International Regulatory Cooperation: Examples of IAEA Support

Russel Edge
Waste Safety Specialist
Division of Radiation, Transport and Waste Safety

Technical Meeting on International Forum for Regulatory Supervision of Legacy Sites
Vienna, Austria
October 11-15, 2010
Contents

- Overview of two relevant TC projects conducted from 2005-2010 in the context of typical method IAEA provides support to regulatory organizations
IAEA Regional Project RER 9086

Safe management of residues from former mining and milling activities in Central Asia

- Members States participating:
  Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan

- All interested in managing and/or remediating the legacy of former uranium mining and milling activities to protect their population and environment

- These 4 Member States have some common history and similar problems in the same geographical region under similar climatic conditions

- TC received requests from some of these Member States which were almost identical
Kazakhstan

Uranium mining legacies
Mailuu Suu, Kyrgyzstan - April 2007

Landslide

River

Tailings

Plant

Landslip
Tajikistan
Uranium mining legacies
Uzbekistan
Uranium mining legacies
Project Objectives – RER9086

To develop a regulatory framework and decision making process to assess radiological impact of radiological residues at former uranium mining & milling sites

To evaluate the remediation works already underway

To ensure international safety standards are being met

To develop a plan of action to minimize the impact of radioactive residues on the population and assist sustainable development
Main activities

Transfer of experience and knowledge to both regulators & operators - 10 workshops

Improvement of Regulatory Framework

Improvement of Laboratory Capacities

Improvement of Monitoring Programs

Development of monitoring network (procurement of equipment and training of personnel)

Expert missions and consulting services

Arranging analyses of environmental samples

Environmental and Radiological Assessment

Assistance in Remediation Planning
Applicable IAEA Documents

1. The Basic Safety Standards (BSS) provide the necessary Safety Requirements

2. Guidance on how to satisfy the requirements is given in 4 Safety Guides
<table>
<thead>
<tr>
<th>Country</th>
<th>Case Study Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tajikistan</td>
<td>Taboshar (waste rock piles &amp; tailings)</td>
</tr>
<tr>
<td></td>
<td>Degmay (tailings), Khujand (seepage &amp; run off)</td>
</tr>
<tr>
<td></td>
<td>Chkalovsk (Gafurovo, Cells 1-9; tailings &amp; waste)</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>Yangiabad and Charkesar</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>Kadjji-Say, Minkush (tailings &amp; waste rock)</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>Koshkar-Ata, Stepnogorsk (waste rock)</td>
</tr>
</tbody>
</table>
# Scientific visits and fellowships

<table>
<thead>
<tr>
<th>Place</th>
<th>Topics</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WISMUT, VISUTEC (Germany)</td>
<td>Remedial strategies, Monitoring programs development, Technology.</td>
<td>KZ, TAD, UZ, KIG</td>
</tr>
<tr>
<td>Seibersdorf (IAEA, Vienna)</td>
<td>Analytical procedures and QA,QC</td>
<td>KIG</td>
</tr>
<tr>
<td>SPA Doza. Russia Moscow SPADoza. “Radon” (Moscow)</td>
<td>Dosimetry, Alpha-Radiometry UMF-2000,</td>
<td>KZ, TAD</td>
</tr>
<tr>
<td>Vernadsky Institute of Geochemistry (Moscow)</td>
<td>AAS</td>
<td>KIG</td>
</tr>
<tr>
<td>Ukran. Hydrometeorology Inst. Kiev SE“Barrier”Dnieprodzerzhinsk</td>
<td>Radonometry, LSC, Gamma Spec Field studies, Data processing</td>
<td>TAD, KIG, UZ</td>
</tr>
<tr>
<td>Al-Farabi University (KZ, Almaty)</td>
<td>Basic course in Analytical measurements of Env. samples</td>
<td>KZ, TAD, UZ</td>
</tr>
<tr>
<td>Estonia, Sallimyae</td>
<td>Practical implementation of post-remedial monitoring</td>
<td>TAD</td>
</tr>
<tr>
<td>Vilnus, Radiation Protection Authority</td>
<td>Radon-monitoring</td>
<td>TAD</td>
</tr>
<tr>
<td>Field trips &amp; training</td>
<td>Characterization of Tailings dump sites Risk Assessment software (Pecs)</td>
<td>KZ, TAD, UZ, KIG</td>
</tr>
</tbody>
</table>
Improvement of capacity building
Consulting and training

- Monitoring programs development
- Sampling (tailing materials, aerosols, water, soils, plants)
- Sample preparation (wet chemistry extractions)
- Dose rate measurements
- Rn and its progeny measurements
- Alpha-radiometry and spectrometry
- Gamma spectrometry (NaI(T), Semiconductors), operation & calibration
- Liquid-scintillation counting
- Data processing
- Characterization of the Legacy Sites
- Basics for Safety Assessment
Expertise and Assessment

All sites were visited and examined by experts provided by (sometimes from) IAEA

**Germany, Ukraine, Russia, Hungary, Sweden (IAEA)**

Experimental data for the main exposure pathways were collected and analyzed in certified laboratories

“ECOLEGO” risk modeling software was used after training

The results of the radiological assessments were submitted to National Authorities and discussed at Regional Workshops

Prioritization in remediation planning has been proposed for consideration by National Regulatory Authorities

Programs and methods for monitoring were developed and discussed
The project participant list was expanded by the addition of 5 new partners:

- Romania
- Russian Federation
- Ukraine
- Czech Republic
- Slovenia

The new programme comprises 7 thematic work packages.

The project is intended to work at a pilot site in each country to develop a common strategy for site characterization, remediation planning and, eventually, implementation of remediation.
The Work Packages

1. Safety Assessment Methodology
2. Enhancing the Regulatory Framework
3. Establishing Site Specific Monitoring Programmes
4. Implementation of QA/QC procedures
5. Risk Communication for the Public
6. Institutional Controls and Interim Risk Mitigation
7. Development of an information sharing website
Project Activities-Training Courses

- Regional Training Course on Generic Models for Use in Assessing the Impact of Discharges of Radioactive Substances to the Environment Utilizing Ecolego Sweden Feb. 2010
- Regional Training Course on Laboratory Inter-Comparison Proficiency Testing Exercises Almaty, Kaz. 2009
<table>
<thead>
<tr>
<th>Title of Event</th>
<th>Host (Country, City)</th>
<th>Date (month, dates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Training Course on Risk Communication and Public Involvement</td>
<td>Ak-tau, Kazakhstan</td>
<td>December 6-9, 2010</td>
</tr>
<tr>
<td>Workshop on Legacy Site Characterisation</td>
<td>Pecs, Hungary</td>
<td>August 16-18, 2010</td>
</tr>
<tr>
<td>Workshop on Application of Safety Assessment Methodology in the Decision</td>
<td>Tashkent, Uzbekistan</td>
<td>November 24-26, 2010</td>
</tr>
<tr>
<td>Making Process for Remediation Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workshop on Licensing Process for Remediation of Uranium Production Legacy</td>
<td>Kiev, Ukraine</td>
<td>Sept 29-Oct 1, 2010</td>
</tr>
<tr>
<td>Sites</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary & Conclusions

• Regulatory framework must be in place
  • Regulations
  • Criteria
  • Standards
  • Guidance documents
• Introduction and application of appropriate international safety standards is seen as an essential element of the overall regulatory regime
• Respective Roles of Operator and Regulator clearly defined
Summary & Conclusions [2]

- Preparation of environmental assessments
- Develop and use of safety assessments for remediation planning
- Preparation of remediation plans
- Prepare for Implementation of remediation works
- Long term care program
- Develop and support delivery of public education and information programmes

- Adequate resources!
Thank you for your attention

...atoms for peace.