



# Experiences of Nuclear Emergency Preparedness in Slovakia with Stakeholder Involvement

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**“Preparing against nuclear emergencies; lesson learnt from  
Fukushima and Europe”**

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## Content

- Stakeholders engagement
- EVATECH project – complex start of the process
- Training – further experience
- EURANOS and NERIS-TP – further step forward



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- Slovakia **has been impacted by Chernobyl accident**
- Slovakia is hosting nuclear activities – has **four nuclear reactors generating half of its electricity and two more under construction**. Bohunice V2 and Mochovce are owned and operated by SE. In 2006, Italian utility Enel acquired a 66% stake in SE. The remaining 34% is held by the state through the National Property Fund. The Nuclear Decommissioning Company, JAVYS, owns Bohunice A1 and V1 which are under the decommissioning. There is national RAW surface repository under operation in the Slovak Republic in Mochovce, which obtained authorization for permanent operation in 2001
- Both **management and preparedness processes are the origin of the activities related to the stakeholder involvement in the area of nuclear or radiological emergency and post-accident recovery**



## Slovak Power Plants



Mochovce NPP – 20 km EPZ





**Since the beginning of 2000s, different experiences on emergency and rehabilitation preparedness and management** have been developed in Europe, either in the context of the EVATECH, TC-OSEM, DSSNET, RODOS Migration, STRATEGY, FARMING, EURANOS, NERIS-TP project and NERIS Platform, or independently.

**To share experience about different initiatives on emergency and rehabilitation preparedness and management throughout Europe** – the main Slovak interest and motivation to be involved in different projects.



An evolving **decision-framing process** within and between stakeholders that is **inclusive and participatory**, with **open and two-way discussions**, leading to relationships **where issues can be identified, discussed and resolved**, resulting in sustainable decisions.

(OECD, 2006)



### **EVATECH (STUK) - Information Requirements and Countermeasure Evaluation Techniques in Nuclear Emergency Management (2001 – 2005)**

- the thorough study, survey and documentation of the **emergency management process and duties of the parties involved in Slovakia** were performed
- the process modeling made the **identification of the target group of stakeholders** easier; as a result the core of target group of stakeholders was identified
- the **method for stakeholder involvement in exercises and emergency planning was developed** under the same project and successfully applied in the Slovak Republic
- the essential for that work was **development of methodologies to conduct scenario-focused decision making workshops** with participation of relevant stakeholders and **training on using available computer-aided techniques** (RODOS, Web-HIPRE) in decision analysis and **conducting facilitated decision-making panels or workshops** (2003)



**First facilitated workshop:** “Decision analysis of clean-up actions in inhabited areas in the Slovak Republic after an accidental release of radionuclides”, November 19-20, 2003; 25 participants

**Participants:** – **members of the Central Crisis Staff of the Slovak Republic and representatives of the National Emergency Commission for Radiation Accidents (NECRA), members of the regional and local Civil Protection Crisis Staff** (county, district and municipality)

- Ministry of Interior, Head of Crisis Management Department,
- Ministry of Interior, Office of Civil Protection, District Levice (Mochovce NPP),
- Ministry of Interior, Office of Civil Protection, District Trnava (Bohunice NPP),
- Ministry of Interior, Office of Civil Protection, District Nitra (Mochovce NPP),
- Ministry of Environment, Crisis Management Department,
- Ministry of Economy, Crisis Management Department,
- Ministry of Health, State Health Institute,
- Ministry of Soil Management, Crisis Management Department,
- Slovak Army, Radiological Division,
- Slovak Hydrometeorological Institute,
- Utility “Slovak Electrical Plants, Inc.”,
- NPP Bohunice, Safety Supervision Department,
- NPP Mochovce, Safety Supervision Department,
- NPP Mochovce, Laboratory for Radiation Control of Environment,
- Nuclear regulatory Authority, Emergency Response Centre.



## Workshop processes:

- Scenario
- First thoughts, issues
- Discussion - criteria and values that drive decisions - 'attribute tree'
- Identification of possible recovery strategies + what to explore further
- Score strategies for each attribute + weight attributes
- Analysis of results
- First impression of process and feedback

**Introductory meeting** – one month before the workshop (**group dynamics and facilitated workshop, decision analysis, introduction to value tree analysis, clean-up actions in urban environments**)

## Experiences and Conclusion

- Lot of work to prepare and organise
- Need trained people to run workshops with experience in decision-making tools
- Small groups needed for process to be effective
- Need to work in common language
- Workshops found to be very useful
- Decision making tool generally well accepted
- Very beneficial to decision-making in emergency management
- Key role in planning and training
- Assists process of developing countermeasure strategy
- Provides transparency and facilitates consensus



**Training Course on Decision Making in Emergency Management** within the Project *Strengthening of the Nuclear Emergency Preparedness – Sharing of New International Experience* (NSP/03-S2), February 14-16, 2005, 21 participants, 8 lecturers

The training course included: lectures, workshop sessions and moderated discussions **to demonstrate, use and establish strategies for the intervention of decision support tools (mainly the RODOS) in the decision making process.**

Experiences and processes from the EVATECH facilitated workshop used and improved.

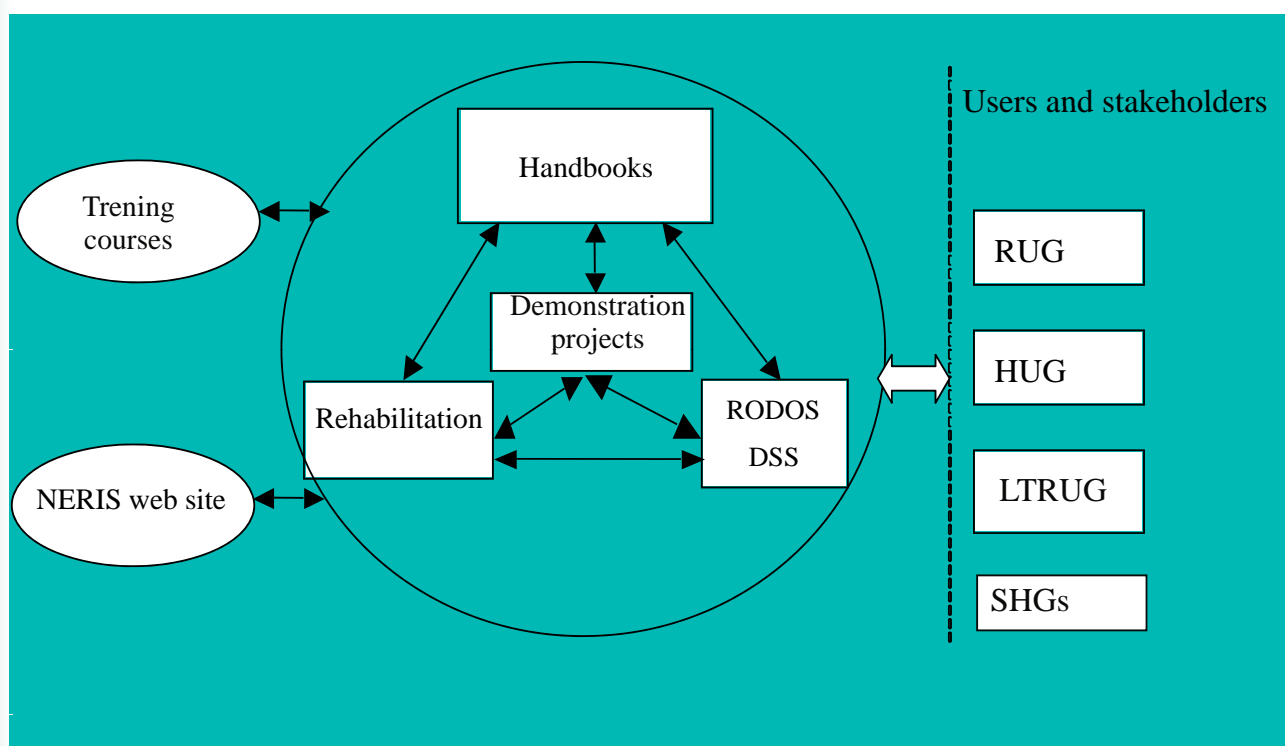
**The course prepared wider community of stakeholders in Slovakia for work in stakeholder panels in the field of emergency and rehabilitation preparedness.**

Other trainings within the international and national projects, e.g -

TC-OSEM: RODOS based decision support for off-site emergency management in the early and later phases of a nuclear accident



- “to increase the coherence and effectiveness of nuclear and radiological emergency management in Europe including the rehabilitation of contaminated areas through the establishment of an effective working platform of emergency management institutions, research institutes, end-users and other stakeholders for initiating application oriented improvements of methods, procedures, guidelines and information tools”







- Seminar and Facilitated workshop on **Generic Handbook for Assisting in the Management of Contaminated Inhabited Areas in Europe Following a Radiological Emergency**, June – September 2005, 13-16 participants
- Seminar and Facilitated workshop on revised version of Generic Inhabited Area Handbook, May – June 2006, 16 participants
- Facilitated Workshop on revised version of Generic Inhabited Area Handbook, Part VI „Management on Drinking water“, November 2007, 10 participants
- Seminar „**Recovery Management following a Radiological Incident**“, September 29 – October 1, 2008, 18 participants
- Local stakeholders involvement



- General goal: **Handbooks development, customisation, future plans and HUG activities**
- Focusing on sharing the experiences with development, customisation and implementation of **Generic Handbook for Assisting in the Management of Contaminated Inhabited Areas in Europe Following a Radiological Emergency**
- Presentation of **Generic Handbook for Assisting in the Management of Food Productions systems in Europe Following a Radiological Emergency** – starting of the process of handbook customisation and implementation in Slovakia
- Discussion of issues of rehabilitation after the nuclear accident in general, and in particular - **presentation of rehabilitation project results in Belarus after Chernobyl accident (ETOS)**.



The **Slovak HUG was established** including following representatives:

- Regional Civil Protection and Crisis Management Office in Trnava
- Regional Civil Protection and Crisis Management Office in Nitra
- Regional Civil Protection and Crisis Management Office in Banska Bystrica
- Mayors of villages (Dolny Lopašov and other)
- Section of Crisis Management and Civil Protection of Ministry of Interior of SR, Bratislava
- Crisis Management and State Safety Office, SR Government Office, Bratislava
- Regional Health Protection Agency, Trnava
- Regional Veterinary and Food Administration, Trnava
- Slovak Head Office of Radiation Monitoring Network (SURMS), Bratislava
- Slovak Hydrometeorological Institute (SHMU), Bratislava
- Nuclear Regulatory Authority (ÚJD SR), Bratislava
- Slovak Army, RCHBO
- Slovak NPPs, Emergency planning and preparedness units and Headquarters
- VUJE, Inc.



In the follow-up activities following representatives expressed an willingness and actively participated in workshops:

- State Veterinary and Food Administration of SR, Bratislava
- Crisis management office of Ministry of Soil of SR, Bratislava
- Health Protection Agency of SR, Bratislava
- Regional Health Protection Agency, Banská Bystrica
- Regional Veterinary and Food Administration, Banská Bystrica
- Regional Veterinary and Food Administration, Bratislava
- Fire and Rescue brigade

General goal: Handbooks development, customisation and implementation in Slovakia; discussion of issues of rehabilitation after the nuclear accident in general, and in particular - presentation of rehabilitation project results in Belarus after Chernobyl accident (ETOS).





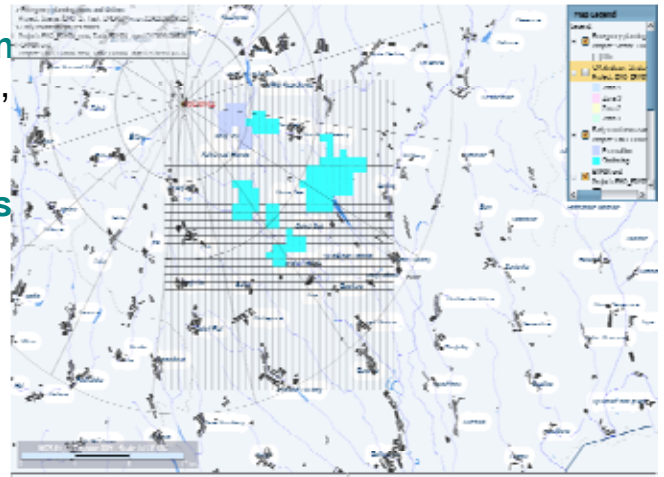
- accepted form, scope and content of Handbook,
- need of unification and harmonisation of emergency management terminology in Slovakia
- customisation of datasheets in terms of their completeness regarding the Slovak specifics and development of new datasheets for countermeasures, as for example Exchange of sand in kindergarten places,
- recommendation of use of decision trees as working lists,
- need to take into account Slovak specifics: legislation and economical conditions,
- to use the database tool CIPREGIS of Ministry of Interior, which contain complex information used at local level and which is used by Civil Protection Offices at all levels.



- The handbooks **should be given the status of an official national documents as a basis for their use by wider community of specialists and organizations related to emergency preparedness. The relation should be established so, that the use of handbooks will go up to the local authorities and self-government in suitable and appropriate form.**
- The guidance on the recovery actions development including the decision-aiding and decision-making process should include cross-references to the handbooks use. Including of handbooks as a whole documents or their related parts in off-site emergency plans for the radiation protection of population and environment is possible even now and is partly done at present.
- There was an information given to the media about the Seminar (2008), also with more details it was published for wider community of specialists on the web page of the Nuclear Regulatory Authority of SR.
- To support development of high level initiative on emergency preparedness and rehabilitation it was agreed to inform about results of stakeholders panels more intensively also at the governmental level, what should have an effect on future development and effectiveness of the process. The information should be not only published via media and publications in journals and conferences, but should be prepared as an information for the government council and referred by the Nuclear Regulatory Authority Chairman.



- The **need in training and exercising the recovery and rehabilitation issues at national, regional and local level** was expressed within the stakeholder panel
- **Nuclear Regulatory Authority of the Slovak Republic – coordinator** of the activities under **national research and development projects**
- **Training course: „Evaluation tools and methods for supporting the emergency management team“** developed and conducted by VUJE under the EURANOS Preoject (7FP) and national R&D project in VUJE facility Modra-Harmonia, 25.-27.5.2009, 19 participants
- **JRODOS used for scenario preparation** including the results of LSMC, EMERSIM, ERMIN
- **Web-HIPRE used for decision analyses and thorough discussion of strategies** developed using the Generic Handbook for assisting in the management of contaminated inhabited areas



## EURANOS related activities – WebHIPRE demonstration and use - conclusions

- to use Web-HIPRE tool for decision support in countermeasure implementation also in the emergency phase of an accident,
- to implement Web-HIPRE at ERC of NRA (ÚJD SR), Central Crisis Staff (ÚKŠ), Ministry of Interior SR (Section of Crisis Management and Civil Protection and Regional Civil Protection and Crisis Management Offices in Nitra, Trnava and Banska Bystrica) and at the Headquarters of SE, Inc.,
- the results and experiences of all previous workshops use for preparation of Crisis Staffs and mayors and perform as minimum once a year exercises with similar program and structure as Web-HIPRE workshop already including interconnection and participation of particular levels of management,
- to form more working groups during trainings and exercises and compare suggested advices and recommendations for effectiveness of group work and wider discussion including professionals, public and state administration.

**Communication between different stakeholders was found as very important to get a balanced view on various aspects of the issues at stake at the national, regional or local level. It enables a common language and a shared understanding of the challenges to be developed.**





- Slovak stakeholder panels has shown that they are **able to work together, to communicate problems, to absorb new comers to the working groups**
- **Working in the form of facilitated workshops with scenario developed using customized operational tools (RODOS, RTARC, Web-HIPRE) makes work more efficient, focus on possible real problem and finding real solutions**
- There is a **common understanding in necessity of continuation of joint meetings of stakeholders and willingness to have organized annually workshops for sharing experiences, identifying gaps and improving preparedness**



**Local-national forum** for improvement of both local and national capabilities in planning for nuclear and radiological emergency and recovery preparedness and response continued its work in Slovakia.

**Seminar „Recovery Management following a Radiological Incident“** was conducted on May 16-18, 2011, 34 participants

Main goal: Focusing on **sharing the experiences with development, customization and implementation of Generic Handbooks** for Assisting in the Management of **Contaminated Inhabited Areas, Drinking Water Supplies** and in the **Withdrawal of Emergency Countermeasures** in Europe Following a Radiological Emergency to the local, regional and national conditions of Slovakia.

Participants:

- local stakeholders and local urban community of Trnava and Nitra
- local, regional (Trnava and Nitra region) and national authorities in the area of Civil Protection and Crisis Management (including Training and Technical Centre), Health Protection, Veterinary and Food administration, Water supply, Nuclear Regulation, Radiation Monitoring, Hydrometeorology (radiation monitoring issues), Slovak Army, Police Force, Slovak NPPs.



## Programme frame:

### 1<sup>st</sup> day: Plenary session

- INEX 4 exercise conclusions, relevant issues: Nuclear Regulatory Authority of the Slovak Republic (UJD SR),
- Response to the Fukushima accident: UJD SR, Health Protection Agency, Ministry of Interior – Section of Crisis Management and Civil Protection,
- Monitoring system: relevant issues and conception related to INEX 4 outcomes and Fukushima accident,
- Emergency planning in Slovakia – analyses of the system in relation to the measures undertaken after the Fukushima accident
- Assisting in the management of emergency and existing exposure situations – tools and international cooperation
- Generic Handbooks for Assisting in the Management of Contaminated Inhabited Areas, Drinking Water Supplies and in the Withdrawal of Emergency Countermeasures in Europe Following a Radiological Emergency and their implementation to the local, regional and national conditions of Slovakia – block of presentations with complex information



## Programme frame:

### 2<sup>nd</sup> day: Facilitated workshops driven by scenario,

- practical use of the Handbook for Assisting in the Management of Contaminated Inhabited Areas following an accident at Mochovcé NPP focused on the selection of countermeasures and strategy development based on scenario developed using the RODOS Linux system, adapted to the Slovak Republic conditions,
- practical use of the Handbook for Assisting in the Management of Drinking Water Supplies following an accident at Bohunice NPP. Valuable inputs from the local stakeholder – TAVOS, Inc – Trnava region water supply company.

### 3<sup>rd</sup> day: Facilitated discussions

- practical use of the Handbook for Assisting in the Withdrawal of Emergency Countermeasures Following a Radiological Emergency. Discussion of factors influencing the withdrawal of countermeasures, datasheets and check lists and its implementation to the local, regional and national conditions of Slovakia,
- general discussion on recovery management issues in Slovakia: preparedness at local, regional and national levels, existing tools, requirements, future perspectives,
- discussion of conclusions and recommendations.



Local-national forum for nuclear emergency and recovery strategies continued its work in 2012 with challenge **to move to more robust national-local and regional-local cooperation where the district and municipality administration will play a key role.**

**Seminar with facilitated discussions - Forum “Protection of individuals in emergency exposure situations and living in long-term contaminated areas after an accident”** prepared, organized and conducted by VUJE in close cooperation with Trnava urban community focusing on post accident management on November 12-13, 2012, 19 participants.

“HAVRAN 2012” exercise with the main goal to practice and verify mutual connection and response of emergency headquarters at all levels, performance of selected ministries, other state administration bodies, local governments, institutions, rescue units and NPP EBO was conducted just months before the Seminar. The **exercise experiences and conclusions have driven the Forum discussions.**



#### **Presentation of Handbooks to:**

- the **Mayors** during the periodical training – Trnava District , Malacky District, presented by the NRA SR, supervision of the Ministry of Interior,
- the **lecturers at the Police Academy**,
- the **lecturers of the Educational and Technical Institution of the Ministry of Interior** in Nitra and Spisska Nova Ves.

**Project have been submitted** to the Ministry of the Interior **to train trainees-lecturers on use of the tools (JRodos, Web-HIPRE) and Handbooks for further education of the local authorities/municipalities representatives and stakeholders in emergency preparedness and response and on preparation and conducting the table-top exercises/facilitated workshops using that tools to assist the municipalities in preparing for the local cooperation.**

Presentation of the new developments (JRODOS: ERMIN, AgriCP) and suggestion of further activities related to the NERIS-TP Project WP3 and NERIS Platform WG2 at the Ministry of Interior of the Slovak Republic took place on November 20, 2012.





Technical visit of stakeholders group (11 experts) from Slovakia to Belarus within the WP3 activities in the framework of the NERIS-TP Project of the Euratom FP7 (GA 269718) took place from June 1 to June 6, 2013.

The Technical visit to Belarus interacted strongly with the European NERIS Platform for the **mutual benefit of all actors**. The main goal was **to share the experience on the process, methodology and tools used for the improvement of the practical radiological culture of population living at the long term contaminated area**.

The two topics were blended together:

- 1) improvement of national-local cooperation in Slovakia and Belarus, and
- 2) radiation control and dissemination of radiological culture as the roles of the centres for practical radiological culture implemented and coordinated by RIR.

VUJE and Institute of Radiology (RIR) continued work of the local-national forums where national, regional and local actors draw the most essential lessons learned in relation to post-accident management and rehabilitation with the main goal of improvement both national and local plans for preparedness and recovery.



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Visited **Bragin district** and had there **Seminar related to the issues of emergency response and countermeasures at long-term contaminated area** as well as to the **issues of the emergency and post-accident preparedness and recovery**. Visited the **centre of radiological culture – governmental** one directly in Bragin and the **community Centres** of radiological culture situated in Luninec and in Vulka-2 at the schools. We had there practical presentations, dialogue and discussion related to the history, current situation but also to the research of young generation and life in the contaminated area nowadays.



**International Scientific Conference “Nuclear and radiation safety: lessons of Chernobyl and Fukushima”** at **Research Institute of Radiology**, Gomel, where presentations from Slovakian, Japanese and Byelorussian experts took place and were discussed. The last day of our visit was related to the visit of



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### Procedures to involve local/national actors used:

- education seminars,
- topical workshops,
- facilitated table-top exercises,
- inclusion in national and international exercises (NPP+municipalities, INEX 4),
- development of scenarios (INEX 4).

### Tools used:

- The Handbooks,
- JRODOS/RODOS,
- RTARC,
- Web-HIPRE.



**Customisation and adaptation of JRODOS** to assist the municipalities in preparing for the local-regional cooperation.

**Training courses:** **NERIS-TP Training Course: Preparedness for nuclear and radiological emergency response and recovery: usage of the new products for supporting the management team, will take place on 21-25 October 2013 at VUJE, Okružná 5, room C41, Trnava, Slovak Republic.** The NERIS-TP Training Course will provide opportunity to train the participants (trainees) to use the new tools for the purpose of further active participation in technical exercises and use of the end products in the community.

**Exercises:** The **complex set of technical exercises** will be prepared and organized by VUJE with contractors of the NERIS-TP Project in November 2013 in the frame of NERIS-TP Project of the Euratom FP7 (GA 269718) partly funded by the European Commission. The **objectives** of the exercises are **to use the new products and to give the feedback to developers on the user's experience.** The exercises **will provide platform for further enhancement of preparedness and stakeholders involvement and will be useful for preparation and conduction of the facilitated workshops, table-top exercises, testing and adaptation of tools.**

**Dissemination workshop:** **On 22-24 January 2014, the dissemination workshop of the NERIS-TP project "Strengthening the preparedness at national and territorial level using new tools and methods - stakeholders experiences" will be organized in Oslo, Norway.**

**For more information** <http://www.eu-neris.net/>