The IAEA Regional Training Courses Implementation - Lessons Learnt and Paving Way Forward

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Remediation Issue in Context of the Fukushima Accident

Since 2011, on the suggestion of the IAEA TC, ROSATOM CICE&T started to develop training course with respect to remediation & decommissioning issues. This project was initiated in line with the concurrent phase of the Interstate Target Programme “Remediation of the Uranium Mining Areas of the EurAsEC Member States”.

For the first 2 years of the project development (2011 - 2012), it was funded by the ROSENERGOATOM SC*

* owner and operator of Russian NPPs

The report by the IAEA DG on the Fukushima Accident was published in August 2015

This report presents an assessment of the causes and consequences of the accident at the Fukushima Daiichi NPP on 2011, named the worst accident in NPP after Chernobyl disaster in 1986

The report’ Executive Summary contains main points of the document like:
- Nuclear Safety Considerations
- Emergency Preparedness And Response
- Radiological Consequences
- Post-accident Recovery with respect to remediation of areas affected by the accident.

Prior to the Fukushima Daiichi accident, policies and strategies for post-accident remediation were not in place in Japan, and it became necessary to develop them in the period after the accident. The remediation policy was enacted by the Government of Japan in August 2011.”
Development and Implementation of Complex Programmes on Remediation of Areas Affected by Uranium Production

2011

Suggestion of the IAEA TC to develop training course with respect to remediation & decommissioning issues

2012

Involvement of Project Lecturers into the IAEA specific WS on the remediation and decommissioning issues

2013

Developing of training course concept and programme, external review

2014

Developing of training materials: handbook, presentations, lesson plans (SAT Approach)

2015

Project Implementation:
2014 Training:
Sept 22 - Oct 03; Nov 24 - Dec 05
2015 Training:
June 15-26; Oct 05-16

IAEA

Funding of training course concept and programme development (end of 2012)
~8 600 USD*

Funding of training materials development
~ 41 500 USD*

Funding of training conduction 4 groups, up to 15 trainees/gr.
“All inclusive” Approach
~130 000 USD*/y

ROSATOM

* 1 USD ~ 65 RUR
On 19 Nov 2011 the Practical Arrangements between the IAEA, Rosenergoatom SC, and ROSATOM-CICE&T were signed. These PA include *inter alia*:

- exchange and dissemination of information, including release of joint publications;
- mutual support in establishing training courses to develop human resources for countries embarking on the way of developing nuclear power...

Acting on the basis of the PA, ROSATOM-CICE&T has got the significant experience in conducting of international training courses and the IAEA TC scientific visits and fellowship programmes implementation.
Terminal objective of the TC project is development of required competencies for management of remediation programmes and projects, monitoring and operation of uranium tails, which is designed to assist in resolving the nuclear legacy problems on the territories affected by uranium mining mainly in the Central Asia region.

Enabling objectives for the TC project:
• to develop and improve practical competencies (management and technical) among practitioner of remediation programs;
• to establish the basics for the future international cooperation among stakeholders;
• to supply the demand for workers and managers in remediation area (in CIS primary).

Strategy of implementation:
• Conduction of 4 similar training courses for managers and technicians who are responsible for development and implementing of the remediation programmes;
• Conduction of opening sessions (early 2014 and 2015) to justify the training scope and objectives and closing sessions to provide training reports and get the feedback on project implementation from target countries.
RTC Participants - General Info
2014: RTC #1,2 (Left); 2015: RTC #3, 4 (Right)
RTC Participants - Test Results

RER 7006_2: # of Correct Answers - Dynamics

RER 7006_3: # of Correct Answers - Dynamics

RER 7006_4: # of Correct Answers - Dynamics

RER 7006_2: Test Results

RER 7006_3: Test Results

RER 7006_4: Test Results
Comparative Analysis of Feedback Results

RER 7006_1 - average score = 4,6 (red line);
RER 7006_2 - average score = 4,7 (green line)

RER 7006_3 - average score = 4,6 (red line);
RER 7006_4 - average score = 4,7 (green line)
## Feedback Results Analysis: Strong Points and Improving Proposals

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<tr>
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<th>Strong points</th>
<th>Improving Proposals</th>
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<tr>
<td><strong>General comments</strong></td>
<td>• High level of event administration</td>
<td>• Try to share the training schedule in a good time before the course starts</td>
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<td>• High quality of training materials</td>
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<td>• The experience and ideas exchange between trainees was useful and fruitful</td>
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<td><strong>Training course: scope and content</strong></td>
<td>• The large amount of info regarding the ER issues was systemized and processed as training materials</td>
<td>• Shift the theory-practice balance to enhance the course with practical exercises/ <strong>case study</strong></td>
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<td>• The obtained knowledge is demanded and will be used in trainees’ professional activity</td>
<td>• Expand the topics dedicated to Soil and groundwater remediation techniques, tools, and methods, Waste management, Stakeholder involvement</td>
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<td>• Add the info concerning <strong>in-situ leaching</strong> in line with ER issues</td>
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<td><strong>Trainees: prerequisites, background, current activities</strong></td>
<td>• The participants selected are presented the “right” authorities/facilities/institutes</td>
<td>• Monitor the compliance of trainees' background/professional demands/current activities to the training objectives</td>
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<td>• Target oriented, active people</td>
<td>• Improve the English skills - to have a possibility to learn more concerning the IAEA activities related to the ER/ to have an effective communication with stakeholders</td>
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<td>• Mixed-age groups</td>
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<td><strong>Trainers: capabilities</strong></td>
<td>• High professional level of ROSATOM CICE&amp;T and engaged trainers</td>
<td>• Engage the IAEA experts more actively to conduct the relevant lectures</td>
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<td>• Continuously develop the young lecturers’ training capabilities</td>
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Pathway of the Project Development

**RER 7006**
Basic Training Course
2014-2015 y: 4 groups

**ENVIRONET**
Russian-language version
located on CICE&T web-cite

Participation of Russian experts in
• CIDER (Constraints to Implementing Decommissioning and Environmental Remediation Programmes)
• LeTrench Project (Remediation of Legacy Trench Sites Containing Radioactive Material)

**RER 9145 2016-2019**
4 Specialized Training Course
• Stakeholder Involvement
• ER Projects’ Planning and Management
• Groundwater Remediation
• Landforms’ Stabilization
  + Number of WS and Site Visits to the UPLS in target Counties

**Scientific visits / Fellowship programmes in frames of the IAEA TC**
in line with Practical Arrangements between the IAEA, ROSENERGOATOM, ROSATOM CICE&T

**International School on Decommissioning and Remediation**
The proposal of the IAEA Waste Technology Section
Conclusion

1. The RER 7006 basic training courses were successfully organized and implemented within TC cycle 2014-2015.

2. On the initiative of the IAEA Secretariat the RER 7006 was expanded to next TC cycle 2016-2019 as new RER 9145 in scope of 4 specialized courses.

3. The further cooperation is required to enhance the mutual effect of the Regional Training Courses delivering to target audience and special IAEA Environmental Remediation projects to assist in resolving the nuclear legacy problems on the territories affected by uranium mining and milling.