Jáchymov, Czech Republic

Uranium mining site

Having grown rich by the discovery of uranium in its mines, the town of Joachimsthal/Jáchymov soon became one of the Soviet Union's suppliers of fissile material for its nuclear weapons program. A large number of miners, many of whom were forced laborers, soon developed lung cancer due to exposure to radioactivity.

Uranium mining in Jáchymov, around 1935.

View over Jáchymov from one of the mine shafts. Photo credit: abejorro34, creativecommons.org/licenses/by-nc/2.0

The mine Svornost (Unity), one of the oldest in Jáchymov. First, silver was mined here, later cobalt and arsenic and finally uranium. Photo credit: abejorro34 / creativecommons.org/licenses/by-nc/2.0

History

Radioactive ore was first discovered near the Bohemian town of Joachimsthal in the 19th century. A spa was opened, promising miraculous healing through the effects of radioactivity. Unaware of the harmful effects of ionizing radiation, many thousands of guests came every year to have their ailments "treated" through radium exposure. Additionally, scientists such as Marie Curie used uranium from Joachimsthal for their research on radioactivity. After WWI, Joachimsthal became part of Czechoslovakia and changed its name to Jáchymov.

In the 1920s, radioactive soaps and other gadgets from Jáchymov became profitable export items.[1] Radioactive dyes were sold to the U.S. for luminous wristwatches. The women who worked with the dyes had the habit of licking the paintbrushes. After many of them lost their teeth or developed oral cancers, U.S. public health authorities looked into the matter and prohibited further radioactive imports.[2]

After annexation by Germany in 1938, Jáchymov was returned to Czechoslovakia after WWII. With the beginning of the nuclear arms race and the Soviet's Union's massive demand for fissile material, the uranium deposits in Jáchymov's mines suddenly acquired strategic importance. Jáchymov fell victim to the uranium rush and became a strictly guarded security zone. Little heed was given to public health or environmental concerns. In order to meet demand, forced laborers and political prisoners were sent to the Jáchymov mines in the 1950s and 1960s.[3]

Health and environmental effects

While drilling for uranium ore, many miners contracted what became known as "Jáchymov miners disease": lung carcinoma. The average life expectancy of Jáchymov miners was only 42 years. The significant rise in the incidence of cancer prompted much scientific debate as well as parliamentary inquiries. Despite protests by the local tourism and spa industry, which feared for the "good name" of radioactivity, the Czechoslovak Ministry of Public Health opened a screening station to perform routine investigations of miners.

In 1952, the main cause of "Jáchymov miners disease" was finally explained as a consequence of inhaling radioactive aerosols. The government was forced to include lung carcinoma in the law of indemnification for occupational diseases and pay compensation to bereaved families.[4] Nevertheless, uranium mining was continued in Jáchymov until 1964.

In 1992, the Institute of Public Health investigated the use of radioactive waste as mortar and plaster in local construction projects. Increased gamma-exposure and radon gas concentration were found in the interiors of houses in the region. Some people lived for many years with dosages of several hundred mSv per year.[5] Estimates of the probability of developing cancer from exposure to ionizing radiation are about 2 % per 100 mSv.[6] Normal radiation doses from radon gas amount to about 1 mSv per year.

Outlook

Today, Jáchymov, which was a "forbidden city" for so many years, still bears the traces of its infamous past: "There was no time to repair the damaged countryside, remove the vast slagheaps, or fill in the mudflats and brackish lakes created by the extensive mining activities."[1] Poverty is rampant these days; deserted factories and radon-emitting houses scatter the landscape and pose a direct health threat to people still living there. Drastic measurements are needed in order to reduce radiation doses to the local population: while radioactive plaster can be removed easily, contaminated mortar generally requires the demolition of the entire house. But demolitions also bring with them the risk of spreading radioactive dust. The future of Jáchymov remains uncertain. The full extent of the health effects of uranium mining for the local population is still unknown, as large-scale epidemiological research was never undertaken.[5] The miners and locals of Jáchymov – they, too, are Hibakusha. Their health was sacrificed for the construction of nuclear weapons.

References

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