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Uranium legacy of Soviet Union in Tajikistan: problems and ways forward

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Currently, the serious radiological and ecological problems in Tajikistan are uranium mining and milling activities consequences overcoming which intensively developed during the soviet period. After the collapse of USSR, the uranic ores extraction in Tajikistan stopped due to deposit's output completion on the territory of the republic. Remediation of mining and milling activities'sites became the most urgent once all mines were closed.

Uranium legacy of Soviet Union in Tajikistan starts from 1944., once the uranium concentrate production was initiated in pilot plant of Gafurov city. 6 small plants on uranium oxide production were constructed in the north of the republic in 1945 from which only one big plant operated at the end of 1960th in Chkalovsk city. After reconstruction in 1980th this plant reprocessed up to 1 million tons of ores per year and sulfuric solution containing uranium up to 200 g/l. Plant produced approximately 2000 tons of uranium oxide per year.

During the second half of XXth century Tajikistan was one of the uranium raw materials suppliers in USSR: more than 20 % of produced uranium in USSR was delivered from Tajikistan.

Remediation activities were carried out only in small parts of sites which were located in places which were close to residential areas. Thus, uranium ores reprocessing dumps were covered by solid layer of soil with thickness of 1 m in densely-populated district of Gafurov city which considerably reduced radon exhalation and gamma-emission dose rates on the surface of the dump. Nevertheless, dumps here continuing to remain the risk factor since located only in 50 m distance from neighboring residential houses. For example, Degmay tailing dump, which is located in 2 km distance from the nearest residential settlement, is not covered at all and there is a free access to public and cattle pasture on the surface of the tailing dump, where vegetation has been grown up.

Another essential limitation for carrying out the remediation measures is lack of relevant infrastructure. In this regard the regulatory authority of Tajikistan should solve many problems among which:

-Assessment of radiological consequences on uranium industry sites;

-Assessment of remediation measures conditions;

-Analysis of compliances with international standards and recommendations;

-Action plan development on minimization of uranium industry sites'impact on public and environment;

-Purchase of analytical equipment for monitoring

It is evident that solution of problem on remediation of former uranium industries in Tajikistan is of great importance since significant number of sites and uranium ores reprocessing are located in the basin of Syrdarya River which flows through densely-populated Fergana valley with population more than 20 million people.

In conclusion it is necessary to mention that implementation of international projects with IAEA active participation facilitated to expanding cooperation and mutual understanding among Central Asian countries in issues of environmental protection. Re-establishment of radiation control system on former sites of uranium industry of the Republic of Tajikistan is the first step to their full remediation.

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