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FORMING NATIONAL RESEARCH STRATEGIES FOR COORDINATION OF SOCIAL, SOCIETAL AND GOVERNANCE ISSUES IN NUCLEAR ENERGY

## INTRODUCTION

- 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.
- Research strategies regarding Social, Societal and Governance (SSG) aspects of nuclear energy are very rarely addressed, also in more advanced programmes.
- But they assure coordinated approach with optimisation of related expenses and resources, improve national decisionmaking processes concerning the future of nuclear energy and therefore increases the acceptability of associated projects.

# PLATENSO SSH STRATEGIES FOR NUCLEAR ENERGY IN CEE COUNTRIES

- All the CEE countries are currently facing challenges to take certain decisions in the nuclear matters:
  - it might be continuation of the existing nuclear energy sector and building new units,
  - shutting down operating nuclear power plants or
  - even taking a leading role in the development of new reactor generations.
- Within PLATENSO project research strategies SSG research related to nuclear energy in eight CEE countries (Bu, Cz, H, Lt, Po, Si, Sk, Ro) 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.

## METHODOLOGY FOR FORMING THE STRATEGIES

## • Inputs:

- Lessons learned from already performed similar research,
- Research on available infrastructures and institutions,
- The science, politics and ethics of nuclear technology assessments.
- Forming of SSG research strategies for nuclear energy development included:
  - Exploration of possible nuclear energy scenarios
  - SSG Strategies of individual countries on nuclear energy
  - Reformulation of the strategies with the inputs from testing and stakeholder involvement,
  - Recommendations on research strategies for SSG issues in CEE countries related to nuclear energy.

# EXPLORATION OF POSSIBLE NUCLEAR ENERGY SCENARIOS

#### Continuation of the current situation with reactors in operation and future builts:

- Development of energy policy and approaches to decisions
- Institutional practices and their sustainability under changing SSG frameworks
- Investigation of implementations of communication and public participations related to nuclear energy, mainly during the decision making process
- Nuclear in EU energy policy and attitudes of members states
- Economics and financial models for investments
- Geopolitical relations between EU and Russia in energy field

#### Phasing out nuclear power:

- Safety issues of decommissioning itself and radioactive waste management
- Wider socio-economic consequences on regional development
- Adequate supply of electricity from other sources and SSG challenges
- Economic consequences of phasing out nuclear power
- Preparation of complex policies and measures in long term duration of process
- Public engagement and communication aspects

#### A nuclear energy policy scenario based on Generation 4 reactors:

a combination of both

## STRATEGIES OF INDIVIDUAL COUNTRIES

- Social, societal and governance challenges for 3 investigated scenarios and the corresponding research needs are developed as **strategy in 8 CEE countries**:
  - analysis of the national situation in nuclear energy from a societal point of view (adequacy of institutional set up/design, which type of institutions are involved in the nuclear field, what is the dominant scope and scale of research, where does the funding come from, what are the capacities of research community to influence the agenda-setting of the nuclear research community, the different roles various stakeholders play in the development of research agendas, ...)
  - research gaps and inadequacies for comprehensively addressing the three main scenarios will be identified and strategies to overcome them will be proposed, taking into account the potential of strengthened cooperation at the EU level,
  - the main objectives and goals for governance, social and societal issues from the national context,
  - measures for fulfilment of objectives and goals and
  - funds (financing of research), human resources, time dependencies and necessary support.

# MAIN THEMES FOR SSG RESEARCH -1

#### Aspects of the intergenerational ethics

- use of natural resources
- radioactive waste management
- Ethical and psychological aspects of nuclear energy
- knowledge transfer for complex technologies
- sustainable development of nuclear sector
- aspects of retrievable/non-retrievable spent fuel options
- geological disposal approaches: early disposal or delayed disposal
- <u>Construction of a continuous dialogue</u>
- dialogue building in post-communist society
- risk communication and risk acceptability for nuclear
- communication during normal periods about IR (including medical applications)
- communication during crisis
- Investigation of institutional obstacles to stimulate and support participation
- barriers and difficulties perceived by public in nuclear debate
- Sources of information related to energy production/utilisation, their spread in the media, and their reflection in public opinion

# MAIN THEMES FOR SSG RESEARCH - 2

- <u>Risks analysis, communication, and perception</u>
- development of new technologies (new reactors such Gen IV), benefits and responsibilities of the society
- extension of plant life for old reactors
- role of nuclear in security of electricity supply, geopolitical risks due to oil and natural gas crisis
- nuclear technology and seismic risks in
- terrorist risks and security of nuclear installations
- Risks derived from the institutional malfunctions
- Trust and control
- Legal aspects related to operation, monitoring and surveillance of nuclear installations
- Study of decision-making mechanisms, interests and power relations concerning nuclear energy (formal and informal)
- Health surveillance for communities living near nuclear installations
- Communication with national and local authorities on nuclear issues
- Public involvement in decision making (beyond SEA and EIA procedures)
- Issues of confidentiality what really is confidential/classified by law, and what is just "hiding" nuclear agenda because of political reasons?

# MAIN THEMES FOR SSG RESEARCH - 3

### Geo-politics:

- Investigation of the possibilities of international cooperation in energy production and transport
- Complex comparative study of nuclear energy and renewable energies
  and geo politics
- A need to study the development of various social and political institutions which accompany the development of nuclear energy production.

### Economics and sustainability:

- Macro- and micro-economic study of the NPP construction and operation,
- Clarification of discrepancy between expected and real costs for back-endprocess
- Establishing a monitoring system independent of the government for the purpose of tracing the new NPP investment
- Development plans for phase out of nuclear

### EP&R:

- Inclusion of citizens in planning for emergency including dissemination of information, testing and improving
- Recovery strategies development and interaction with stakeholders
- Citizen science as a function of remediation and rehabilitation

# TESTING THE RESEARCH STRATEGIES

## Goal and activities:

- To check how the strategies fit to the existing conditions (legal, organizational, administrative, social).
- Analysis of the compatibility of the prepared research strategies – by desk investigation with relevant legal framework, policies, self assessment
- Consultations with individuals: with representatives of public institutions, industry, social and technical sciences and NGOs
- Workshops with national stakeholders: to have wider discussion, exchange of opinions and agreement

## Countries involved:

Czech Republic, Poland, Slovakia

# MAIN CONCLUSIONS FROM TESTING

- Who is the target reader of the strategies? Question about institutions willing/capable of implementing the strategies into practice.
- Limiting the scope of strategies to nuclear energy was perceived (mostly by the opponents of nuclear) as not adequate: such strategy should be prepared in relation to energy development as a whole.
- Need to stress more the whole life cycle of an NPP and see it in a broad perspective (inclusion of radioactive waste management, emergency preparedness).
- Next steps: analysis of potential professional paths for interdisciplinary research, research potential at universities and social research institutions → identification of barriers, threats, obstacles and chances for implementing the strategies on national levels.

## THE 'BIG QUESTIONS'

- How to push national strategies to the agenda and adoption? Who are the allies, beneficiaries, proponents of the strategy? Institutional background for the application of the strategy who is the "owner" and where it should belong?
- Is a neutral position towards nuclear possible in case of SSH research?
- What is the place and role for societal research?
- How should the **relations to nuclear industry** be structured?

## RECOMMENDATION FOR RESEARCH STRATEGIES

- Report with recommendations is under developed for research strategies for social, societal and governance issues in PLATENSO CEE countries:
  - Main finding from SSG national strategies by inclusion of current national policies related to nuclear energy – in fact not very clear issue while sometimes no adopted policy,
  - Comparison with similarities and differences, most important trends and orientations – again not very clear with possibility to change,
  - Generation of most important SSG topics and issues of common interest to be addressed in the future EU research activities.

# CONCLUSIONS

- There is a strong need to develop and implement a strategy for SSG research in all CEE countries.
- Strategy for SSG research in nuclear field is aimed to reduce fragmentation of the research and resources and to build a national networks.
- Integrating various disciplines from the social sciences into the assessment of the nuclear sector can contribute to the achievement of a more accurate and balanced view related to the sustainability of nuclear power, social benefits and risks of nuclear, and particular challenges in the existing context of the energy market and society's needs.
- The key factors for a successful implementation of the SSG strategy are: awareness of the policy-makers of the importance of SSG issues in nuclear, financial support, functionality of the network, increase cooperation.

### **Project partners**

The project consortium consists of nineteen organisations from twelve different countries, see them listed below:

Karita Research AB (KARITA), Sweden

The Belgian Nuclear Research Centre (SCK • CEN), Belgium

The Center for the Study of Democracy (CSD), Bulgaria

Galson Sciences Limited (GSL), United Kingdom

Institute of Sociology Academy of Sciences of the Czech Republic (ISAS CR), Czech Republic

ÚJV Řež, a.s. Nuclear Research Institute (NRI), Czech Republic

Energiaklub Climate Policy Institute Applied Communication (EKL), Hungary

Regional Environmental Center for Central and Eastern Europe (REC), Hungary/Slovenia

Lithuanian Energy Institute (LEI), Lithuania

Collegium Civitas (CV), Poland

Nicolaus Copernicus University (NCU), Poland

Institute of Nuclear Chemistry and Technology (INCT), Poland

University of Ljubljana (UL), Slovenia

Matej Bel University (MBU), Slovakia

Slovak Academy of Sciences - Institute for Research in Social Communication (UVSK SAV), Slovakia

Environmental Social Science Research Group (ESSRG), Hungary

Merience Strategic Thinking (MERIENCE), Spain

University of Bucharest (UB), Romania

Institute for Nuclear Research Romania (INR), Romania



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