Artisanal and Responsible Small Mining… Understanding the interactions

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PIRE Project - Sustainable Communities & Gold Supply Chains: Integrating Responsible Engineering & Local Knowledge

October 23rd, 2019
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1. Project Motivation

Who are the ASM miners?
- For you
- For governments
- For companies
- For civil society
- For ASM miners themselves

Understanding the interactions between Artisanal Small Scale Mining (ASM) and Large Scale Mining (LSM).

Is there practices from LSM that could be adapted for improving the overall performance in ASM?
1. Project Motivation

ASM Definition and Alternatives

Artisanal and small scale mining (ASM) is generally referred to operations with rudimentary practices applied to extraction, ore transport and processing.

While the term small refers to the scale of the operation, the term artisanal is referred to the techniques, knowledge, and practices used in performing mining and processing activities (Veiga, 2016).
1. Project Motivation

SOME CONCLUSIONS ABOUT ASM

• An important source of income for rural populations and an engine for small business. A "poverty trap" of low productivity and indebtedness for miners and their families (Wilson et al, 2015).

• The potential business benefits of small-scale mining outweigh its negative aspects (Hilson, 2002).

• Degradation of crops and farmland affect food production, streams and rivers. (UN Environment, 2017)

• ASM miners are easy prey of underground economies and gangsters, who take advantage of their socioeconomic vulnerabilities.

• Poor health and safety conditions for working environments.

• Participates in mineral production in developing countries.

• Is widely accepted by the locals, based on perceptions of property, wealth appropriation, closer benefits, and a primitive sense of nationalism.
1. Project Motivation

From exploration to exploitation (Spitz and Trudinger, 2008)

A Conceptualized Funding Life-Cycle of a Mine Mining - (Spitz and Trudinger, 2008)
1. Project Motivation

Source: Based on ILO, 1999; Seccatore et al., 2014; Levin, 2014; Artisanal and Small-scale Mining Knowledge Sharing Archive, 2017

Source: Kitco
1. Project Motivation

From the previous

• A growing price increased social and environmental pressures in order to get some economic outcomes.

• It also increased conflicts between communities, governments and companies for accessing to gold extraction.

• There is asymmetries of knowledge and power exacerbates the conflicts.

• Is a problem assessed from a disciplinary perspective… not multidisciplinary o transdisciplinary perspectives.
1. Project Motivation

Who are the ASM miners?

✓ For you
✓ For governments
✓ For companies
✓ For civil society
✓ For ASM miners themselves
2. Field Site Selection

- Gold
- Communities
- Violence
- ASM
- Mining Company
- Miners
- Conflicts
- Wealth
- Poverty
- Pollution
- Coexistence?
2. Field Site Selection

- There is a body of knowledge and experience to provide technical solutions to the problematic of ASM around the world.
- There is a set of regulations (restrictions), values, models to proceed with the formalization of mining in different countries.
- There are some successful cases that illustrate productive engagement between ASM and conventional mining projects.
- ASM is a global issue, that affects an estimated of 100M people.
2. Field Site Selection

**Initial objective:**
To find a place with presence of a mining project and ASM miners communities.

**Desired:**
An existing relationship between ASM miners and the company.

**Initial questions:**
- What / how are the interactions between the company and ASM miners?
- What is a common ground for the development of responsible small scale mining?
- Is there a route (transition path) to evolve into responsible ASM?
2. Field Site Selection

Five conditions influence the transition from Artisanal and Small Mining (ASM) to Responsible Small Scale Mining (RSM), grouped into geology, mining, environment, social, and economic categories. Those drivers shape the performance and its results in the ASM operation.
2. Field Site Selection

Approach:

To develop three core study cases in Colombia and Peru where there are presence of at least one company developing a mining project, and communities of Artisanal and Small Scale Miners operating in the same area or in neighbor area.

The study cases will be supported by field observations in two operations in Colombia: Andes and Segovia.

Get information to explain what are the influences of the proposed five pillars in the transition from artisanal and small mining (ASM) to Responsible Small Scale Miners (RSSM).
2. Field Site Selection

Buritica

Marmato

Segovia

Andes
3. Overview Summer Work

> 3000 people working in ASM, and a strong dependence relation with the economy and the culture.

A social order, controlling the dynamics inside the mine. There is a set of rules and agreement about the operation.

Solid cultural beliefs that are evident in the mining practices.

A business model for processing. Wide used in ASM.
3. Overview Summer Work

A company in development of the most important mining project in Colombia

Recent conflict that climbed into a political and security

A formalization program, focused only in local miners and a containment strategy for miners out of the region
3. Overview Summer Work

- Low intensity mining field
- Mining under ordering (regional planning) process in a environmental sensitive area
- A social structure behind the mining operation
3. Overview Summer Work

A formalization program running under geological and social complexities

A plant processing all the minerals from the different operations

A world class laboratory to support the samples and materials.

Dry stacking tailings. Closing the environmental loop.
4. Results (a image)

**Geology:** helps to predict and understand the mining environment.

**Mining:** A defined method influences the productivity and profitability in the operation.

**Environment:** Prevention and planning are very cost effective tools.

**Economy:** mining need to provide enough resources to cover all its costs.

**Society:** are the source of existence – resistance – coexistence
Questions?
## 5. Points of Collaboration

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