

MINING AND EXPLORATION PRACTICE IN MONGOLIA AND GEOETHICAL ASPECTS

Mining industry in Mongolia is one of primary significant sector producing 20 percent of the GDP, 64.0 percent of Gross industrial output, 68.5 percent of export and 47.7 percent of FDI alone with addition of 20 percent of the state budget income. The number of extractive mining products has been increasing year by year. Growth in Mongolia's mining industry has been led by a rampant increase in coal, copper and gold production. The bulk of this growth occurred in July 2013, when the Oyu Tolgoi copper-gold mine begins commercial production and shipment of copper concentrate.

Mongolia has proven reserves of 12.2 billion tons of coal including 2 billion tons of coking coal and 10.1 billion tons of thermal coal, and is estimated to have potential coal reserves of some 100 billion metric tons. Coal provides 80% of its electricity. Mongolia's output is approximately only 5 million tons of coal per year. Other critical resource is uranium. Mongolia has 74,000 tU in Reasonably Assured, however, geological indications reported that uranium resources could be 1.47 million tU. French nuclear giant AREVA (AREVA Mongol) has 28 exploration licenses covering more than 14,100 square kilometers in the East Gobi province of Mongolia. Uranium mineralization is characterized as roll-front type and potentially amenable for the in-situ leaching mining method. Huge sedimentary basins in the south-eastern Mongolia contain promising uranium deposits. Mongolia has all the prerequisites to become a large uranium producer in the foreseeable future.

Rapidly increasing exploration of ore deposits poses many problems: environmental, social, educational, etc. Due to the fact that the indigenous population is likely to be the one most affected by uranium exploration and mining it is of utmost importance that not only occupational but all possible environmental impacts of uranium exploration are identified by both mining exploration companies and regulatory authorities. Air pollution is a major problem in Ulaanbaatar, from domestic combustion, cars, and power generation. Different social organizations and inhabitants are protesting against mining activities. Most of them are herders, who have come on horseback from countryside to demand stopping of mining activities that destroys their pastureland. The main concern of the inhabitants is associated with uranium exploration and exploitation (radioactivity, dust, underground water pollution during leaching process, and others).

Environmental control needed to protect area and herders. Effective control over the management of radiation protection at exploration and mining sites is exercised by the relevant government departments. To facilitate this process a system of inspections and monitoring of uranium exploration sites (and mining sites, in the future) should be introduced. Education programs dealing with ore deposits exploration and mining and aimed at the general public (both in population centres and in remote areas) should be developed and presented jointly by the industry, government and nongovernment organizations.

Important documents are needed, and role of scientists is critical: to explain effects of radiation, exploration stages, drilling, generations of radioactive dust, and develop very detailed plan of protection. This plan is important for all exploration projects.

Author:

Prof. Ochir Gerel, PhD, DrSc

Director of Geoscience Center

School of Geology & Petroleum Engineering

Mongolian University of Science & Technology

P.O. 46, Box 520

210646 Ulaanbaatar, Mongolia

E-mail: gerel@must.edu.mn; ochir.gerel@yahoo.com