



## NRPA develops regulatory cooperation with Central Asian authorities for nuclear safety and radiation protection

With the support of the Norwegian Ministry of Foreign Affairs, the NRPA has initiated a regional regulatory cooperation project with Kazakhstan, Kyrgyzstan and Tajikistan to improve regulations on nuclear safety, radiation protection and environmental issues, and assist the countries in remediating radioactively contaminated sites. There is a critical lack in the regulatory basis for carrying out such remediation work, including a lack of relevant radiation and environmental safety norms and standards, licensing procedures and requirements for monitoring, as well as expertise to transform such a basis into practice.



*Domestic animals grazing at a former mining site (photo: NRPA).*

### Background

During the former Soviet Union period, significant nuclear operations were carried out within the republics of Kazakhstan, Kyrgyzstan, and Tajikistan. These included nuclear weapons testing, nuclear power development and the mining and milling of uranium. The countries are close to each other geographically and also share a similar status as newly independent states whose regulatory authorities were only relatively recently set up.

According to the Nuclear Threat Initiative organisation, there are more than 230 million tons of radioactive waste in Kazakhstan, with a total activity of more than 480,000 TBq (13 million Ci). The main sources of radioactive waste in Kazakhstan are former nuclear explosions; uranium mining, milling, and processing facilities, nuclear reactors and industries using radioactive isotope products. Since the 1950's, not only Kazakhstan but Kyrgyz Republic and Tajikistan also accumulated radioactive waste in the form of large volumes of uranium and other mine and ore

processing waste, containing very long-lived naturally occurring radionuclides. These wastes are stored on the surface in large piles and represent a long-term hazard to health and environment. The tailings are not secured and in some cases the local population is living on or close to these tailings. The need for remediation and secure handling of waste is imminent.



*A school, with more than 200 pupils, built on the uranium-process tailings at Taboshar, Tajikistan.*

### **Setting up a regulatory support programme**

A regional programme of *regulatory support* was developed by the NRPA to the Norwegian Ministry of Foreign Affairs to assist these countries in developing necessary regulations and procedures for dealing with radioactive waste and particularly uranium mining and milling sites. The programme became a part of Norway's regional support to Central Asia, with the programme of activities to run from 2008 until 2011.



*From left to right: B. Tolongutov (SAEPF), U. Mirasaidov (NSA), A. Kim (KAEC) and P. Strand (NRPA) (photo: NRPA).*

The idea of supporting the regulatory authorities in Central Asia developed due to

- 1) many years of regulatory support projects with Russia
- 2) scientific cooperation between the Norwegian University of Life Sciences, NRPA and scientists in Kazakhstan, Tajikistan and Kyrgyzstan, concerning nuclear environmental issues including radiation safety, radioactive waste management and uranium mill tailing remediation.

NRPA has a wide experience from its regulatory cooperation projects implemented in the Russian Federation. These projects focus on meeting radiation safety regulation challenges which arise during decommissioning, remediation and rehabilitation of nuclear legacy sites and facilities. The experience from working with the Russian radiation and environmental protection regulator (Federal Medical Biological Agency, FMBA) and the radiation and nuclear safety regulator (Rostekhnadzor) is very relevant for the situation in the Central Asian republics.

A first regulatory support meeting between the NRPA and the regulatory authorities from Kazakhstan, Tajikistan and Kyrgyzstan took place in Oslo, November 27-28, 2008, where the scope for a collaboration and support program was discussed and agreed. Representatives from the following authorities attended the meeting:

**KAEC** (Kazakhstan Atomic Energy Committee) was established in 1992 as part of the Ministry of Energy and Mineral Resources of Kazakhstan and is the key regulatory body in Kazakhstan supervising nuclear and radiation safety, and the control regime.

**NSA** (Nuclear Safety Agency), of the Academy of Sciences of the Republic of Tajikistan, was established in 2002. It is the state regulatory authority for supervision of radiation safety and monitoring.

**SAEPF** (State Agency on Environmental Protection and Forestry) is the new state body in the Kyrgyz Republic responsible for ensuring radiation safety and radionuclide monitoring. It was established in 2005 with executive power to

establish an effective regulatory basis and infrastructure according to the international standards.

**NRPA** (Norwegian Radiation Protection Authority) is the authority for radiation protection and nuclear safety in Norway. It plays the leading role in various bi-lateral and international activities with Russia, the International Atomic Energy Agency, the European Union and other organisations. More specifically in the current context, the NRPA plays a central role in various regulatory support projects with Russian authorities. The projects are part of the Norwegian government's Action Plan for Nuclear Safety and prevention of radioactive contamination from nuclear activities in Northwest Russia.



*Kara-Balta Uranium Combinate, Kyrgyzstan (photo: NRPA).*

### **Project objectives**

As a result of the Oslo discussions, a Memorandum of Understanding was signed by the four authorities, forming the basis for future collaborative work. The overall objective of the collaboration is to assist the relevant regulatory authorities in Kazakhstan, Kirgizstan and Tajikistan to develop national effective and efficient regulations and procedures, taking account of international guidance and other good practice and experience. The initial focus is regulatory supervision of uranium mining and ore processing facilities. Project activities within the collaboration programme include:

- Completion of threat assessments identifying priority areas for regulatory development, based on the status of current regulatory documents, international recommendations and guidance, and the hazard presented by the different sites and facilities;
- Development of national radioactive waste management strategies in each country;
- Development of an enhanced regulatory framework for supervision of protection of workers, the public and the environment in relation to nuclear matters;
- Training the authorities in regulatory supervision activities;
- Promoting regular communication between the authorities, the operators and other stakeholders through seminars and information exchange meetings;
- Establishment of technical requirements for systematic radiation monitoring around the radioactive waste management facilities; and
- Promotion of an enhanced safety culture.



*Tajikistan (photo: NRPA).*

## Strategy and progress

The strategy for implementing these activities is to work from the bottom up, rather than trying to impose from the top down an idealised system of principles and methods developed elsewhere. This has to be done through dialogue among regulatory authorities and other stakeholders. It needs to take account of the site specific physical conditions, but also the cultural, social and economic factors that would impact on the optimal choice of solutions at a local level. Most of all, it requires the development of trust between all participating organisations.

This strategy has proven effective in the Russian-Norwegian regulatory cooperation programme, which also benefited from the involvement of experts from international organisations such as the IAEA and other countries. Accordingly, Russian and international experts will take part in this Central Asian initiative. Hopefully, regulatory cooperation projects will be promoted further through extended coordination at the international level.



*Uranium Mill Tailing, Kara-Balta, Kyrgyzstan (photo: NRPA).*



*Uranium Mill Tailing, Kara-Balta, Kyrgyzstan (photo: NRPA).*

The process of remediating legacy sites and reducing the threats in Kazakhstan, Kyrgyzstan and Tajikistan is now getting under way, with the design and implementation of remediation activities. The work relies significant upon international support. However, there is a critical lack in the regulatory basis for carrying out such remediation work, including a lack of relevant radiation and environmental safety norms and standards, licensing procedures and requirements for monitoring, as well as expertise to transform such a basis into practice. There is a pronounced need to develop adequate regulations before initiating remediation to avoid that work will be carried out without appropriate regard to environmental and human health issues, potentially creating new legacy issues that would need to be resolved in the future.



*Kazakhstan, Kyrgyzstan and Tajikistan (source: Google).*