



Mercury pollution issues in mining districts (Armenia)

Armen Saghatelian, Lilit Sahakyan, Olga Belyaeva, and Nver Torosyan

Center for Ecological-Noosphere Studies National Academy of Sciences, Environmental Geochemistry, Yerevan, Armenia
(svlilit@yahoo.com)

The issue of mercury (Hg) due to its chemical and geochemical peculiarities and a negative impact it produces on human health has a long history. Existence of international projects devoted to Hg research (AMAP Technical Background Report, 2013) and elaboration on a new convention to combat Hg pollution (<http://www.mercuryconvention.org/Home/tabid/3360/Default.aspx>) prove that Hg has already become a global concern.

Presently, data on Armenia's area pollution with Hg available in international literature sources and reports are scarce and cover pollution sources only. According to published data (AMAP Technical Background Report, 2013), in 2009 summary emission of Hg on the entire territory of the Republic of Armenia made 222,723 kg, considerable shares of which fell on primary copper production (88,057 kg), cement production (57,094 kg), production of gold from large mines (46,728 kg), waste and other losses due to breakage and disposal in landfill (29,995 kg); besides, some quantities originated from amalgams, combustion of different-type fuel and garbage, and so on. One should mind, that these are calculated statistical data, which reflect neither a complete list of Hg pollution sources nor a realistic picture of levels of Hg pollution of different environmental compartments and risks. Local monitoring data on Hg pollution are not sufficient either.

This abstract is aimed at revealing of Hg pollution problems in some of Armenia's mining regions through generalization of data on complex investigations implemented at the Center for Ecological-Noosphere Studies NAS RA between 2005 and 2011, and is focused on Hg pollution of different environmental compartments: water – atmosphere – soil – farm produce – atmospheric precipitation – human bio-substrates. The obtained data indicate that as a result of ore mining and processing Hg enters onto the surface, travels through air and water migration streams and finally brings to pollution of all environmental compartments. Extremely hazardous are operating and abandoned tailing repositories that have been involved in different ways in agricultural cycle. Hg penetrates into food chain intensively accumulating in farm crops, fodder grasses, and is found in milk, too. Hg is detected also in hair of children residing on such sites. As established, commercially invaluable Hg is an ecological risk factor to the health of local people.