

# Kumtor gold mine, Kyrgyzstan

## Bringing risks to regional water systems

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CEE Bankwatch Network's mission is to prevent environmentally and socially harmful impacts of international development finance, and to promote alternative solutions and public participation.

### Summary

In November 2010 the EBRD provided an USD 150 million three-year revolving credit facility for Centerra Gold Inc. for its existing operations in and potential acquisitions of mining assets in Mongolia and Kyrgyzstan. Information about the project prior to its approval by the bank's board was unavailable and a "commercial confidentiality" clause was cited for not disclosing the project summary document. As of December 2011, the Company has not drawn<sup>1</sup> from EBRD financing.

A recent Centerra communication<sup>2</sup> says that the "aggressive exploration"<sup>3</sup> at the Kumtor mine will continue and there will be "significant capital investment," so it is likely that the EBRD loan will be requested for these activities.

The EBRD has previously supported the Kumtor gold mine project, and a number of environmental and social issues related to the mine's activities have been raised repeatedly. Additionally, after a recent mission to the region and meetings with international and Kyrgyz experts, including NGO participation in the State Commission, issues related to water supplies and glaciers were also uncovered<sup>4 5</sup>.

### Background

The Kumtor gold mine is currently the main production site for Centerra, having produced 583,156 ounces of gold in 2011.

An increase in the price of gold, coupled with expansion of an open pit mineral reserves and successful drilling and exploration has led to significant increases in the mineral reserves and resources at Kumtor. In 2011 the total capital expenditures were forecasted at USD 206 million,

<sup>1</sup> November 3, 2011, News Release, Centerra: <http://www.centerragold.com/sites/default/files/news-releases-en/cg-11032011-en.pdf>

<sup>2</sup> January 17, 2012, News release, Centerra: <http://www.centerragold.com/sites/default/files/news-releases-en/cg-01172012-en.pdf>

<sup>3</sup> Ibid.

<sup>4</sup> Robert E. Moran, Kumtor Gold Facilities, Kyrgyzstan: Comments on Water, Environmental and Related Issues: September 2011 and Comments on Commission Water Quality Data (field and Lab) from Kumtor Site Visit, 20 September 2011: <http://bankwatch.org/sites/default/files/Kumtor-MoranReport-31Jan2012.pdf>

<sup>5</sup> Kyrgyz State Interagency Commission (State in the text) has been formed by the Governmental Decree #413-p as of 13 Sept. 2011 and conducted the Kumtor site visit and water sampling on 20 Sept. The report is available here: <http://treelife.org.kg/index.php/ru/kumtor>.

including USD 170 million for the expansion of production and USD 36 million for the modernisation of capital assets.

Centerra **received an expanded concession zone** as per the New Terms Agreement signed in 2009<sup>6</sup>. The Kumtor gold company obtained exclusive rights to all minerals within an area of approximately 26 000 hectares until December 4, 2042. The State Commission however **found this decision unfounded**, as the deposits under the existing license have not been fully mined, and so there would be no incentive with the new concession for the company to complete existing underground works that are more expensive as opposed to the open-pit method.

The Agreement says, “No part of the Sarychat–Ertash National Park is, nor will be... included in the Expanded Concession Area.” However the boundaries of the national park have been changed<sup>7</sup> to further explore the Kumtor mine. The State Commission found this **land transfer illegitimate<sup>8</sup> and requiring a separate environmental impact assessment and consultations.**

### Glaciers, waste management and climate change

The pit intersects two glaciers, Lysyi and Davidov, where previously the company dumped waste rock directly on the glaciers.

According to Kyrgyz scientists<sup>9</sup>, with baseline project conditions and average temperatures of –7.6 C at the mine altitude, no glacier melting was envisioned. However the rock placed on the glaciers heats up to about 30 degrees C in the sun and even in winter when air temperatures reach –40 C. And though the glaciers have been receding as a result of changing climatic conditions generally, this glacial shrinking has been accelerated **by the mining works and waste rock dumps.**

Although the company states its “operating approach has improved... and includes working together with local authorities to protect glaciers and reduce the impact of activities”<sup>10</sup>, improvements began only in 2007 after **significant creeping of the waste dump and the Davidov glacial ice affected mine operations**, including delaying mining in some parts of pit.

The company plans to remove and manage the waste dump and glacial ice in the coming three years until 2014. According to the company’s own assessment, these **movements continue** – in some sections at a rate of 36 metres per month – and will continue despite the unloading of waste dump material and dewatering efforts.<sup>11</sup>

Moreover the **mine pit walls are losing their stability**, resulting in several accidents to date. In July 2002 a Kyrgyz worker was buried in the collapse of a 200 meter high pit wall at the mine near the

<sup>6</sup> AGREEMENT on New Terms for the Kumtor Project among Government of the Kyrgyz Republic on behalf of the Kyrgyz Republic and Kyrgyzaltyn JSC and Centerra Gold Inc. and Kumtor Gold Company CJSC and Kumtor Operating Company CJSC and Cameco Corporation as of 24 April, 2009

<sup>7</sup> The amendments to the Governmental Decree #19 from 2008 changed the territory of Sarychat–Ertash Nature Park. From 2009, 4380 ha were excluded from the Sarychat–Ertash National Park

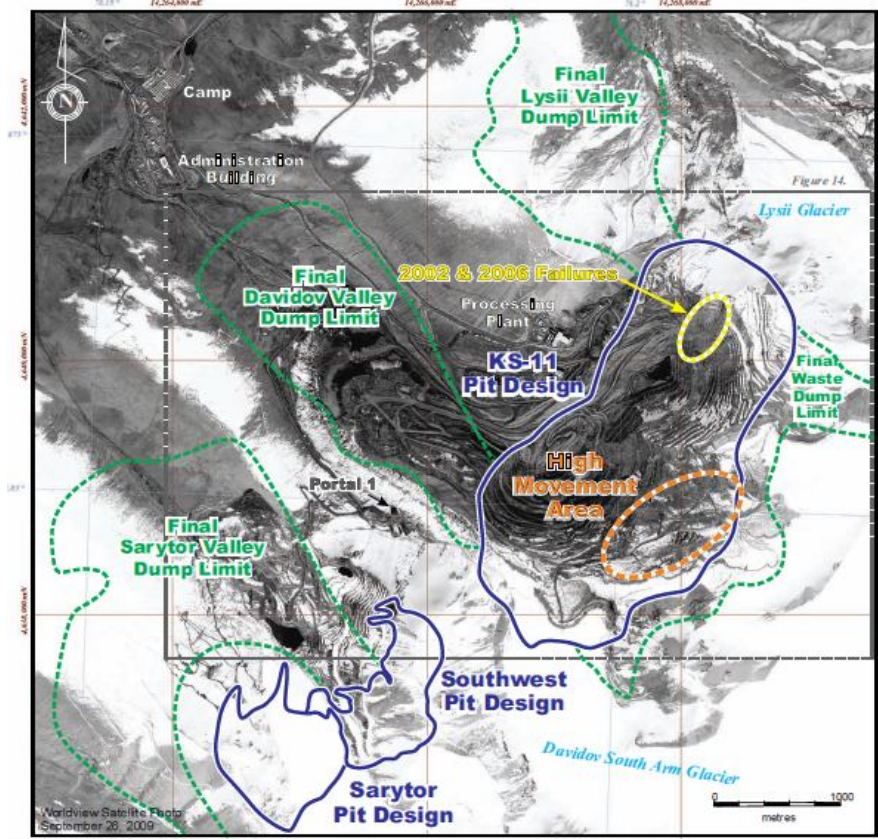
<sup>8</sup> The Kyrgyz “Regulations on the transfer of land from one category into another” as of 28.01.2008 require the EIA for such a land–use change

<sup>9</sup> Meeting with Kyrgyz and international experts on September 4, 2011, Bishkek

<sup>10</sup> Responsible mining everywhere we work, Centerra: [http://www.centerragold.com/sites/default/files/2010centerra\\_cr\\_report-final.pdf](http://www.centerragold.com/sites/default/files/2010centerra_cr_report-final.pdf)

<sup>11</sup> Technical Report on Kumtor Gold Project, Centerra, 2011: [http://www.centerragold.com/sites/default/files/kumtor\\_43-101\\_march-22-2011\\_final.pdf](http://www.centerragold.com/sites/default/files/kumtor_43-101_march-22-2011_final.pdf)

Lysyi glacier. The failure was identified as a large, shallow wedge slide with sub-glacial waters seeping into the pit walls. A failure of the same severity also occurred in 2006.



Areas of geotechnical significance, technical report for the Kumtor gold project, Centerra, 2011

The company’s technical report admits that, “Hydrological conditions in the open pits are controlled by the presence of originally up to 250 metres of permafrost that has become more discontinuous in the areas exposed by mining and the seepage of seasonal surface waters and ground waters into the open pit and their walls.” The inflow of seasonal melt waters can be as much as 1 000 litres per secing. The Davidov glacier is the predominant source of melt water entering the central pit in the summer months.<sup>12</sup> This means that **both the Centerra and EBRD impact assessments of the waste rock placed on glaciers has been incorrect from the start**, since the magnitude of the melting has not been predicted accurately. As a result the operations suffer and waste must be removed from the glaciers and the adequate assessment of future risks is questionable.

## Water contamination and Petrov Lake

Both KOC monitoring<sup>13</sup> and State Commission<sup>14</sup> water quality data show that contaminants are being released into the environment from mine facilities<sup>15</sup>. Mine operations require the extraction

<sup>12</sup> Ibid.

<sup>13</sup> Annual Environmental Report 2010, Kumtor Operating Company: [http://www.kumtor.kg/en/environment-protection/otchet\\_ob\\_ohrane\\_okrujayushey\\_sredy/](http://www.kumtor.kg/en/environment-protection/otchet_ob_ohrane_okrujayushey_sredy/)

and use of about 500 cubic meters per hour of water from the Petrov lake,<sup>16</sup> and the volume of water needed for Kumtor operations will likely increase as production increases.

During summer operations in May through October, some **five million cubic meters of effluent from the tailings are treated and discharged to the Kumtor river**. While treatment reduces cyanide concentrations, it also results in the formation and release of several other byproducts that are toxic to aquatic organisms like cyanate, thiocyanate, sulfate, ammonia, nitrate, some free cyanide and metal–cyanide complexes. Elevated copper concentrations are also discharged into the environment.<sup>17</sup>

The **reports prepared by Kumtor avoid mentioning the chemical components of the ore**. Many of the chemicals that can be assumed to be there **can potentially be mobilized from the Kumtor wastes and facilities**, and can be released into the environment.<sup>18</sup> These include, for example, forms of uranium, arsenic, antimony, copper, mercury, selenium, molybdenum, nickel, zinc, etc.

Much of the **water from the Kumtor is increasingly contaminated when it mixes with mine waste**. No detailed geochemical testing data has been made public by the company.<sup>19</sup> The Kumtor technical report **misrepresents the potential for water contamination** by stating that the mine waste does not have acid–generation potential. According to an analysis of wastewater samples from the State Agency for Environmental protection, the **high amounts of sulfate and suspended solids** in the effluent drainage **were identified** in the runoff from the mine pit, waste dumps and in the effluent from the glacial moraine.<sup>20</sup>

This indicates the formation of acid runoff and the fact that the existing sump and pond **drainage systems of the central pit do not fully cope with the task of cleaning** suspended particles from such volumes of water. The Ministry of Natural Resources has therefore asked **the Kumtor company to improve the situation with effluents from manufacturing operations from the mine and waste rock**.<sup>21</sup>

The 2009 KOC annual environmental report shows that between 2005 and 2009, the **mine contaminated Petrov lake**, a fact later confirmed by a State Commission report documenting **arsenic concentrations in Petrov lake exceeding maximum allowances**.

Petrov lake grew by more than 92 000 square metres annually in recent years from glacial melting. **The lake's natural dam has become less and less stable** and although there is no imminent danger,

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<sup>15</sup> Robert E.Moran, Kumtor Gold Facilities, Kyrgyzstan: Comments on Water, Environmental and Related Issues: September 2011 and Comments on Commission Water Quality Data (field and Lab) from Kumtor Site Visit, 20 September 2011

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> The letter to HDC Tree of Life from State Agency of Geoecology at the Ministry for Environment of Kyrgyz Republic as of 21.12.2011

<sup>21</sup> Kyrgyz State Interagency Commission (State in the text) has been formed by the Governmental Decree #413–p as of 13 Sept.2011 and conducted the Kumtor site visit and water sampling on 20 Sept. The report is available here: <http://treelife.org.kg/index.php/ru/kumtor>.

the lake's **tremendous growth might cause the dam to give**. The mine tailings are located below Petrov lake, and in the worst-case scenario, the downstream tailings could easily wash away, with unforeseeable impacts on people and the environment.

While the potential for catastrophic events is frightening, local people are already reporting that pollution of the Kumtor river is significantly decreasing the **amount of fish in the river in recent years**. This is another concern – how to address the possible **pollution** of rivers and soils around the mine **after mine closure**.

It is important that constant **monitoring and decontamination treatment is established even after mine closure**. Current **closure cost estimate are estimated around USD 24.2 million**. Figures in the 2007 closure plan **might not be sufficient and should be revised to accurately reflect future costs**.

A Reclamation trust is described in the new agreement, and any such trust must be the sole responsibility of the mining company, not the government. The company should bear all responsibility and risks to ensure that all mining impacts are fully reclaimed. **The mine reclamation plan must be publicly reviewed** at least every five years to ensure that the plan and reclamation funds are adequate and sufficiently secure to protect the Kyrgyz people. At the moment, there has been no public discussion around the reclamation plan.

## Main findings and recommendations

- No detailed, statistically-reliable data have been collected or made public that define baseline, pre-operational conditions for water. This information must be routinely and publicly disclosed so there is a standard against which to measure for contamination.
- Both KOC water quality data monitoring and Kyrgyz State Commission confirmed that contaminants are being released into the environment from mine facilities.
- Mine facilities discharge polluted runoff from the glacial waste rock streams and pit dewatering facilities as the existing sump and pond drainage systems do not cope with cleaning.
- Disposal of waste rock on the local glaciers and other mining-related operations have aggravated the already-extreme melting and retreat of the local glaciers, which are the main source of recharge water to the entire local and regional hydrologic system. This failure in preliminary adequate expertise and impact analysis should be alarming for the future risk assessments done by the Company as well as the EBRD.
- The Petrov lake's dam is unstable due to rapid increases in volume, and there is a possibility that its rupture may in the worst case scenario impact the mine's tailing facility downstream.
- The Kumtor Reclamation Trust Fund contains is inadequate to truly remediate and maintain the site after mine closure in the long-term and needs revised.
- Most of the detailed KOC technical documents are not readily-available to either the public or Kyrgyz regulators, nor have they routinely been translated into either Russian or Kyrgyz. There is no information center in the region and the closest is located in Bishkek.

## For more information

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