

Best Practices



in the IAEA's technical cooperation programme

Enabling sustainable uranium production in a global context

Best Practice Description:

Description

Sustainable uranium production cycle activities, encompassing exploration, mining and processing to final site remediation, are efficiently carried out through the sharing of good practices and collective wisdom gained from past experiences.

Problem/Issue

Uranium production cycle activities are increasing worldwide, often in countries with little or no previous experience in such activities. Initial efforts in uranium exploration and mining were limited to a few countries, which progressed through a painful learning curve often associated with high socioeconomic costs. With time, good practices for the sustainable conduct of operations became well established, but new projects in different regional contexts continue to face challenges. Moreover, there have been highs and lows in the levels of activities and operations in the uranium industry, which has disrupted the stabilizing of the experiences and lessons learned, into a coherent body of knowledge. This collective experience, assimilated over time, has to be transferred to a new generation of experts, who have to be enabled to use this knowledge effectively in their local contexts in order to increase efficiency and reduce the footprint of the operations. This makes it sustainable and socially acceptable to local communities, as well as in the global context.

TC project: INT/2/015

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Category:

1. Country Programme Framework/Regional Profile Process
6. Partnership
7. Project Results

Sub Categories:

- Meeting current and emerging country or regional needs
- Technical
- Sustainability of a transferred technology
- Safety, environmental and/or economic results

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Best Practice Description: cont'd:

How & who

A technical cooperation project INT/2/015, 'Supporting Uranium Exploration, Resource Augmentation and Production Using Advanced Techniques', was designed and implemented to address gaps in transferring a coherent body of knowledge on sustainable uranium production from a well experienced generation of experts to a new generation facing similar challenges in different geographical, technological, economic and social contexts. The project focused on enabling the new practitioners in the uranium production industry to avoid the mistakes of the past and to apply good practices established elsewhere, adapted to local needs. The approach was intended to bring considerable cost savings while attracting elevated levels of social acceptance.

Approach

Interregional workshops and training courses, emphasizing each part of the uranium production cycle without losing the bigger picture of sustainability in a local and global context, have been the main drivers of the project. Each workshop or training course had carefully selected lectures by leading experts on specific topics. Actual site exposure and on-site interactions provided real time examples for the participants, not only to learn theoretical aspects, but also to experience the intricacies of practical application in specified regional contexts. All events had break-out group discussions and debates to focus on specialized areas of improvement, without digressing from the overall socioeconomic and sustainable development objectives. As this evolved into a learning experience both for the trainers and the trainees, the interactions and sharing of information finally overflowed well beyond the confines of the short workshops and training courses, into long lasting informal relationships that are often enabled by social media tools (LinkedIn and Facebook).

How effective

The activities of the project were effective in introducing experts from different areas of the uranium production cycle and with different levels of experience to the availability of advanced tools that can make operations more efficient and productive, reduce footprint, increase competencies in control and management and make activities sustainable. There were specific cases where the newly learned approaches could be effectively applied to upcoming projects, including, to name a few, Argentina, Egypt, Jordan, Malawi, Philippines, United Republic of Tanzania, Tunisia.

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Lessons Learned

Each uranium development project is technically, environmentally and socioeconomically different from another, and a one-size-fits-all type of approach is not suitable. Each person who interacted in one way or another with the project faced a unique challenge which they had to solve through an application of good practices appropriately applied to a new context. Use of informal on-line and social media communications was not intended at the start, but was quickly identified as a valuable tool for enabling the sharing of experiences.

Key Success factors

1. Emphasis on holistic and global view of the uranium production life cycle, while addressing topical and local challenges.
2. Concentrate on gradual, incremental progress and seek continuity of activities.
3. Focus in individual learning experiences within a network of peers.

Beneficiaries

Professionals engaged in uranium exploration, mining, processing, health, safety and the environment and regulatory control and analysts.

Quality Criteria

Key performance indicators in (a) Technology (b) Socioeconomics and (c) Environmental sectors, applied to a limited number of definitive milestones: 1. Conceptual uranium potential model; 2. Exploration start; 3. Resources discovery; 4. Feasibility studies; 5. Mining start; 6. Mine closure; 7. Remediation and handback.

Special conditions

Lack of commitment to sustainable development goals at higher levels is the only major obstacle that could prevent the adoption of this proposed best practice.