

Strategic Master Plan

Environmental Remediation of Uranium
Legacy Sites in Central Asia



IAEA

International Atomic Energy Agency



Summary

Uranium mining and processing activities have been carried out in Central Asia since the mid-1940s, particularly in the mountainous areas above the Syr Darya River and the Ferghana valley, where the borders of the Kyrgyz Republic, Kazakhstan, Tajikistan and Uzbekistan intersect. Many of these activities ceased in the 1990s, leaving numerous sites containing uranium waste and other extremely hazardous radioactive processing wastes in densely populated areas. Many tailings ponds are located in seismically active areas near major rivers, making them vulnerable to the threat of natural disasters such as landslides or floods.

Left un-remediated, the legacy sites will pose a hazard to future generations with implications for their health. To chart a way forward, the IAEA's Coordination Group for Uranium Legacy Sites (CGULS) developed a Strategic Master Plan (SMP) for environmental remediation of uranium legacy sites in Central Asia.

The need for a coordinated approach to remediation

The Kyrgyz Republic, Tajikistan and Uzbekistan do not have the means to remedy these very challenging problems by themselves. The UN General Assembly and the IAEA General Conference have recognized the need for the international community to assist the countries in remediating the legacy sites, which pose a threat to the region's environment and the livelihoods of its residents.

Some support has been provided to the Central Asian countries for remediation of uranium legacy sites. To date, this has typically involved the efforts of a large number of actors, often operating independently. Such uncoordinated support cannot guarantee the best use of resources.

To respond to this identified lack of coordination, the IAEA established the CGULS in 2012. Since then, the IAEA has used CGULS as the platform to significantly enhance the level of cooperation between the countries in Central Asia and the international community.

The objectives of CGULS include coordinating the actions of its members to maximize synergies and avoid duplication of effort.

The most recent output of the cooperation led by CGULS is the SMP, which aims to ensure that remediation of the legacy sites will be done in a timely, coordinated, cost-effective and sustainable manner, and in accordance with relevant international conventions and agreements.



Degmay tailings site, Tajikistan © IAEA.

Scope

The SMP has two main elements:

- The strategy to be adopted and followed in remediating the uranium legacy sites in Central Asia;
- The master plan for implementing the strategy.

The main components of the SMP are:

- A ranking of the sites in terms of risk and/or priority for remediation;
- A systematic, coherent, cost-effective and fully integrated approach for evaluating the need for, and the nature of, remediation at each site;
- A programme detailing the main tasks or activities to be undertaken, along with associated schedules, key milestones and costs;
- Institutional and organizational arrangements and funding for implementation.

Legacy sites in the region

The SMP covers the priority legacy sites in the region for which the respective governments have had to assume responsibility for the safety of the site in the absence of a private owner. Few protective measures were in place prior to the mine and mill closures, and little remediation has been carried out at the disused facilities and waste disposal sites since.



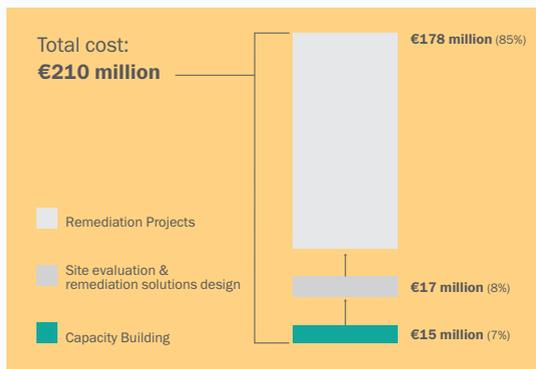
Source: UN GIS

Total implementation cost

The SMP sets out three main activities which are essential in addressing the remediation of the uranium legacy sites. First, systematic and comprehensive studies need to be done to assess the current status of each legacy site and to propose appropriate and effective remediation solutions.

Second, the remediation solutions need to be implemented according to international standards and good practice. Third; underpinning the first two elements, the countries affected need to develop the capacity to implement remediation projects and assume long term stewardship of the remediated sites.

The figure to the right illustrates the total costs of these activities under the SMP. It shows that the overall costs of remediating the uranium legacy sites covered in the SMP, together with supporting activities, are estimated at about €210 million. Of this amount, €56 million has already been provided by the European Union (EU), the Commonwealth of Independent States (CIS) and the World Bank (WB). Most of the €160 million still required, is for the cost of the actual remediation work.



SMP funding gap

The EU and the CIS have committed to continue their support for remediation of the uranium legacy sites in the region and have established dedicated programmes for this purpose. The EU initiated the establishment of the Environmental Remediation Account for Central Asia (ERA) at the European Bank for Reconstruction and Development, which will focus on the remediation of seven priority sites in the Kyrgyz Republic, Tajikistan and Uzbekistan. The CIS programme will focus on remediation works at three sites in the Kyrgyz Republic and Tajikistan. The responsibility for two of these sites is shared between the ERA and the CIS programmes, requiring strong coordination between the two programmes.

Systematic and comprehensive studies of the risks and remediation options have been completed or are underway for the eight uranium legacy sites prioritized by the ERA and CIS programmes.



Studies have been completed for:

- Min-Kush, Kadji-Say and Shekaftar, Kyrgyz Republic;
- Istiklol (Yellow Hill and tailings ponds 1-4), Tajikistan;
- Charkesar and Yangiabad, Uzbekistan.

Remediation projects at these sites are ready for implementation, subject to the availability of funds.

Studies are underway for:

- Mailuu Suu, Kyrgyz Republic;
- Istiklol (excluding Yellow Hill and tailings ponds 1-4) and Degmay, Tajikistan.

The first step in the remediation process, the site evaluation and remediation solutions design, is fully funded in both the ERA and CIS programmes; however the next step, the actual implementation of the remediation work, is not. This applies in particular to the ERA programme, which requires about €70 million in additional funds.

There are other additional activities which are not included in either the ERA or the CIS programme. These are comprehensive studies for another three sites as well as measures to assist the Central Asia countries to build their capacity. The total funding needed for these efforts is estimated at €60 million, distributed as follows:

- Evaluations of the risks and remediation options for:
 - Kara Balta, Kyrgyz Republic (€35 million);
 - Buston (Karta 1–9 and Khujand) and Adrasman, Tajikistan (€15 million).
- Additional measures to support capacity building and regional cooperation (€10 million).



Uranium legacy site, Uzbekistan © European Commission

Coordination and control of projects

The Strategic Master Plan has been developed on behalf of the Central Asia countries by a core group of CGULS. This core group (comprised of representatives from the IAEA, the Kyrgyz Republic, Tajikistan, European Commission, European Bank for Reconstruction and Development and the Russian Federation) will monitor its implementation and update it periodically, in consultation with the members of CGULS.

The SMP has been formally approved by the Kyrgyz Republic, Tajikistan and Uzbekistan. The clear commitment provided by these countries to follow the principles and broad approach set out in the SMP is a pre-requisite for its successful implementation, and for gaining international support.

Remediation projects will be implemented in accordance with the administrative, financial and operational procedures of the funding body or bilateral donors.



Uranium legacy site Mailuu Suu, Kyrgyzstan © IAEA



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