources to local communities to hire their own independent experts, etc. The presentation will discuss all these issues and provide a perspective on future steps CIDER Project Phase II.

P 4.1. RP Science, Values and Societal Response: Where social sciences and humanities could help

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Abstract

The NEA's Committee on Radiological Protection and Public Health has, since the early 1990s, worked to understand the aspects of stakeholder involvement in radiological protection decision making that frame the role of the radiological protection expert. Views of the radiological protection community have evolved significantly over time, to the point where it is increasingly clear that most radiological protection decisions are: not taken by radiological protection experts; informed by science but driven by social values; strictly framed by the prevailing circumstances. This paper will describe the historical learning of the CRPPH, and the Committee's view of the current state of radiological protection decision making.

P 4.2. Integrating Social Sciences and Humanities (SSH) in radiation protection research: Developing a Strategic Research Agenda for SSH in the EU H2020 CONCERT project

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Abstract

This presentation illustrates the different rationales for integrating Social Sciences and Humanities (SSH) in radiation protection research. It summarises the results achieved so far in the H2020 project CONCERT concerning the creation of a Strategic Research Agenda for SSH in the radiation protection field. As the process of defining research priorities for SSH aims at transdisciplinarity and inclusiveness, it engages directly and indirectly implicated researcher and practitioners.

A number of research topics typically pertaining to Social Sciences and Humanities have been synthesized based on ideas collected through activities carried out in the CONCERT, OPERRA, EAGLE and PREPARE projects, as well as in dialogues with members of the radiation protection platforms. SSH include several disciplines (e.g. sociology, communication sciences, science and technology studies, psychology, economics, philosophy) that may contribute in various ways to integrating social and ethical considerations in radiation protection research. This enables researchers and decision-makers to anticipate and meet social needs and concerns. Examples will be given to illustrate inter- and transdisciplinary research opportunities in radiation protection.

Finally, the presentation outlines the next steps in building the SRA for Social Sciences and Humanities, most importantly: i) the round table discussion with members of the radiation protection platforms; ii) the Open Workshop at RICOMET 2016 with participation from a wide spectrum of stakeholders and iii) the subsequent discussion on the SRA for SSH at the Radiation Protection Week (Oxford, UK, 19-23 September) in order to consolidate a SRA that establishes socially responsible research and innovation in radiation protection.

Keywords: Social Sciences and Humanities; Strategic Research Agenda; Radiation Protection

P 6.1. The potential and the challenge to expanding technical democracy

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Abstract

Many of the current policy and research challenges that we face in the 21st century call for new arrangements in scientific work. Two examples would be the moves towards more interdisciplinary projects and the calls for increased levels of interaction between policy makers, researchers and everyday publics. Some authors have suggested that in order to make sense of our uncertain world and to generate ways to proceed, we need to engage more fully with the notion of a “technical democracy” (Callon et al, 2011).

With this in mind, my talk will survey some of the key themes that have emerged from social analysis of scientific work, particularly in the domains of nuclear research and radioactive waste management. I will present evidence from a range of empirical and collaborative projects that have explored a) the everyday practices of research projects and b) experiments in open policy making. I will discuss what insight we may take from this sociological view on technical work and use this to explore potential implications for future action.

P 6. 2. Culture, Practice and Justification: Issues for the Humanities/Social Sciences in Medical Radiation Protection

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Abstract

While medical radiation protection has suffered a deficit of well integrated input from the humanities over the decades, there is evidence of some improvement in the situation. In particular the work of ICRP TG94 on ethics and the more general recognition of the importance of stakeholder involvement are encouraging, but far from the end of the story.

ICRP TG94 provides a background ethical commentary to all fields of radiation protection, but is not primarily focused on the medical area. Further work is needed to identify and rectify the ethical deficits in the medical radiation protection system. It will require more precise articulation of the ways in which values such as, for example, the dignity and autonomy of the individual, justice, prudence and honesty find application, recognition and become part of the culture of radiation protection in medicine. Initially review of scenarios based on case types that actually occur will be helpful. This will be essential to get real engagement from medical stakeholders, presently a challenging objective.

At a more fundamental level, the ethical framework for all disciplines based wholly or partially in the sciences must re-examine and recommit to an approach consistent with these activities. This is particularly so in the context of the collapsing confidence in reproducibility of results in the biomedical sciences, a phenomenon now also encroaching on disciplines on the science humanities boundary. While this issue applies to all science related disciplines, it is vitally important in those which are expected to engage directly with the public and/or inform public policy. While the humanities have their own problems in these areas, they can bring additional perspectives and important additional dimensions to addressing the issues involved.

In medical radiation protection, an area of long-term failure of both regulation and its application is justification (as it is framed by ICRP and in the legal systems deriving from its recommendations). The failures relates to both underlying assumptions, and the social/cultural systems that support practices (legal systems, over professionalization, over medicalisation, failures of prudence, excessive reassurance, professional boundaries, lack of expertise and confidence among regulators, etc). This paper will examine some of these areas and offer perspectives that may assist the humanities/social sciences to position themselves to help move forward.

P 9.1. Nuclear Transparency Watch; Citizen control over nuclear safety and policy

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Abstract

Access to information, public participation and access to justice – the three pillars of the Aarhus Convention – are increasingly securing transparency in the nuclear sector. Members of the European Parliament, NGOs, academia and local information committees three years ago founded Nuclear Transparency Watch – an organisation that seeks to implement those three pillars of the Aarhus Convention in the nuclear sector. In that way, it already ensured more openness in areas like emergency preparedness and response and radioactive waste management. It supports citizens to implement their rights in access to information and public participation around nuclear decisions. This is still an ongoing process, but the contours of what the nuclear industry really stands for are slowly becoming clearer.

P 9.2. A model for civil society engagement in governance of ionizing radiation risks: ANCCLI changes the game in French nuclear accident preparedness

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Abstract

In France, a civil society organization has emerged as a strong voice in the actual governance of nuclear safety.

ANCCLI, founded in 2000, is the national federation of the 36 local information committees (CLI's) associated with nuclear installations across France. ANCCLI represents in total 3000 members of civil society, including 1500 local elected officials. The stated mission of ANCCLI is to "share the technical aspects of nuclear issues with the local information committees, inspire reflection, and support the development of citizen expertise". ANCCLI is successfully carrying out this mission through permanent working groups, partnerships with France's public nuclear regulatory expert institutions, participation in international research and networking initiatives, organization of national and local seminars, and active input to and follow-up of national policy making.

In 2015, in connection with its ongoing actions on nuclear accident preparedness, ANCCLI launched an expert examination of France's "PPI", emergency preparedness and response plans. The 15 renowned volunteers of ANCCLI's Scientific Board, and a local citizen laboratory researched and presented two reports. The summary conclusion of this examination: "On paper, everything seems to be in place. In reality, much is missing." ANCCLI published its constructive criticism and concrete recommendations in 2016. On April 5 the federation held a press conference presenting these results. Throughout the month of April, there were plenty of print articles, and constant invitations to appear on television and provide radio interviews. Finally, at the occasion of the 30th anniversary of Chernobyl, Environment Minister Ségolène Royal decreed a change to the emergency plans reflecting ANCCLI's recommendation.

This presentation examines the impact of the civil society voice in the governance of nuclear risk and highlights the most effective moves that changed the game in France this year.

P 9.3. Ionizing radiation risks policies: A perspective of a policy actor

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Abstract

The presentation draws on personal experiences with nuclear energy issues obtained by the author in his academic and political career. As a spatial and environmental sociologist he was involved in the expert group to select the location for (low and medium) radioactive waste disposal in Slovenia. Later after entering into the politics as a Minister of Environment and Physical Planning he was responsible for nuclear safety issues. Nuclear energy issues are regarded as highly volatile and conflict ridden issues with strong tendency to divide public attitudes to two opposing poles with a very little space to find a common ground for argumentative debate and for viable solutions to the problems. Therefore nuclear energy issues present constant threat to the politics and political actors to erode their legitimacy. In response to the legitimacy threat political actors have developed "double strategy" – either to embark on popular public opinion, as for example supporting the local civil society and political actors against proposed nuclear waste disposal facility in their community, or trying to avoid the issues and trying to postpone the decisions to more suitable time. The political rationale of many political actors is as simple as it is dangerous in the long run: don't get involved into the issues that divide the people and cannot bring any political benefits.

The author will try to argue, that the real adversaries to formulate a responsible ionizing radiation risk policy are not the civil society associations but opposing political actors themselves when the nuclear energy issues become tool for political struggle. This also partly explains the answer to the question why, despite the powerful arguments for transparency and public participation, the decision makers still try to avoid formulation of the sensible ionizing risk policy as the basis for their political legitimisation.

P 9.4. HoNESt: A new History of Nuclear Energy in its interaction with civil society

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Abstract

The aim of this communication is to present the research project History of Nuclear Energy and Society (HoNESt) (www.honest2020.eu) (Horizon 2020). HoNESt takes as starting point the need for a practically useful analytical framework that allows for the identification of key factors influencing the interaction of nuclear technology with civil society, notably in the energy sector.

HoNESt presents a pioneering integrated interdisciplinary framework of analysis that will enable researchers, as well as policy makers and other stakeholders, to analyze specific large technological systems – such as nuclear technology – in their relations with civil society, in order to identify key policy issues and set policy goals accordingly.

Debates on and engagement with nuclear energy are highly emotional and are characterized by entrenched lines of conflict. For instance, in many countries, utilities have realized with dismay, that even though they have invested millions of Euros in improving the safety of nuclear power plants, public opinion and civil society groups still question the safety of nuclear installations and continue to demand their closure. At the same time, there is a wide variance between European countries concerning the perception - and societal acceptance – of nuclear energy.

The central objective of HoNESt is to identify and analyze the core explanatory factors of societal interaction with nuclear applications, based on the historical experience. This interaction – described in what follows as 'nuclear-societal relations' – includes three closely interrelated components:

- Perception: It is crucial to identify and assess the importance of the factors underlying the societal perception of nuclear developments.
- Civil society's engagement with nuclear energy: Such perceptions crucially motivated civil society's varying engagement with this technology (from tacit support to active opposition). It is important to consider that citizens and civil society groups also played an active role in engaging with the technology.
- Policy-makers' and industry's engagement with civil society: This is the main focus of the study: The goal here is to examine the effectiveness of the different mechanisms and instruments used to engage with society, in order to arrive at recommendations for an affordable, secure, and clean energy production.

Perceptions and engagement cannot be understood in isolation. Nuclear-societal relations are embedded – and this is the core assumption underlying this research project - in complex historical, political, economic, societal and cultural contexts. Only by taking seriously the varying importance of these contexts throughout time and space, will it be possible to understand why nuclear energy is so controversial, why this differs across countries, and what can be done to adequately engage society.

P 12.1. Public Information Responses after Terrorist Events (PIRATE)

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Abstract

The threat western societies face through terrorist attacks became much more apparent than ever before through the attacks of 9/11 (New York and Washington 2001), 11-M (Madrid, March 11, 2004) and 7/7 (London, July 7, 2005). The new quality of those attacks comprised the deliberate attempt to cause as many fatalities as possible and to disrupt economic and social life. Not least the ruthlessness and sophistication of the attacks carried out made the use of radiological or biological substances for attacks conceivable, if not likely. How the public reacts to biological or radiological terrorism will help to determine how extensive the attack's medical, economic and social impacts are. Yet our understanding of what the public is likely to do in case of a radiological and/or biological attack is limited. Will they spontaneously evacuate affected areas? Are they willing to attend mass treatment centers? Will unaffected people demand treatment and monitoring? Will people avoid affected areas even after clean-up operations have been completed? As yet, we do not know. While emergency plans and simulations dealing with these scenarios assume a relatively compliant public with easily understood behaviors, evidence from previous incidents suggests that the reality may be different. As such, a first step to preparing better plans to protect the public is to identify actions they intend to take in the event of one of these scenarios occurring, and to assess how prevalent such intentions are in society.

In this presentation results from a two-year research project will be presented, addressing the questions outlined above and comparing them between Germany and the United Kingdom. The presentation will emphasize the question of whether behavioral intentions of the public can be influenced by tailored emergency communication and the satisfaction of public's information needs and what possible differences in the response to terrorist attacks exist between Germany and the United Kingdom

P 12.2 We share the goal of minimizing harm to the public: journalists' recommendation to the authorities

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Abstract

Ongoing fragmentation of the media landscape - particularly the ascendance of social media - in the event of a radiological emergency requires rapid engagement by authorities with working journalists (beyond current norms) to blunt unwitting circulation of rumours.

The recommendation was made by international journalists in a workshop on nuclear security initiated by Atomic Reporters in Rotterdam in February 2016.

Atomic Reporters was incorporated in Canada as a non-profit in December 2012 and has international NGO status in Austria where it operates. Its goal is to build knowledge among journalists about nuclear related issues to be better able to inform the public. It encourages specialists from a diversity of fields, including radiation safety, security, and non-proliferation, to share their knowledge with journalists in workshops. Atomic Reporters acts as an independent broker of information.

It has successfully organized workshops for journalists in India, from across the Middle East, provided briefings for journalists and panel discussions. Currently it is developing safety guidelines for journalists in the event of a radiological emergency. Language versions will be circulated internationally.

Traditionally, a maxim of journalism is that it must be seen to be non-partisan in serving the public interest. This leaves journalists reluctant to be perceived to be allied to causes. Most of the journalists who endorsed the Rotterdam recommendations (about 20 mainly from media in Europe and the USA) were reluctant to have their names appended to it, for example. But measures to protect journalists are not regarded as a conflict of interest and in that context the voices and experience of journalists are being contributed to the debate about radiation protection.

The presentation will draw attention to the benefits of investing in journalists by providing information enabling them to contribute to the debate about radiation protection and risk, thereby indirectly encouraging more public participation.

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