



Project Details

Location	Akhtala, Armenia
Contaminant	Lead
Project Duration	August 2013 – July 2014
Project Cost	\$25,000, provided by the European Commission
Implementing Partners	Blacksmith Institute for Pure Earth, Ministry of Health of the Republic of Armenia, American University of Armenia (AUA)
Affected Population	5,000

Background and Scope

Akhtala Mining Company is located in Akhtala town in Lori marz/province in the north of the country. Because of the economic crisis, the activities were stopped during 1990s and then

restarted in 2001. The mining ore processing company has been using three tailing ponds for toxic waste. Two of them are located outside Akhtala in Jojkan and Mets Ayrum communities, which are about 13 km far from Akhtala. One tailing pond is located inside Akhtala community. In the frame of rapid risk assessment project the American University of Armenia (AUA) investigators visited Akhtala community in September 2012 to do observations and collect samples from the area. The research team observed a re-cultivated, old, yellow tailing pond that was not currently active; it was located next to Akhtala Monastery across the main street of the town. At the moment of the rapid assessment the tailings were discharged into the river. It was probably due to damaged pipes, as it was cascading down from where the factory pipes were. There were piles of yellow tailings around the riverbanks continuously contaminating the river water.

Solution Implemented

The sixth targeted sample was taken from the community kindergarten playground. The seventh sample was taken from the front of the entrance of multi-storied buildings in the “Sarahart” district. Overall, seven soil samples were collected from the community (Table 1). The samples have been analyzed at the Environmental Impact Monitoring Center laboratory of the Ministry of Nature Protection of Armenia. The laboratory analyzed the samples using inductively coupled plasma-mass spectrometry (ICP- MS); total dissolution was performed prior to the analysis. The results were compared with the recommended Maximum Allowable Concentrations (MAC) provided by the Blacksmith Institute.

The level of arsenic was high in all samples and the levels of lead, chromium and cadmium were high in most of the samples. Particularly the yard of the Akhtala Church was greatly polluted with heavy metals (the level of As was 12 times exceeding the MAC and the level of Pb 11 times). Given the residential area in Akhtala was polluted with mining waste the research team conducted 1) Thorough Risk Assessment, 2) Blood Lead Level Testing and 3) community trainings to empower the community members and 4) assessed the local needs and capacities and developed a local action plan.

Thorough Risk Assessment

The research team conducted a thorough risk assessment in Akhtala following a standard protocol developed by the investigators. The collected soil samples were transported to the AUA Acopian Environmental Laboratory. The team developed a protocol for laboratory soil processing and analysis, and laboratory technicians processed all collected soil samples and analyzed them ex-situ with an XRF analyzer at the laboratory of the AUA Acopian Center for the Environment. The Blacksmith Institute gave the XRF analyzer to the team for testing the soil samples; AUA School of Public Health (AUA SPH) team returned the analyzer to the Blacksmith Institute in April 2014. The AUA SPH team identified the churchyard in Akhtala as the most polluted area in the town that requires immediate remediation.

Blood Lead Level Testing

Blood lead levels among children have never been investigated in Armenia. The Blacksmith

Institute generously provided the LeadCare Analyzer II to the research team making it possible to test blood lead levels of young children in communities contaminated by lead, such as Akhtala and Alaverdi. The research team prepared protocols and received ethical and government approvals and support letters to implement testing of blood lead levels (BLL) among children 4-6 years old. The assessment included testing for blood lead levels and survey of mothers or legal guardians of children to better understand the risk factors associated with higher blood lead levels. Currently the AUA SPH team is working on a manuscript for publication based on the BLL findings.

Community Trainings

During this reporting period the research team of the AUA SPH conducted thorough literature review and based on that developed training materials (manuals, presentations, and brochures), and conducted trainings with various groups of the population (parents of schoolchildren, healthcare specialists, school and kindergarten teaching staff, municipality staff, NGO representatives, active community members and high school students from two schools in Akhtala). Overall, 122 people received trainings in Akhtala community. In addition, the research team prepared an application for ethical approval before the fieldwork, as well as pre- and post- training self-administered questionnaires to evaluate the effectiveness of the trainings. The team entered the survey results in SPSS database and conducted analysis. The pre – and post- training evaluation results showed that the trainings were effective.

Assessment of Local Needs and Capacities for Local Action Plan

In addition to the trainings, meetings with community members were also organized, through Focus Group Discussions and individual in-depth interviews to get their input in the development of the Local Needs/Capacity assessment and development of the local action plan. Based on the results, the team developed a Local Action Plan for addressing the environmental and health problems in Akhtala.

Project Results

The research team wrote official letters to the Mayor of Akhtala and Governor of Lori (the marz/province where Akhtala is located) and arranged meetings with them before starting the fieldwork in the community particularly before the assessment of blood lead levels among children 4-6 years old and thorough risk assessment in Akhtala. During the initial meetings the team informed about the thorough risk assessment and the testing of blood lead levels (BLL) among children 4-6 years old and the community educational component. The team also wrote letters to the Ministry of Health and had meetings with experts from the Ministry of Health to get ready for the assessments.

In response to AUA letters regarding the findings from mining communities in Armenia, the Chief of Staff of the Ministry of Nature Protection wrote an official letter stating that the Ministry of Nature Protection will use the results from the thorough risk assessment in 11 communities in Armenia to develop the list of communities affected by the activities of industries mentioned in the Law on “Targeted Use of Nature Protection Fees From

Companies” and when making decisions on how to distribute the collected fees between the affected communities

Based on the results of thorough risk assessment, local needs/capacity assessment and consultations with an international environmental expert, a set of recommendations were provided to the Akhtala community.

Recommendations and Lessons Learned

- Overall, the concluding meeting with community stakeholders (Akhtala Mayor, staff of the Mayor’s office, the nurse, the school headmaster, and active NGO members) was the most effective and valuable meeting where the participants showed interest, enthusiasm and trust toward the project team from AUA. They suggested that any future cleanup project in the church yard should consider collaboration with the Ministry of Culture and the Armenian Church (the Catholicosate of All Armenians, the Mother See of Holy Etchmiadzin) that are officially in charge of Akhtala Church and the adjacent area.
- The main challenge was a lack of interest and willingness from some of the community members to participate and learn something new. The refusal rate was higher when the community members were asked to participate in focus group discussion to assess the local needs and available capacity. A continuous presence in the community through a multi-year project that would facilitate more trust and capacity building could be beneficial for the community.