

Norwegian support in Development of Standards and Regulations on Radioactive Waste Management and Long-Term Monitoring in Uzbekistan

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The main factors determining the state policy in the field of radiation safety and radioactive waste management in Uzbekistan are -presence of radioactive waste including the waste from uranium mining and milling industry and other sources, and need for rehabilitation of the contaminated territories. Former uranium production facilities were often simply abandoned, without taking any security measures or left unattended after the insufficient measures for their closure. Currently in Uzbekistan there are no sufficient national regulations for the protection of personnel, population and environment during the work with radioactive waste from uranium production.

In September 2010, Norwegian Radiation Protection Authority (NRPA) has signed a new contract with State Inspectorate on Safety in Industry and Mining of Republic of Uzbekistan (SISIM) -regulatory body of Uzbekistan on the "Support in Development of Standards and Regulations on Radioactive Waste Management and Long-Term Monitoring in Uzbekistan.

The purpose is to provide assistance to the SISIM in: development of the regulatory requirements and rules on protection of personnel, the public and the environment in planning and performance of operations with radioactive wastes; consolidation of the infrastructure of the regulatory body of Uzbekistan for radiological protection of personnel, the public and the environment in radioactive waste management at the tailing dumps of the uranium industry. The work within the Project framework will cover both the contaminated territories of Uzbekistan and the boundary regions, which play an important role in safety of radioactive waste, radiological material and equipment of high risk in all the regions of Central Asia.

Key words: uranium mining, radioactive waste, regulations, management.

Introduction

During the former Soviet times uranium industry was one of the most developed industries in the Republic of Uzbekistan. Many large uranium deposits with its relatively high content (over 0.02%), which sometimes reached 12.8–18.3%, were discovered in the area of junction of the Syr-Darya and Amu-Darya Rivers. In general, 24 uranium deposits were discovered and explored and the main ones are located nearby the towns of Uchkuduk, Zarafshan, Zafarabad, Nurabad, Angren, Chorkesar and Krasnogorskiy. The largest part of waste was stored at the sites of the mines, in particular, on the bank vaults of the valley from Yangiabad to Angren. The off-balance (low-grade) ores from the regions of their initial mining in the Central Kyzyl-Kum Province were mainly transported to the outskirts of Uchkuduk, where they are stored in the dumps to present day. It is well-known that the nuclear materials and technologies bring both the benefits of their use in different sectors from agriculture to electric-power production, and the certain risks for the health of personnel, the public and the environment. Therefore, the risks are to be properly foreseen and assessed. The development of an

adequate legislative and normative-legal base just enables to achieve the above target and is a challenge for national regulators.

Although a regulation of radiological protection is a national responsibility of each State, radiation risks can cross national borders, and international co-operation serves to improve global safety by exchanging experience and improving capabilities to control threats, to prevent conflicts and, as a result, to mitigate any harmful consequences [1].

In the Republic of Uzbekistan the state regulation in the field of radiation safety ensuring is carried out by the Cabinet of Ministers of the Republic of Uzbekistan and authorized state bodies. The state control in the field of radiation safety ensuring, including record of sources, development of regulatory provisions for safety engineering, licensing and inspection of facilities associated with radiation, is carried out by the State Inspectorate on Control and Supervision of the Technical condition and Safety of the largest and most important water economy objects under the Cabinet of Ministers of the Republic of Uzbekistan – “Sanoatgeokontekhnazorat”. The “Sanoatgeokontekhnazorat” also co-ordinates activities of the state control bodies in the field of maintenance of radiation safety.

The Ministry of Health of the Republic of Uzbekistan is in charge of the development of criteria for radiation safety, co-ordinates work on radiation safety, carries out control over a radiation state, issues sanitary certificates, etc. The State Committee for Environmental Protection carries out monitoring of a state of the environment, remediation of certain objects in the working areas of derelict uranium mines. The State Customs Committee is responsible for the Border Control of Illicit Trafficking of Radiation and Nuclear Materials. Even though the legislative base regulating the field of radioactive waste management has been developed to some degree, there are insufficient regulatory documents in the field of radioactive waste management from uranium mining and milling activities. Bilateral project between the Norwegian Radiation Protection Authority and State Inspectorate is a part of the regional program developed in 2008 by support of the Ministry of Foreign Affairs of Norway [3].

Figure 1. Location of the uranium industrial facilities in Uzbekistan

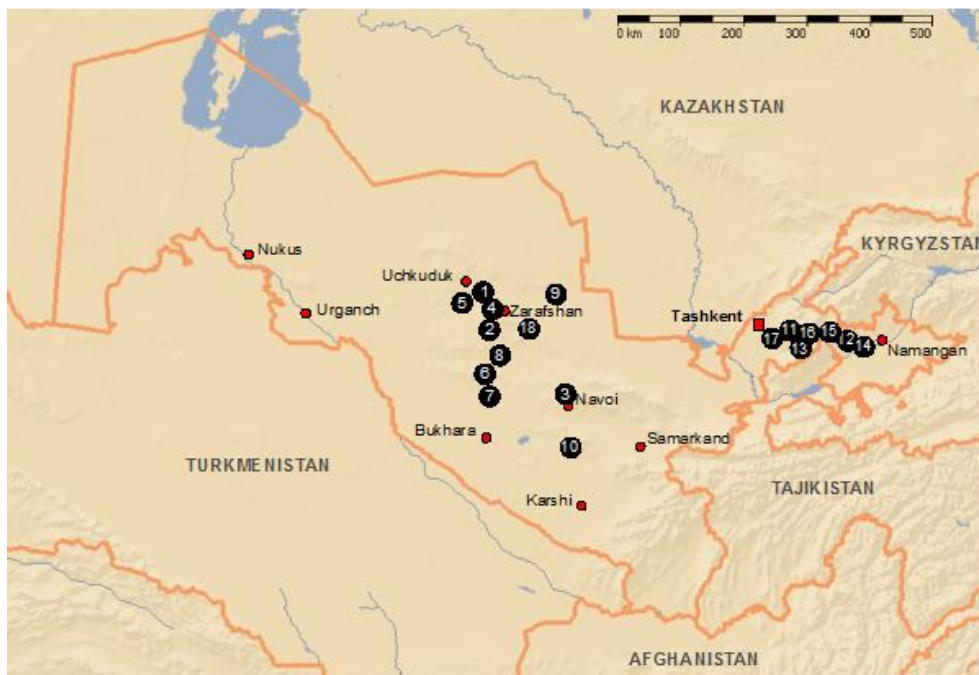


Table 1. Overview of the uranium facilities

No.	Settlement/ name	Facility	Number of dumps	State of a facility	Remediation measures
1	Mine “Uchkuduk” (ISL)	Mines		operating	are carried out
1	Uchkuduk	Mining waste dumps	23	not used any longer	will be carried out at a later stage
2	Uchkuduk Sugraly	Mine		operating	are carried out
2	Uchkuduk Sugraly	Mining waste dumps		closed	are carried out
3	Navoi/Navoiyskiy MMC	Processing plant		operating	are carried out
4	Zarafshan/ Navoiyskiy MMC	Post-dressing waste tailings	9	operating	are carried out
5	Mine “Kendyk-Tyube” (ISL)	Mines		operating	are carried out
6	Mine “Severniy Bukinay” (ISL)	Mines		operating	are carried out
7	Mine “Yuzhniy Bukinay” (ISL)	Mines		operating	are carried out
8	Mine “Beshkak” (ISL)	Mines		operating	are carried out
9	Mine “Lyavlyakan” (ISL)	Mines		operating	are carried out
9	Mine “Tokhumbet” (ISL)	Mines		operating	are carried out
9	Mine “Sabyrsay” (ISL)	Mines		operating	are carried out
10	Mine “Ketmenchi” (ISL)	Mines		operating	are carried out
10	Mine “Sharkskiy” (ISL)	Mines		closed	have been carried out
10	Mine “Uluskiy” (ISL)	Mines		decommissioned	have been carried out
11	Yangiabad/Yangiabad	Mines	2	closed	sheduled
11	Yangiabad/ Yangiabadskaya drift	Mine	2	closed	sheduled
11	Yangiabad/Yangiabad	Mining waste dumps	2	closed	partially restored
11	Angren/ Angren	Mining waste dumps	6	closed	not sheduled
12	Charkesar/Charkesar-1	Mine	1	closed	partially restored

13	Charkesar/Charkesar-1	Open-pit mine	1	closed	partially restored
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Objectives

To develop the regulatory requirements for protection of personnel, population and the environment in the field of radioactive waste management at the uranium industry tailings impoundments and strengthening the infrastructure of the Regulatory Authority of the Republic of Uzbekistan [2].

Methods

Identification of the problems and gaps through the analysis so called “threat assessment” and comparison of the existing regulations with international standards. The same method was successfully used in bilateral projects in cooperation with NRPA within a regional framework with Central Asian countries such as: Kazakhstan, Kirgizstan and Tajikistan during 2009-2011[3].

Results and risks related to the absence of the proper regulatory documents

A number of regulatory problems and gaps being revealed during the analysis of the existing documents so called threat assessment process in the Republic of Uzbekistan which need to be addressed in fulfilling the overall aims of the regional regulatory support program.

Table 2. Summary of the existing documents on identification of gaps in the regulations

Document	Availability in the regulatory base of the Republic of Uzbekistan
National policy and strategy on radioactive waste management (which should include all the radioactive waste generated or potentially to be generated in the country)	Partially developed
On the classification of radioactive waste including those the uranium industry	
Regulatory requirements on such important issues as clearance levels, optimization, and action levels for taking measures in existing exposure situations according to international recommendations.	Absent
Regulatory requirements for the safe management of radioactive waste including those from mining and milling.	Partially developed Sanitary rules on radioactive waste management Partially developed in SanPiN No 0251-08 and required an improvement.
Regulatory requirements for the elaboration of the safety case and safety assessment for any activity or facility dealing with the management of radioactive	Absent

waste (including: design, sitting, construction, operation shutdown, decommissioning, post closure and remediation when it is needed)	
Regulatory requirements for final disposal of radioactive waste	Absent
On the institutional control of shutdown, closed mining facilities and disposal facilities.	There are internal regulations for the control of stopped facilities at closed plants
Regulations on safety closure, decommissioning and remediation of past practices or existing exposure situations.	Developed but did not approved
Proper legal framework for the establishment of an effective regulatory infrastructure and framework.	Partially developed. Particularly, according to the Law of Republic of Uzbekistan from April, 13th, 2011 № ZRU-282 "About modification and additions in the Law of Republic of Uzbekistan " About radiation safety " the State Inspectorate co-ordinates activity of the state control bodies in the field of maintenance of radiation safety, "Sanoatgeokontekhnazorat" is defined as main control body for RW Management in Uzbekistan

National policy and strategy on radioactive waste management (which should include all the radioactive waste generated or potentially to be generated in the country) - is partially developed and could give rise to serious mistakes in the decision making process. At the same time this situation does not allow for an optimization process in taking decisions and will not allow for a sustainable management of the radioactive waste, decommissioning and remediation. Absence of certainty and systematization of data on radioactive waste from the uranium industry can lead to improper decision making. Inadequate final disposal of radioactive waste leads to radiation threat both for the present and future generations not only in the territory of the Republic, but also could affect the neighboring countries. Consistent institutional control of facilities and establishment of a system for notification and warning of the public will promote a reduction of the risks for the public to obtain high exposure doses and the threat for the environment. Absence of the documents on the regulations for safety closure, decommissioning and remediation of past practices or existing exposure situations can lead to improper planning of actions and cause irregular allocation of resources, resulting in reducing of remediation work efficiency. Besides, there is a danger of overexposure of the workers and the public. Ineffective regulatory infrastructure and framework can lead to a risk of insufficient institutional control of facilities of the uranium industry. Interactions between the authorities will enable to consolidate the functions of the regulatory body.

Future developments

Current phase of the bilateral project is due to complete in 2013 by the development of the following regulatory documents such as: “Regulatory Guidance on Radioactive waste classification in Uzbekistan”, “Requirements for radioactive waste storage and disposal in Uzbekistan, and “Requirements for monitoring of the radioactive waste storage facilities”. Based on the problems revealed during the analysis of the existing documents further cooperation is required.

Acknowledgments

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