

# The LOGBOOK of CSP<sup>2</sup>

The CENTER for SCIENCE in PUBLIC PARTICIPATION

*"Technical Support for Grassroots Public Interest Groups"*

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## CUMULATIVE IMPACTS IN THE ESPINAR REGION OF PERU

### CSP2 with Oxfam in Peru

Located in and around the Andes Mountains, the Espinar Province in the Cusco Region of southeastern Peru contains potentially significant metal resources, particularly copper. Located at approximately 13,000 feet elevation (3,900 meters) the region hosts small and relatively large communities that thrive on agriculture, livestock, dairy, and subsistence farming. The region is increasingly shaped by mining.

Oxfam America has engaged CSP2 to help assess cumulative mining impacts in the region, especially near the town of Espinar. As part of an ongoing investigation, CSP2's Stu Levit twice visited the area, touring existing mine sites, participating in two all-day community meetings, and meeting with community, government, and non-governmental groups.

The principal large-scale mining company in the region is Xstrata PLC, a Swiss-Anglo corporation, and one of the largest mining companies in the world. Oxfam's concerns focus on the area's four active and proposed mines: the Tintaya Mine in production since 1985; the Antapaccay mine, now moving waste rock to form its pits; the Las Bambas mine, expected to be commissioned in 2014, and the Coroccohuayco ore-body which is being actively explored.

The Tintaya mine extracts from a copper skarn deposit and is expected to continue until approximately 2018. It produces copper concentrates and cathodes that are processed in two plants. The mine consists of multiple pits, waste rock piles, an ore processing plant, and multiple tailings impoundments. Xstrata believes that its waste rock and tailings are benign so the tailings facilities and waste rock piles are unlined.

The main pit is being transformed by building a dike of waste rock to separate the pit's remaining ore from the first stage of a tailings impoundment for ore processing waste from Antapaccay, Las Bambas, and possibly Coroccohuayco.



*Xstrata Operations in Peru (map from Xstrata)*

The Tintaya Mine site also contains a new processing plant for ore from the Antapaccay and Las Bambas mines, and possibly from the Coroccohuayco ore-body, if that site is developed. Waste from the new processing plant will be disposed of in the Tintaya pit.

The Antapaccay deposit is located approximately ten kilometers southwest of the Tintaya mine. It is in the early stages of ore development and is being developed at a cost of \$1.47 billion. The Antapaccay mine will have two pits and waste rock piles associated with each. Ore will be transported to a loading facility that

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*Community members in Espinar (town) attended two full days of meetings and presentations to discuss the mine.*

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will place ore on a conveyor belt for transport to the Tintaya Processing facility.

The Las Bambas Mining Project is located approximately 200 kilometers from the Tintaya mine. Peruvian authorities approved final permitting and construction is expected to commence during the first half of 2013. Xstrata plans to transport Las Bambas ore via a slurry pipeline to the Tintaya facility for ore processing and tailings disposal.

Xstrata's Coroccohuayco ore-body is nine kilometers southeast of Tintaya and is currently undergoing pre-feasibility studies. Xstrata's 2011 mineral estimate was 324 million tonnes at 0.93% copper.

Three watersheds in the Tintaya area are important to the communities and to Xstrata Copper, which uses water from them at its mines. The communities depend on the water for their livelihoods.

Oxfam was especially motivated to engage CSP2 in the Espinar region because of concerns regarding cumulative impacts from the multiple mines and their interconnected infrastructures. Cumulative impacts result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions.

The individual impacts from the Tintaya, Antapaccay, and Las Bambas mines are potentially significant to each of their individual, respective, local geographies. However, the cumulative impacts may affect each of their local geographies, the geographies of their sister mines, and the region as

a whole. These individual and cumulative mining impacts may also be enlarged by impacts from other existing or new activities, such as agriculture or other activities, over both space and time. This is critical for technical understanding, and possibly more importantly for agency and public decision making.

It is impossible to know the social, economic, environmental, and other impacts mining may have to the region without government agencies, policy-makers, and the public, considering cumulative impacts. It is only by reviewing all of these components together that government regulators and the public can identify and understand how multiple mines in the Espinar Province will impact the whole of the province. Without a cumulative impacts analysis, individual mine impacts may be identified, but the synergy between the different mines and activities (and their individual timing, order, and inter-relationships) will not be considered - with potentially significant results.

As a policy matter, it is essential for the government to ensure that project-specific impacts and cumulative impacts are known and considered. Without such analysis, the actual costs and benefits from mines in the Espinar Province will be largely unknown until those costs and benefits are manifested - leaving the government and public to respond when it may be too late.

Xstrata reports that it has not substantially degraded water quality and has not exceeded water quality standards. The company also reports that it has



*Antapaccay Mine Site, showing the start of one of the mine pits and waste rock pile.*

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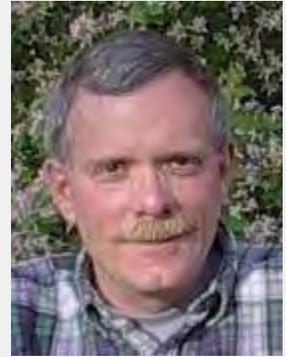
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**FROM THE EXECUTIVE DIRECTOR**

I have several important announcements that I am happy to communicate.



On January 1, 2013, Dr. Carol Ann Woody joined CSP2. Carol Ann is a fisheries scientist specializing in salmon. I first met Carol Ann when working together on the Pebble mine.

*Dave Chambers is the Executive Director of CSP<sup>2</sup>*

She has designed, supervised and published results of original research focused on salmonid behavior, genetics, life history, evolution, and management since 1991. She has over 25 years of experience including: 13 years as a fisheries research scientist with the US Geological Survey at the Alaska Science Center. She has published more than 25 scientific papers and a recent book on advances in sockeye salmon research. Carol Ann is adjunct faculty at the University of Alaska, Fairbanks, and the University of Idaho. Carol Ann lives in Anchorage with her husband Joel.

Dr. Kendra Zamzow is the middle of a sabbatical from CSP2 to the American Association for the Advancement of Science. She has a Science and Policy fellowship working with the EPA, Office of Research and Development, Office of Science Policy, in Washington, D.C. She will be on sabbatical until September, 2013, and will return to Alaska to help with coal issues and the pending EIS on the Donlin mine. This is valuable experience for Kendra, and the contacts and experience she gains in Washington should help her Alaska clients, and benefit her work with CSP2 for years to come.

Finally, CSP2 has been working with Hairpin Communications, Boston, MA, to redesign the website, which has been largely static for a decade. The new website is more interactive, and features a new page on the Framework for Responsible Mining, a document written in 2005, but which is still generating significant interest from an number of sources around the world. Take a few minutes and let me know what you think of the new website ([www.csp2.org](http://www.csp2.org)).

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used less water than it is permitted to use and that its water use has not impacted the environment. Some people living near the mine and nongovernmental organizations claim that the mine has degraded water quality, impacted human health, killed fish and livestock, and caused other injuries to the environment.

CSP2 seeks to ensure that all mining activities in the Espinar Province, including monitoring and public participation, are consistent with best international practices and protocols. Third-party access to data and information is necessary to try to identify actual impacts caused by Tintaya mine to help inform analysis and refinement of the Antapaccay and Las Bambas projects to reduce their impacts to human health and the environment. Persistent community concerns underscore that there is always room for improvement - by the mining company, the government, and the communities and interested parties.

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*2011 Satellite View of Tintaya mine  
(courtesy of Google Earth and SkyTruth)*



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