AMD in the Bolivian Altiplano: Unique problems and solutions

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Abstract: The Bolivian highlands (Altiplano) are host to some of the world's richest mineral deposits. The area surrounding Potosí, Bolivia has been intensively mined for nearly five centuries, resulting in extensive environmental degradation and contamination of soil and water resources. In order to demonstrate a way to begin to restore this highly degraded landscape, a demonstration project has been established in a valley south of Cerro Rico (the world's richest silver deposit). Phase I of the project included the installation of two open limestone channels (OLCs) and one anoxic limestone drain (ALD). The OLCs and ALD were part of a broader project that includes the active treatment of an operating mine, the goal of which is to restore Rio Juckucha as a safe irrigation water source. Phase II will include an automatically flushing limestone bed and a conduit to transmit safe irrigation water to fields downstream. The past and current activities have had to surmount a myriad of challenges from purely technical (e.g., lack of suitable equipment, road failures, work on extreme slopes, rainy season earth instability) to purely non-technical (e.g., general strikes, road blockades, inter-partner communication issues, volunteer workforce management). Despite the difficulties involved, this transfer of technology born in Appalachia to the land of the Inca has been worthwhile both for the residents downstream receiving improved waters as well as regional officials noting a more cost effective and sustainable option with which to address longstanding environmental degradation.