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Is Water driving mining conflicts? Zooming into Peruvian Reality

The Latin American Observatory of Mining Conflicts states that mining projects face community opposition in 90% of the countries in the region, and water is often perceived as a primary source of such opposition. The countries with most mining-related conflicts include Peru, Mexico and Chile. Despite the proliferation of community conflicts at mine sites, there is a dearth of documented, quantitative analyses for insights as to the factors contributing to such conflicts. Peru provides a useful case study for such an analysis given the history of data collection on mining-related conflicts (Peru's Ombudsman monthly report) and the stressful hydric condition the country faces in certain regions.

Peru is a country with ample water resources, yet it is one of the most water-stressed countries in Latin America (World Bank, 2017). This is due to uneven geographical distribution of water resources, inefficient water-use and water pollution. Seventy percent of Peru's population lives in the Pacific basin where less than 2% of the country's water sources naturally drain (Kuroiwa, 2009), while 97.7% of the water flows through the Amazon Rainforest towards Brazil in the Atlantic basin where only 26% of the population lives.

Analyzing social conflict is not only pertinent for companies because of the reputational impact social conflict have on the company's brand name, but a Harvard study highlights the importance it has on the operational cost that is often overlooked. The study states that "the most frequent costs were those arising from lost productivity due to temporary shutdowns or delay (…) a world class mining project with capital expenditure of between US$3-5 billion will suffer cost of roughly US$20million per week of delayed production in Net Present Value (NPV) terms" (Davis and Franks, 2014).

Using statistical tools (GLM and Bayesian) and expert interviews our team analyzed data from Peru from 2007 to 2016. We analyzed national trends, and region-level data by analyzing more than 20 variables. However, several variables were excluded due to lack of sufficient time-series data and/or insignificance in preliminary statistical analyses. Therefore, we maintained only the statistically significant variables listed below in order of significance. During this time period, the country was plagued with numerous mining-related conflicts. We have separated out those conflicts that were perceived to be water related.

RESULTS

Past Water Related Conflicts: The most powerful predictor for water related social conflict is water related past conflicts. This may be explained by communities being particularly attentive to water related incidents if this is a recurring issue. Tanaka, who found similar results, argues that communities that have organized themselves and participated in "Frentes de Defensas" are more likely to rely on these again if there are contestations between the company and the community. Arguments that potentially describe the genesis of these water related past conflicts are water competition, pollution from legacy mining, violation of human rights due to access of water, opposing visions on land industrial development along with water usage for industrial purposes versus a more traditional agricultural land and water use.

Mining Company Investment: More mining investment in a region is associated with a larger number of water- related conflicts. This finding suggests that water-related conflicts are systematic in nature rather than pertaining to a few select mine sites. Companies that invest in large mining projects in regions where cumulative water impacts are more likely to be felt are at a higher risk of facing social opposition.

Mining revenue distribution to the sub-national level (Canon): Higher revenue flowing to the Sub-National Government shows a positive correlation with water related social conflict for three reasons. First, Peru struggles with corruption and weak oversight of the Local Governments. Looking at the cases of the Ancash, Cajamarca and Moquegua, these are a few examples of how an increase in revenues at the sub-national level has led to large-scale corruption, especially during the commodity super cycle were rent seeking behavior was observed. Second, conflicts between mining communities and local governments are exacerbated due to the lack of capacity to efficiently spend these funds. This is linked to the third explanation were increased revenue leads to conflict over what development projects should be prioritized. What is surprising is that the effect that direct monetary packages to communities exacerbated conflict was detected since 1980s in Papua New Guinea, and still the industry has not learnt from it. In the Bougainville site it was proven that the degree of strife was proportional to the size of the package to the community

Corruption Perception: Lower perceived corruption is associated with less social conflict. If a sector of society does not feel represented by their government, they are more likely to take matters in their own hands.

Rainfall levels: Lower rainfall is associated with more water related conflicts. These results are also in line with the fact that there is a low efficiency water use by the agricultural sector and in Peru as whole. Therefore, if there is scarcity of water due to low levels of rain and high levels of inefficient use of water, the sense of water scarcity will spike and therefore fuel potential violent reaction.

Elections: While it was alleged during interviews that water related conflicts tend to escalate during election years because the sector is highly politicized, the data does not support this argument. This may be due to lack of sufficient data points and/or because this analysis only focuses on water related conflicts.

Summary and Recommendations

First, companies and governments should engage with mining-affected communities at a very early stage and address their concerns while generating trust. Once a conflict erupts and the mining company loses its social license to operate, it is difficult to rebuild trust (as shown by the significance of our previous conflicts indicator). If the relationship is broken or the mining company never gained the social license to operate in the first place, the company should start by understanding the importance and role of water and the environment in the local community, and then strive to gain the trust through an adequate and well-funded consultation and conflict mitigation plan before engaging in further steps. Building trust amongst the affected stakeholders is critical prior entering into negotiations. An example comes from Southern Peru Copper Corporation's Tia Maria project that has seen years of opposition and violent strikes. One major point of contention was the sourcing of the water from the local river. Even after the company redesigned its engineering plans to pump desalinized water from the sea, the project continued to be rejected by local communities (SPDA Actualidad Ambiental, 2015). To rebuild trust, a participatory and transparent environmental monitoring can help improve the local population's perception of the

company. Proper water quality monitoring, along with third party verification and an effective communication strategy to the local population is essential to maintain trust.

Second, our scale indicator (absolute size of mining investments) indicates that water-related conflicts are problematic for the industry as a whole and are not only prevalent with companies that do not follow good practices. Many projects by companies that are committed to implementing best practices and are members of the International Council on Mining and Metals (ICMM) have seen opposition to their projects. As such, companies need to work together to find new solutions for local communities to feel that they benefit from mining taking place in their 'backyard'. Companies need to approach consultations by recognizing that access to continuous and clean water is a human right and waterscapes are a socio natural entity. It is critical to understand the use of water by the community. A legal water permit may often not suffice and a water-related agreement has to be reached with the community.

Third, throwing money at the problem does not necessarily solve it. The sub-national redistribution system in Peru was designed to compensate those regions affected by mining. However, our results suggest that higher revenue redistribution to the local governments does not reduce, but rather increases conflicts. If not partnered with inclusive decision- making processes of how the money should be allocated in the affected regions, and in sufficient capacity, transparency and oversight to ensure the funds are spent efficiently, such redistribution of mining related revenues can lead to further frictions. An example of Canon tax misuse comes from Ancash where the Regional Governor, Waldo Rios, was recently removed from his position for the misuse of funds during the execution of public electrification works when he was the mayor of Huaraz.

Fourth, water competition is a major concern and source of conflict. This is particularly the case in water scarce regions that have poor water infrastructure. These concerns are likely going to be aggravated due to global warming and increasing water competition among mining, agriculture and population growth. As such, mining companies should consider new approaches that not only warrant water access for their operations, but also help address water scarcity concerns in the wider region. If farmers and communities see improved water access as a result of mining in their region, this may help secure the company's social license to operate. An example of a 'water infrastructure sharing solution' is Freeport Mc-MoRan's Cerro Verde mine expansion in. After community opposition to the expansion due to water concerns, the project built a centralized water treatment plant using a portion of Arequipa's waste water. Consequently, people from Arequipa feel an appreciation of Cerro Verde's water investment. More water is available, more houses are connected to the water and sewage systems. Apart from warranting water access to the project, the wastewater from the city that previously went into the river untreated is now benefiting users downstream from the operations, such as the agricultural producers of La Joya Valley.