093 Panel: ER Projects in Eastern Europe & Central Asia, Challenges and Opportunities, IAEA TC Project RER 9121

Thoughts of a practitioner…

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Focus of this contribution

• “This panel will present relevant **achievements** in countries that have participated in the IAEA Technical Cooperation Project RER 9121 Supporting Environmental Remediation Projects in Member States; discuss their **needs and challenges** (e.g. establishment of policy and strategy, infra-structure development, technology transfer; regulatory developments, stakeholder engagement strategies in decision making, capacity building, training, etc.) and **the role and opportunities for contractors** and multilateral organizations in supporting and implementing remediation projects in these regions.”
Outline of this contribution

• RER 9/121 and other international initiatives
• Training as starting point, and what has been achieved?
• What are the key messages that should be remembered from training and other events?
• Remaining challenges and needs

• All seen from a contractor‘s perspective
• Following on from C. Kunze, U. Walter: “Challenges Of Mine Remediation…” (WM2015, Phoenix)
RER 9/121 is part of a whole array of international activities

- International organisations and initiatives: IAEA, EC/INSC, OSCE/UNDP, EurAsEC, CGULS, …
- National governments: NRPA, BGR,…
- Maximise synergies and avoid duplication
- Do they help to enable less developed countries to conceptualise, plan, implement ER projects on their own, including after-care?
- Information overload - it is not the number of initiatives but how well people tell what’s important
Training achievements (1)

- Example: Baku, September 2015
- Low fluctuation of attendees
- High attendance
- More inquisitive and interactive
- Increasingly lively training sessions
- Involvement of national participants „for free“
- More self-confidence among participants
Training achievements (2)

• Audience was challenged to ask questions and to prove they have understood the content
  – Summarise main points and key ideas after sessions
  – Randomly picked participants to answer questions
• Case studies with complex (and partly tricky) scenarios
• Empowerment of participants
  – Final working group presentations by group members
  – „Jury“ consisted of participants
• Would participants be able to develop and implement an ER project from start to finish?
Key messages that should be remembered (in case the weren‘t, here they are again)

• Consistent legal and regulatory framework
• Site characterisation
• Stakeholder and community involvement
• Justification and optimisation of remedial measures
• Test plots
• Provisions for after-care phase and corrective action
• Financial guarantees for new operations (closure/ER and after-care) to avoid new legacy sites
Consistent legal and regulatory framework

• In line with International BSS (2011, 2014)
• Clarity, free of contradictions and confusing provisions
• Not too prescriptive, leave room for common sense and optimisation
• Relevant provisions, e.g., clear definition of „radioactive waste“ (applicable to mine waste or waste arising from ER?)
• Risk-based intervention levels and remediation targets
• Development does take time but is fundamental for ER
Site characterisation

• Start with historic site investigation
  – „Classified“ documents, confidentiality, concept of „strategic“ radioactive industries are all strong impediments that do not help at all in solving problems
  – Make all information sources (including veterans) available

• Allow access to site, don‘t erect bureaucratic barriers,

• Never underestimate the time required to produce thorough baseline data
  – This is absolutely fundamental to develop a robust remediation design
  – Minimum 15-18 months for a decent baseline
Historic site information is often very hard to obtain…
… but is an indispensable resource for thorough ER planning
Stakeholder and community engagement

• We all want remedial solutions to be trusted by the „people on the street“

• Most countries have provisions in their regulatory framework
  – Some are very limited from the outset
  – Some are interpreted within a limited scope

• Exaggerated risk perceptions and expectations towards remediation may lead to
  – Misallocation of resources
  – Hold-ups
  – Disappointment and cynism
Protesters who feel they are insufficiently informed may hold up works.
Justification and optimisation

• Learn and apply the basics of „why“
  – „What“ and „how“ will follow easy
  – Do an options study, no jumping to conclusions
  – Funds and resources are limited
  – Don’t remediate just because a site is associated with radioactivity - manage stakeholder expectations, problems may be less dramatic than they appear,
    – Non-radioactive issues (and sites) may be more urgent
• Define site end states and an ER strategy to get there
• Decisions are always site-specific, there is no one-fits-all „recipe book“
In some cases, major remediation works are simply not justified.
Test plots to ensure sustainable solutions adapted to site conditions

- Before spending millions on full-scale remediation works, feasibility and sustainability must be tested
- Key areas include
  - Water balance, percolation rate
  - Erosion resistance
  - Radon exhalation
  - Vegetation support
- Many years are required
- There is no short-cut!
Failed vegetation. A simple test plot could have shown that plants don’t grow on tailings.
Testing makes sure that long-term solutions actually work „long-term“
After-care and long-term stewardship

• Walk-away may not be possible – raise awareness for after-care and LTS
• International donors do not usually fund post-remediation costs
• Countries must sustain after-care funding themselves
• Without sufficient after-care
  – Remediation success may be undone
  – Some remediation works are completely useless
• Funding for monitoring/surveillance, ongoing activities and corrective action
Lack of funding for after-care and corrective measures renders works useless
Building a water treatment plant is absolutely pointless if operation cannot be funded
Good examples
Mailuu Suu (KG), remediation project part 1

- Compromise between
  - Compliance with best practice
  - Limited funding, time and human/technical resources
- A lot has been achieved
  - Priority sites (e.g., relocation of WD5 and instable tailings TP3)
  - Measures that were easy to implement (temporary erosion protection)
- Something remains to be done
  - Durable erosion protection measures
  - More wastes to be relocated (?)
New and safe disposal site for relocated tailings and waste dumps at TP6
Good examples
Ramani/Surakhani (AZ) cleanup project

- Iodine/bromine extraction facility with radioactive contamination (activated carbon)
- Severe time constraints (safety assessment, permitting process)
- High standards of practical implementation
- Continuous involvement of international experts
- Large areas cleaned up, near-surface waste storage
- Long-term stability of waste disposal facility remains to be proven
Disposal cell for clean-up wastes
Roles and opportunities for contractors

• Experienced international contractors (consulting firms) are hired by international donors
  – International input is often required on conceptual level – justification, optimisation
  – Technical and engineering services may be sourced nationally
  – International experts are unlikely to push up overall cost of ER, given higher efficiency and role in „pushing“ processes in country to meet international donors‘ deadlines and expectations

• Azerbaijan example – national expertise can be fully sufficient to successfully run ER projects
  – Empowerment of national experts
  – Sufficient funding, trust and self-confidence
Is „Technology transfer“ needed?

• Most projects this presenter has been involved in do not require advanced technologies, but a thorough conceptual approach and then plain earthmoving and civil engineering

• Expensive radioanalytical equipment has been supplied under international contracts, but spare parts and sampling and sample preparation equipment are missing

• Growing practical experience is a slow, long-term task, especially under financial constraints
Summary

- Equipment and technologies may be needed but they are not the limiting factor
- Conceptual understanding of ER by local experts is key
- Less „Do-It-For-Me“
- More „I-Want-To-Understand-and-Do-It-Myself“
- Provide sustainable funding from national budget
  - Countries may have different priorities? 2 simple answers…
- Make sure that sufficient guarantees are in place for future industrial activities to prevent legacy sites from occurring again
Thank you. Questions?

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