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THE ECOLOGICAL ACCIDENT FROM "AURUL", BAIA MARE (ROMANIA): CAUSES, CONSEQUENCES AND ACTIONS

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Bozânta dams complex is located 6 km downstream of Baia Mare city, close to Săsar and Bozânta Mare villages. It consists of three ponds: Bozânta Veche (in conservation, conceded by AURUL S.A. for future exploitation), Bozânta Nouă (active, exploited by REMIN mainly for base metals) and Bozânta Aurul (active, exploited by AURUL S.A. for precious metals). The first two are of a slope-type and consist of materials which are suitable for being used for the elevation of the external walls, whilst Aurul dam is of a plain-type and its constituent material cannot be used for similar purposes due to its high toxicity.

Aurul tailings dam (94 ha) was built up in a short time in 1998 by Australian engineers, and it is located between Săsar river and Morii Brook. A plastic base-lining method using polyethylene film was selected for groundwater protection. The dam surrounding the pond was built of a settled sand core covered by soil. A second, safeguard dam does not exist. Aurul dam became active on 8 April 1999, when the gold leaching activity started.

The ecological accident

At the end of January 2000, a major ecological accident took place at Aurul dam, which in the following days focused the attention of the whole world. 6–7 accidents have been reported previously. Among them 4 pipe breaks, 1 at the pipe from the factory to the basin, and 3 at the pipe back from the basin to the factory carrying "pure water" in May, September and December 1999. On 28 January 2000, the water table in the pond was rising visibly, but no action was undertaken. On 30 January 2000, 8:30 p.m., after heavy rains, the top of the dam broke giving birth to an originally 25 m wide breach. Thus, in 11 hours a spill of about 100,000 cubic meters with suspensions and cyanide covered more than 4 ha surface of soil and then was discharged in the hydrographic system. The standard limit of cyanide in fresh water in Romania and Hungary is 0.01 mg/l.

Causes and consequences

The previous experience in building tailing dams in the region was not used for the new construction (absence of a clay core); specific local meteorological conditions (heavy rains, frost and snow in winter) were not taken into consideration; the dam was overcharged with highly concentrated cyanide solutions.

Cyanide contamination of the rivers Săsar, Lăpuş, Someş (values between 19.2–7.8 mg/l), Tisza and Danube (in Romania, Hungary and Yugoslavia); flora and fauna in the contaminated rivers were affected; contamination of about 20 ha agricultural land and of 9 water wells in Bozânta Mare village.

Actions

Cessation of AURUL's operations; early warning of Hungarian authorities from the Romanian regional authority (10 hours after the dam broke); filling the breach with soil (51 hours); controlled discharge of the spill from the dam (40–50 l/s); neutralization of the discharged waters with sodium hypochloride; monitoring of the toxic elements along the rivers and water supply source for the population; further consolidation of the embankment; mass-media, diplomatic and legal feed-back.