International Mercury Treaty Enabling Activities Program (IMEAP)

Following the signing of the Minamata Convention on Mercury (the 'mercury treaty') in 2013 and the release of the IPEN Minamata Declaration on Toxic Metals, IPEN expanded its Mercury-Free Campaign and developed a broad program of treaty-enabling activities to be implemented in conjunction with IPEN Participating Organizations (POs). The International Mercury Treaty Enabling Activities Program (IMEAP) is geared toward raising awareness about the mercury treaty while generating data on key thematic elements of mercury pollution to help enable countries to implement the Minamata Convention.

IPEN launched IMEAP in early 2014 and continues to mobilise resources for IPEN POs to conduct activities that support implementation of the mercury treaty[1].

The key objectives of the IPEN IMEAP are:

1. *Preparing for Treaty Ratification & Implementation:* Creating synergies between NGOs in developing countries with ongoing UN agency or government-led mercury activities and NGO priority-setting.

2. *Enabling Activities to Prepare Countries for Treaty Ratification & Implementation:* Support to NGOs to carry out national and thematic mercury treaty activities.

3. *Communication of Issues Related to Mercury and Treaty Ratification & Implementation:* Global dissemination of project results & south-south collaboration.

The following project forms part of the overall IMEAP activities and contributes to the greater global understanding of mercury pollution issues while providing information that may contribute to Minamata Initial Assessments (MIA) and raise public awareness in preparation for early ratification of the Minamata Convention on Mercury.

[1] IPEN would like to acknowledge the financial contributions from the governments of Germany, Sweden and Switzerland, and the Swedish public development co-operation aid through the Swedish Society for Nature Conservation (SSNC) and other donors. The views herein shall not necessarily be taken to reflect the official opinion of any of these donors, including SSNC or its donors.

IPEN Mercury Treaty Enabling project - Kyrgyz Republic

Name of NGO: "Independent Ecological Expertise"
Date: 28.05.2015 (IMEAP 2014 Phase)
Title of project: '***Public participation in conducting independent monitoring'***

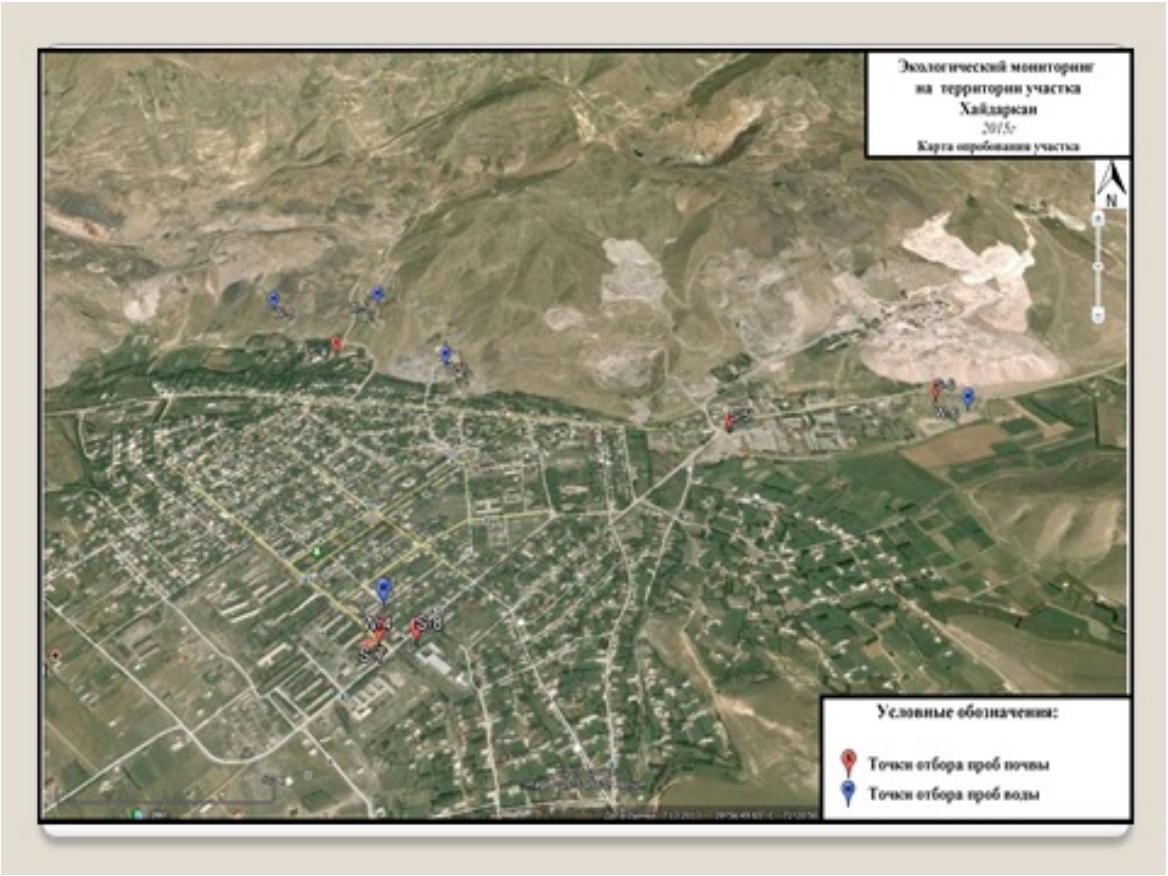
Summary

This project examines the extensive mercury contamination resulting from decades of operation of the Khaidarkan mercury mine, virtually the last primary mercury mine in the world still producing and exporting elemental mercury. Under difficult conditions and considerable resistance from mine management, NGO Independent Ecological Expertise (IEE), has undertaken an independent environmental mercury monitoring study, utilising public participation, to add to the available knowledge of mercury contamination around this industrial hot spot. Using a Lumex air sampler, IEE detected elevated airborne mercury on public land close to the factory accumulators. Soil samples reported very high levels mercury contamination in the area of Chauvay (>200ppm) with even higher levels in other sites (>500ppm). Mercury concentrations exceeded water quality guidelines in samples from the River Chatmazar-Sai, the Chauvay-Sai River and in drainage and retention ponds of the mercury mines. This valuable information may prompt further health investigations for local residents while indicating critical areas requiring site remediation and further investigation. This IMEAP project is relevant to Articles 3, 8, 9, 11, 12, 16, 18, and 19 of the Mercury Treaty.

Provide a physical description of the site(s):

Geographical location (latitude and longitude if possible –GPS); estimate area in m2 , type of soil (sedimentary, residual), nature of land (agricultural, industrial, mining, waste disposal, recreational); surrounding water supplies; surrounding communities; surrounding wildlife or plant life. Provide informative photos as well.

The Khaidarkan township [39°56'39.48"N / 71°20'1.75"E] is located in the Southern part of Kyrgyzstan (Batken oblast) at the altitude of 2500 m. The region is located in an extreme continental climate zone with low mean annual temperatures. All these factors impose some limitations for the specifics and structure of the local economy (development of animal husbandry and cultivation of crops with short vegetation periods, such as potatoes, carrots and some fruits). The township is located in a mountainous area with limited availability of grazing lands (630 ha per 1340 households) and cultivated land (0.04 ha at average), allowing local residents to maintain stabled cattle and raise poultry. Besides that, pastures and lands of neighbouring *ayil-okmotu* allow local residents to keep sheep and goats. It is absolutely obvious that the Khaidarkan mercury plant made a major contribution into the local GDP. Earlier, 3,500 persons from the overall number of 11,500 residents of Khaidarkan (in 1989), were employed by the mercury mine. Since independence, numbers of industrial workers decreased down to less than 1.000 persons (860 workers in 2008), but the mercury mine nevertheless remains a vitally important source of income for local residents. Local residents depend on the facility when they are employed and paid wages by the mine, and they also depend on it indirectly, when they provide services to the mine and use mine water for irrigation.



Pic 1 Sampling locations around the Khaidarkan mercury mine. (source: IEE)

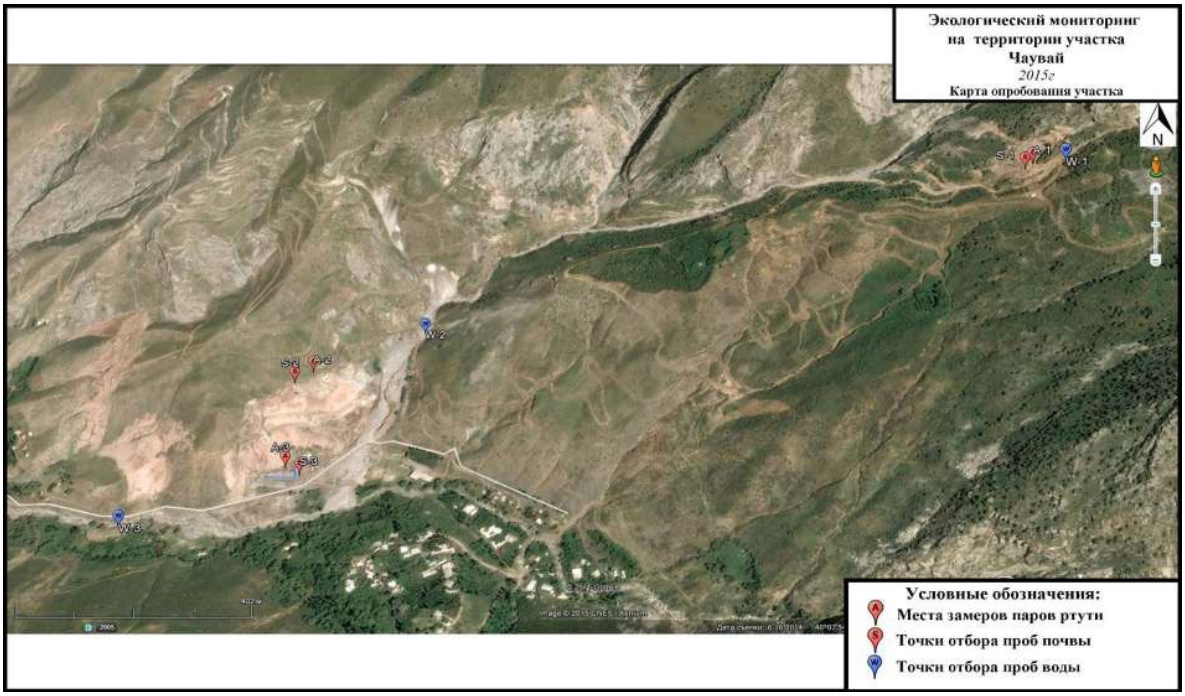
Chauvay mercury deposit [40°7'48.94"N / 72°12'22.47"E] is located at the right bank of a small mountainous river (the Chauvay), the river runs from east to west, almost following the line of contact between Boardy limestone block (at the north) and the shale suite (at the south). The river joins the Isfairam river a little bit upstream of a picturesque canyon of the river, cut through steeply dipping Boardy limestone rocks.

The area between Uch-Kurgan (north) and Boardy range (south) is a plateau - it is longitudinally cut through by the Isfairam river valley, and latitudinally by several minor dry valleys (locals call them *sai*). The average absolute altitude of the plateau reaches about 1800 m; in the southern part it is higher (reaching 2200 m at Boardy range, while in the northern part it is much lower). In geological terms, the plateau is composed of different Palaeozoic rock types: laterally extended limestone ridges (predominantly metamorphosed limestone), interstratified by shale and sandstone suites with interformational porphyritic veins.

The ore mineralisation is associated with the tectonic junction plane and localised along the shale over limestone thrust plane. The junction is of an upthrow-shift pattern, troubled by multiple additional slip planes, crumples in shales and jointings in limestone. Deep fractures nearby the junction plane were the most natural passages for oversaturated mineralised solutions. While rising in the fractures, thermal mineralised solutions reached crushing zones formed as a result of the previous thrust (with underlying crushed limestone and overlying roof of impervious shale suite rocks). Mineralised siliceous solutions impregnated crushed materials, causing their silification and associated ore mineralisation, while shales represented a natural shielding obstacle for the solutions (it is also possible, that shales played some chemical role causing stronger mineralisation in shale-contacting sections of the breccia by organic

substances); in areas of contact of limestone and shales with presence of an ore breccia, the breccia generally is located over limestone and under shales.

Two types of ore mineralisation are identified for the Chauvay deposit: the first type is represented by silificated breccia along the plane of contact between limestone and shales (the first type breccia is formed by crushed limestone and shale, metasomatically altered and cemented by silica, and containing ore minerals - cinnabar, stibnite ad fluorite). However, only stibnite co-deposits with quartz, and mainly in top sections of a breccia, similarly to Karamjay deposit. Cinnabar and fluorite occur at Chauvay deposit also outside quartz breccia, in limestone, and in the latter case without stibnite. It is interesting to note that cinnabar is the most mobile component of the formation: sometimes it migrated far away from points of its initial precipitation in silificated breccia, its secondary migration seems to be associated with carbonate solutions instead of siliceous ones - as a result, cinnabar co-deposits with calcite in fractures of the neighbouring limestone blocks, sometimes far away from the tectonic junction zone.



Pic.2 Sampling locations around the Chauvay mercury mine (source IEE)

Report on the history of the site.

Identify the activities was carried out in these locations that make it a contaminated site today. Provide information about ownership; government regulatory actions etc:

Production operations and production waste of Khaidarkan Mercury Co. represent a major source of environmental mercury pollution in Kyrgyzstan - the mercury plant continues its operations notwithstanding lack of environmentally sound waste dumps, deteriorated equipment and outdated production technologies, severe contamination of environmental media (air, water, soils) with levels exceeding applicable MACs for mercury.

After more than 70 years of mercury extraction and lack of sound technical and environmental measures, the overall area of mercury-contaminated territories continues to grow and now they represent sources of mercury emissions to local and global environment.

Khaidarkan Mercury Plant (was initially commissioned in 1941 as "Plant # 5"). In 1950, it was renamed to Khaidarkan Mercury Plant. In 1990, the plant employed more than three thousand persons. In 1995, the plant underwent reconstruction with use of a World Bank grant (KGS 24 million) and a loan (KGS 4 million) to increase its operating capital. In the course of plant reconstruction and rationalisation, production operations at the deposit were intensified and the government lowered royalty rates from 12% to 2%. However, at the same time, electricity and fuel prices were raised. As a result, the economic performance of the plant improved only slightly. The number of employees decreased from 3500 to 1300 persons. In 1996, due to a sharp fall of global mercury prices, the plant was declared bankrupt and transformed (under PESAC Program) into Khaidarkan State Mercury Company thereby writing-off all its tax liabilities. In 2002, the company lost its state-run status and the plant was renamed into Khaidarkan Mercury JS Company, but the state still held about 95% of shares. In the course of its operations, the mercury plant exhausted several mercury deposits, including Chauvay, Symal and Chonkoi. Now, these ore deposits are mothballed due to unfavourable mining conditions, notwithstanding some remaining ore reserves.

Now, deep layers of Khaidarkan ore deposit are exploited. Initially, only pure mercury ores were extracted, while in 1968, extraction of multi-metal ores was launched at "Mednaya" and "Plavikovaya gora" sections of Khaidarkan ore field. A specialised ore processing facility was commissioned to process multi-metal ores and produce mercury-antimony and fluorite concentrates. The mercury plant mainly produces elementary mercury and its compounds, as well as antimony and fluorite concentrates. Mercury is exported via mediators from the USA, the Netherlands, Russia and Kazakhstan. Fluorite is imported by CIS countries: Russia, Kazakhstan, Tajikistan and Uzbekistan. Equipment and materials for the plant are imported from CIS countries.

Describe the environmental and health consequences of the contamination.
Provide evidence (if available) of damage to the community or environment including personal testimonies. Include any records of environmental and health incidences or investigations:

According to information released by the governmental authorities and the plant managers, contemporary pollution levels are substantially lower than 15 years ago due to major reduction of production intensity. However, there are some indications that mercury contamination still persists, resulting in substantial adverse health and environmental impacts. In particular, agricultural lands are under threat of pollution, while seriously contaminated wastewater and waste dumps are easily accessible for local residents and cattle.

According to Khaidarkan Hospital, in 2007, the following diseases dominated in the morbidity structure: urogenital diseases - 13.5% (371 cases); cardiovascular diseases - 9.9% (271 cases); respiratory diseases - 9% (248 cases); and gastro-intestinal diseases - 7.8% (216 cases). Mortality causes are mainly associated with cardiovascular and respiratory diseases (49.5% and 22.6%, respectively).

In 5 recent years, no cases of acute or chronic mercury poisonings were registered among employees of the mercury plant and local residents. The Institute of Medical Problems of the Southern Section of the National Academy of Sciences of Kyrgyzstan studies adverse health impacts of environmental factors.

Its priority research topics are associated with health impacts of radioactivity and antimony poisonings, as well as experimental methods for removal of heavy metals salts and intoxication reduction. Radiation monitoring in the area is maintained by Radiological Section of Osh Centre for Sanitary and Epidemiological Supervision. Information on Khaidarkan area (including the plant site, mines and the tailings pond) suggests normal background radiation levels: 13-15 μR/hour.

Khaidarkan Sanitary and Epidemiological Facility monitors mercury levels in workplace environment (particularly in air). Kadamzhay Sanitary and Epidemiological Facility, jointly with Batken territorial Environmental Directorate maintain environmental control over operations of Khaidarkan Mercury Plant (joint inspections, etc.).

Identify the party or parties responsible for creating the contaminated site (if known):

In Kyrgyzstan, the main threats for human health and the environment are associated with impacts of mining facilities that affect local residents in communities nearby Khaidarkan Mercury Co. sites, especially in Aidarken and Chauvay townships where primary mercury mining operations are under way.

In the near future, "Chauvay Ken" Co. is expected to commission its production facility in Kadamzhay district of Batken oblast. Capital investments into the facility reached KGS 104 million and it employs 59 persons. Its planned production capacity is estimated at the level of 25 thousand tons of mercury ore concentrates up to 2033.

Identify the party or parties currently responsible for managing/supervising the site:

The State Agency for Environment and Forestry of the Government of Kyrgyzstan is a specially authorised state body in charge of inspections, issuance of permits, setting emission and discharge limits, appraisal of environmental action plans, environmental appraisals and diverse activities in the sphere of environmental monitoring.

Osh-Batken territorial authority for environment and forest ecosystems maintains quarterly inspections of Khaidarkan Mercury Plant, as well as annual analytical control (jointly with Kadamzhay Sanitary and Epidemiological Facility).

Every three months, the mercury plant submits its reporting to Osh-Batken territorial authority for environment and forest ecosystems, specifying environmental situation, emissions, discharges and waste generation. In every case of non-compliance with the discharge and emission limits set, the plant should pay monetary fines.

The National Statistical Committee of Kyrgyzstan received reports on environmental pollution matters (e.g. emissions, wastewater discharges water use, waste generation) directly from industrial facilities and publishes compiled statistics of the state of environment.

Describe any plans to clean-up the site(s):

A UNEP/GEF project for Reduction of Global and Local Environmental Risks in Connection with Primary Mercury Mining in Khaidarkan, Kyrgyzstan is intended to reduce global and local

environmental risks in connection with primary mercury mining in Khaidarkan. The project stipulates research and development of preventive and rehabilitation works for mercury-contaminated sites. However, due to obstruction of the Khaidarkan Mercury Co. and poor management of the project, the above measures might be implemented in an undue manner.

Describe the system (if any), your country has for recording and mapping contaminated sites:

Now, a Methodology for sampling water and soils, measurements of air pollution and radiation to evaluate the environmental situation had already been developed. The Methodology has not been approved by a Governmental Decree yet (it undergoes reconciliation now), but it was tested in the course of environmental research studies in Khaidarkan and Chauvay townships.

The State Agency for Environment and Forestry also develops uniform formats for collection of data for the Information System of Environmental Monitoring of Water Bodies.

Report on laws and regulations, if any, your country has for managing contaminated sites:

Some Laws and Regulations in the sphere of chemical safety in Kyrgyzstan include:

- The Convention on Long-range Transboundary Air Pollution - Law # 11 on Accession to the Convention of January 14, 2000;
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Governmental Decree # 304-1 on Accession to the Convention of January 18, 1996);
- The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Law # 15 on Ratification of January 15, 2000);
- UNECE Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention). Law # 6 on Accession of 12.01.2001;
- The agreement of CIS Heads of governments "On application of technical, medical, pharmaceutical, sanitary, veterinary and phytosanitory norms, rules and requirements concerning the goods imported into the member-states of the Commonwealth of Independent States" (of 28.09.2001, Moscow) - approved by Governmental Decree # 834 of December 31, 2001;
- ILO Convention 170 concerning Safety in the use of Chemicals at Work (Geneva, June 25, 1990);
- Ruling of the Inter-Parliamentary Assembly of Member-states of the Commonwealth of Independent States of October 29, 1994 concerning Optional Legal Act on Safety in the Use of Chemicals at Work;
- The Constitution of the Kyrgyz Republic;
- KR Law on Public Health;
- KR Law on Environmental Protection;
- KR Law on Ambient Air Protection;
- KR Law on Environmental Appraisal;
- KR Law on Production and Consumption Waste;
- KR Law on Water;
- KR Law on Mineral Resources;
- KR Law on Tailings and Mine Dumps;
- KR Law on the General Technical Regulation for Ensuring Environmental Security in the Kyrgyz Republic;

- Governmental Decree # 279 of July 13, 1995 on the National Register of Potentially Toxic Chemicals;
- Procedures of State Registration of Potentially Toxic Chemicals;
- Governmental Decree # 376 of July 27, 2001 on Measures to Protect Human Health and the Environment from Adverse Impacts of Certain Hazardous Chemicals and Pesticides;
- SanPiN 2.1.7.010-03 "Hygiene Requirements to Disposal and Elimination of Production and Consumption Waste".

Project Outcomes:
Describe the activity conducted:

Conducting air, water and soil sampling for mercury contamination around the Khaidarkan and Chauvay mercury mines, developing a sampling methodology for replication at other sites and communication of the results to the public, policy makers, industry and relevant authorities

Outline the information you want to intentionally transmit to the target audience and the method to achieve this:

The information our NGO wished to transmit to the target audience of government and the public is that mercury contamination from these mines is an environmental and health hazard. Information about the mercury contamination has not been freely available in the past and the management of the mines has not provided accurate information to the public about the situation.

Top managers of Khaidarkan Mercury Co. aggressively protect their mercury plant. As the company director said: *"the share of emissions of our plant reaches only 1% in the overall mercury pollution of the environment. It is a generally accepted fact that mercury is safe if all technological safety measures are applied. We all live here, and for many decades no diseases were identified in Khaidarkan that might be attributed to toxic mercury impacts. In summer of 2013, the Prime Minister of Kyrgyzstan visited our plant and he definitely promised to provide us all the necessary support and assistance. He declared that the Government will continue to support extension of production capacity of the mercury plant[2]".*

Recently, interested parties purposefully discredited and misinformed governmental authorities, the plant personnel and local residents, in particular, in relation with implementation of the project for reduction of global and local environmental risks in connection with primary mercury mining in Khaidarkan. It is worth to note that public awareness components of the above project still remain rather poor.

[2] http://www.knews.kg/econom/36374_velikiy_rudnik_ili_krov_aydarkana/

Engagement of and impact on Target Groups

Report your engagement with the target groups and the result of the activity on the target groups:

The Chair of Independent Ecological Expertise NGO participates in the Working Group on accession of Kyrgyzstan to the Minamata Convention (established by the Ministry of Economy). The monitoring results will be presented and discussed at a session of the Working Group.
The crisis in connection with Khaidarkan Mercury Plant necessitates the Government to engage into crisis management in the nearest future and to develop a more plausible mercury policy in a longer term.

Top managers of Khaidarkan mercury plant strongly oppose any attempts of environmental quality studies nearby the facility. They managed to enlist support of their employees who are afraid of losing their jobs after closure of the plant. Speculating on risks of potential social instability in the district, the company managers gained support of the local state administration, the State Security Service and some officials of the Government Office. Analysts of Kadamzhay Sanitary and Epidemiological Facility feared to get involved into analysis of samples from Khaidarkan. In the course of field monitoring works in Khaidarkan, the experts were warned by the Security Service that communications with local residents and sampling nearby the plant were not desirable. The situation was associated with risks for the health and lives of the experts involved.

Pic 3, 4 and 5 (source IEE)
Water, soil and air monitoring for mercury contamination by IEE near Khaidarkan and Chauvay mercury mines

Outreach to Stakeholders

Identify the stakeholders and sectors (development, environment, health, agriculture, industry etc.) that were engaged in this activity, and any potential for follow-up to advance the relationships with these stakeholders:

Results of testing of the Methodology for sampling water and soils, measurements of air pollution and radiation to evaluate the environmental situation (based on the sampling case study in Khaidarkan and Chauvay) will be presented to the State Environmental and Technical Safety Inspectorate, the State Agency for Environment and Forestry and the Ministry of Economy of Kyrgyzstan at the nearest session of the Working Group on accession of Kyrgyzstan to the Minamata Convention.

Deliverables, outputs and/or products

List the types of outputs from the activity, including reports, brochures or other information/education/communication materials:

Annexes:

1. Report on environmental research studies at the territory of Khaidarkan and Chauvay townships (In Russian).

2. Comments of the Centre for Disease Prevention and State Sanitary and Epidemiological Supervision of Kadamzhay district of Batken oblast.

Communication Efforts

Describe efforts to communicate this activity to the media and/or general public:

The hostile situation in Khaidarkan made dissemination of information and photos in mass media outlets impossible. However, all photos collected in the course of monitoring activities, are presented in the report.

Communication with National or Local Authorities: Describe your interaction with your National Minamata Convention Focal Point or other authorities regarding this project:

Kyrgyzstan has not signed the Minamata Convention so there is no designated Focal Point. However the results of the sampling project will be presented to the State Environmental and Technical Safety Inspectorate, the State Agency for Environment and Forestry and the Ministry of Economy of Kyrgyzstan at the nearest session of the Working Group on accession of Kyrgyzstan to the Minamata Convention.

Minamata Convention Focal Point: Provide the name and contact details of your National Minamata Convention Focal Point.

N/A - Kyrgyzstan has not signed the Minamata Convention.

NGO Recommendations for next steps:

A systematic monitoring should be implemented to trace environmental impacts of operations of Khaidarkan Mercury Plant for development of measures to minimise the impacts. Environmental quality monitoring should be also implemented nearby the mothballed "Ulu-Too" mining site (located at the distance of 10 km to north-east from Naiman township).

What, if anything, changed from the original plans and why?

No substantial deviations from the project plan were made.