



Fostering Social Change in Peru Through Communication: The Case of the Manuani Miners Association

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Abstract

Much has been done to formalize miners in Peru; since its inception in 2006 the Ministry of Environment passed laws to align mining policies with international standards. However, the combination of the necessity to have a source of income and the rapid acquisition of money that illegal and informal gold mining provides has proven a serious impasse for the Peruvian government; hence these mining practices keep growing. As part of the Initiative for the Conservation of the Andean Amazon II (ICAA II), the Manuani Miners Association in Madre de Dios, one of the regions more prone to illegal mining and bad environmental practices in Peru, started a land restoration, remediation, and reforestation process of the degraded rainforest. This case study analyzes how a program within ICAA II used communication to promote this significant change in behavior, what communicational tools were used, and what is their possible further applicability in similar scenarios to foster positive change.

Keywords

Environmental communication · Informal gold mining · Amazon rainforest

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Introduction

Historically Peru has always been a mining country, and extractive mining activities are an important part of its economy, currently accounting for “about 65% of Peru’s export earnings” (mining.com 2017). Worldwide, Peru is the third largest producer of silver and copper, and seventh in gold (MINEM 2017), just to name some of the most significant metal products.

Informal economic activities are very common in Peru; as a CEPLAN Report informs, in 2013, 19% of the national gross product came from informal sources (2016, p. 12). It also states that Peru remains as part of the five countries with the most informal non-agrarian labor market in the Latin American and Caribbean regions, even though there was a reduction from 75% in 2004 to 64% in 2013 (p. 5).

As a combination of both of these tendencies, Peru faces informal mining activities throughout its territory. Despite the fact that mining is one of the two sectors that pay better (CEPLAN 2016, p. 22), there is still significant informal and illegal mining activities in Peru, where there is no application of any kind of labor benefits or taxation to revenues. Many efforts have been made by the government to change this, and new laws have been approved that are in par with international standards, but their actual implementation is still far from a reality.

Informal gold mining in the Amazon basin is increasing and constitutes a serious environmental threat; activities involved in this type of mining modify the landscape extensively, as waterways are shifted or blocked and hills and holes are created as a result of digging for gold, depleting forest cover, polluting land and water sources, destroying ecosystems, threatening local communities, and turning swaths of rainforest into barren waste sites (Aljazeera 2016). “Global demand for gold has led to a massive increase in mining activity around the world. During the last decade, gold mining grew significantly in the Amazon becoming a major driver for land degradation and heavy metal contamination” (VerticalNews 2016). Currently alluvial gold mining is the second anthropogenic driver after the expansion of the agricultural frontier due to settlement in forest areas.

In Peru, the Region of Madre de Dios is one of the most harshly affected by informal and illegal gold mining; it rests right in the Andes-Amazon transition, making it an area of remarkable biodiversity which still maintains significant primary forest cover (UF et al. 2010, p. 2):

Madre de Dios, until the year 2011, had lost an area of 50,000 ha due to degraded soils by mining (Asner et al. 2013); to that we must add the daily utilization of approximately 175,000 gallons of diesel and gasoline and the shedding of about 1,500 liters of machinery oil into the rivers. This excessive depletion by mining brings direct detriment to our biodiversity and natural landscapes such as wetlands, swamps, primary-forests, among others, affecting the conservation of both forest and aquatic ecosystems. (MDDC 2016, p. 5)

As a response to this and other threats to the Amazon basin’s biodiversity, the Initiative for the Conservation of the Andean Amazon II (ICAA II), from the US Agency for International Development (USAID), carried on the work started in its

first stage since 2006. ICAA II was composed of several consortia, one of which was the Madre de Dios Consortium (MDDC) composed of five institutions that worked jointly with University of Florida (UF) as its prime partner. From 2011 to 2016 the MDDC worked directly on informal alluvial gold mining as one of its four thematic programs, focusing their work on capacity building on Peruvian mining legislation, adoption of clean technologies, and recuperation of degraded mining areas through reforestation (UF et al. 2010, pp. 8–9), as well as providing the foundation for training the beneficiaries to reduce environmental impact (MDDC 2016, p. 5).

One of the most successful experiences within the mining program was the work with the “Asociación de Mineros Artesanales y Agricultores de la Cuenca del Río Manuani (AMAAM)” (Artisanal Miner and Agricultural Association of the Manuani River basin) with which the MDDC worked on reforestation to mitigate and remediate the impact of alluvial gold mining in the Tambopata National Reserve Buffer Zone where AMAAM is located.

The remediation work started with ICAA II:

The MDD Consortium, through its Mining Program, has been installing and monitoring experimental plots to develop a proposal for recovering degraded soils by mining with emphasis on native and pioneer species and in the application of bio-fertilizers in the Manuani Sector. (MDDC 2016, p. 5)

More specifically, the work the MDDC carried out in Manuani was within experimental plots to test the capability of four native tree species, *Apeiba membranacea*, *Ochroma pyramidale*, *Ceiba pentandra*, and *Erythrina ulei*, to remediate degraded soils after alluvial gold mining. They worked with two planting methods, bare root and transplantation, and the periodic application of bio-fertilizer in three different concentrations. Additionally, the MDDC worked with the Manuani Association for the adoption of a comprehensive technical proposal for restoration both socially and institutionally (MDDC 2016, pp. 51–52).

The scientific research method is well documented by Dr. Francisco Román Dañobeytia and his research team; the objectives of the study were:

(1) assess the level of soil degradation after informal mining operations, (2) evaluate the survival and growth of four native tree species using two planting methods and three levels of biofertilization, (3) detect possible accumulation of Hg in plant tissues of planted species, and (4) estimate the cost of reforestation in abandoned gold mined areas. (Román-Dañobeytia et al. 2015, p. 40)

How Communication Played In

This was highly scientific work, and paired with that, it applied new technologies not thoroughly documented, particularly not in Peru. The key achievement of these experimental plots has been the ability of the MDDC team to include the AMAAM

as actual partners of this scientific experience; they avoided the passive beneficiaries' model and worked for an more active approach to the processes.

How did the MDDC achieve this? In a word: communication.

As mentioned before, informal activities are a common practice in Peru; hence, there is a natural resistance from informal miners to formalize or work within established parameters that could make their work, in their view, less economically efficient. This was the first and most significant obstacle that the MDDC had to face when first starting operations in 2011 as part of ICAA II; they had to change the attitude of these informal miners and try to modify their mining practices, so they would be more in line with the law and more friendly both with the environment and with human health.

Peru is a mega-diverse country with significant biodiversity, containing approximately 10% of the worldwide species (WB 2013); its geography is an important factor for this wealth both in animal and plant species. The Andes-Amazon transition, where Madre de Dios is located, is particularly biodiverse; however, as most of the illegal and informal miners in Madre de Dios, AMAAM is composed of a migrant population from Andean backgrounds.

The ecosystems where these migrant miners come from are significantly different from the lush rainforest that is this region; therefore they lack key ancestral knowledge to manage these landscapes, and they keep applying their Andean landscape management skills, from agriculture practices that include cutting and burning to non-rotational crops, to cutting down trees without managing soil coverage in a highly erosion-prone landscape.

Additionally to that, this population view themselves as transient dwellers of a land that they do not even own. Therefore, their relationship toward the land is fleeting, and without respect, as whatever they inflict on the forest is not viewed as a permanent detriment to themselves and their lives, it is just a temporary hardship that they must endure.

This was the second gap that the MDDC needed to bridge in order to achieve an efficient management of the forest striking a balance between livelihood improvement and biodiversity conservation.

The MDCC considered several tools to use in order to change the behavior of these informal miners, and bearing in mind that "Communication is as old as homo sapiens and has always been a powerful force in all cultures for sharing ideas and knowledge, and for influencing values and behaviour to bring about social change" (Balit 2012, p. 105), they decided to have a strong emphasis on communicational tools.

Further to this, effective communication is crucial to achieve the involvement of stakeholders at all levels, and its lack thereof functions as a detriment for this participation, as Silvia Balit (2012) says "many development programs have failed because they failed to communicate with the intended beneficiaries and other stakeholders" (p. 106); therefore the MDDC focused on high involvement from the beneficiaries and they worked with them as partners.

Finally, considering that "Communication is used to address global environmental issues of general public interest. Within this framework, very often

communication, education, participation, and public awareness approaches are used in an integrated manner to reach out to key groups” (IBRD/WB 2007, p. 73).

Therefore, the first step toward the envisioned change of behavior was to effectively communicate what the project intended to achieve with the involved stakeholders, in particular with AMAAM members and chiefly its leaders as the direct beneficiaries/partners of the project.

The primary message to communicate was that the MDDC and AMAAM needed to work together, jointly and as partners, in order to achieve a better management of the forest that could be as economically appealing to this Association as gold mining.

. . . the MDD Consortium coordinated the implementation of awareness-raising, training and research with Manuani Miners Association, Asociación de Mineros Artesanales y Agricultores de la Cuenca del Río Manuani AMAAM (in a forestry concession for reforestation in the buffer zone of the Bahuaja Sonene National Park/Tambopata National Reserve). . . . (MDDC 2016, p. 11)

The MDDC did this in a series of interpersonal activities which included workshops, training activities, talks, presentations, and particularly an open and constant dialogue between MDDC staff members and the directives of AMAAM. This allowed for both the MDDC and AMAAM to be on the same page from the start until the end of the project.

But that was just the first step. Soil remediation is still not a widely applied science, and not much has been researched about it, as we mentioned before from Dr. Román Dañobeytia and his research group’s work. Additionally to that, the members from AMAAM were not certified scientists but informal miners and farmers, most of whom actually lacked formal education. Thus, the MDDC needed to train these beneficiaries on a subject matter well beyond their scope of knowledge.

The MDDC (2016) decided to use targeted audiovisual support tools (training videos) within a plan:

CMDD produced two videos: “Siempre hay orito. . . no es que no puede haber” [There is always a little gold. . . there is no way there cannot be; named “Manuani” in the MDDC webpage (translation and note added)] and “Viveros volantes” [Movable nurseries (translation added)]. They show the transition from mining to land recovery in different manners. Once validated, these videos were used to support decision making among migrant miners, indigenous peoples and authorities, to generate a reflection on the meaning of what it is to recover degraded areas and how they can change a destructive activity into an environmentally responsible response. (p. 22)

With these two videos they raised awareness to a problem that initially was not even considered as such by AMAAN nor by the regional or local authorities. Interviews and workshop activities were part of the production of the videos, and AMAAM leaders participated giving their testimonies, furthering the strength of the message as it comes from some of their own members.

Particularly with “Viveros volantes,” the MDDC was able to use it as a training tool, as it is a video developed to sensitize and teach gold miners how to build,

maintain, and use forestry nurseries. It was an important method used for capacity building with a population with no previous forestry production or management background. AMAAM members were first trained (workshop style), and then the whole process was recorded, step by step, demonstrating each procedure as part of the nursery building and its management, with a voice-over commentary on the views from different AMAAM members and how these changed throughout their learning process.

This is a significant break from the previously used methods in Madre de Dios, where the regional government was completely in charge of the management of nurseries and of handing out the tree seedlings to the final beneficiaries. With the introduction of these movable nurseries, which are smaller and more easily manageable, the idea was to transfer the technical knowledge to the beneficiaries and thus make them partners in the process from start to end (Sanguinetti, personal interview, October 10, 2017).

Additionally the video “Biodigestores” (Bio-digesters) was also used as a capacity building instrument. This video is more structured as a training tool and uses graphics to depict chemical and physical processes that take place within these bio-digesters resulting in their final products of gas, used for cooking, and bio-fertilizer used for soil enrichment as it introduces nutrients in the soil as well as improving its edaphological characteristics for better root growth of the transplanted seedling, both at the experimental plots and later on the land they will be using as final planting sites for the saplings.

The importance of the application of this video comes from the use of bio-fertilizer as an additional resource applied specially to degraded soils. It is an economically accessible, as well as a low-tech, alternative to commercially available fertilizers, and it can be produced directly by the final users from their daily waste materials.

By the end of the project, the MDDC had started working on the introduction and adoption of cleaner technologies with AMAAM, such as the “shaking table,” to change the popular practice of using mercury (Hg), which has been proven toxic to human health and which, as of January 2016, was illegal in Peru as the Minamata Convention was signed and ratified by the Peruvian government to be implemented by August of that same year (Minamata Convention 2013).

AMAAM members were willing to explore this new technology and thus improve their health and also have a lower impact on the environment. This willingness was possible due to a process that included significant activities of communication, becoming a clear indicator of how the adequate application of these tools had made it possible for AMAAM members to change their behavior.

Further to the communication work the MDDC carried out directly with AMAAM, they developed policy briefs, targeted to a different tier of project partners: decision makers. Particular to this case, they developed a “policy brief related to the cost structure of mining and its implications for both the regional economy and the policy proposals of control and remediation activity,” called “Evaluation of the production chain of gold” (MDDC 2016, p. 22).

Additionally the MDDC also worked on different task forces, with interpersonal communication activities, related to gold mining and restoration of degraded landscapes, with the regional and local governments as an effort to foster information exchange among decision makers. For instance the MDDC:

...sponsored the Regional Forum ‘Canon en Madre de Dios: Situación actual y perspectivas’ [Madre de Dios Mining Tax: Current situation and perspective (translation added)] to propose the creation of the ‘Mesa Multisectorial para el Canon de Madre de Dios [Task Force for Mining Tax in Madre de Dios (translation added)]’. This event was attended by civil society, Regional and Central government including the Madre de Dios Congressman. (MDDC 2016, p. 10)

How They Structured Communication

The MDDC worked with AMAAM and the related authorities in three differentiated communicational stages:

Information

As explained above, all activities included an informational component to start the process. This was centered on expounding, through a clear message, what was the objective and how it could be achieved in a jointly fashion.

For this the MDDC mainly used interpersonal communication, such as in the informational talks and awareness-raising activities (MDDC 2016, p. 11) with AMAAM, or through its participation in the different task forces with regional and local governments; thus the MDDC worked with different kinds of stakeholders participating in linked or related processes.

Education

The next stage was when the MDDC provided the stakeholders with theoretical knowledge imparted on interpersonal communication activities, such as workshops. But this went beyond just informing, they shared more detailed information, explaining more thoroughly how the objectives could be achieved.

Additionally the MDDC used audiovisual tools, for instance, the use of the video “Biodigestores” is a good example, as it disaggregates the process of waste becoming gas and bio-fertilizer, and it explains chemical and physical changes that take place within the bio-digesters, a highly technical concept put into context in a simple and understandable manner.

Training

And finally the MDDC worked with AMAAM so they had to apply what they had been informed and educated about, by putting it into practice on the field and developing actual skills such as building bio-digesters, building forestry nurseries, and planting saplings on the final planting sites.

This final stage was implemented with the AMAAM and not with decision-making stakeholders, since the nature of the work carried out with these two beneficiaries was intrinsically different.

This three-stage process is not per se very complicated; it is in fact simple and very intuitive, but its simplicity has proven to be rather effective. It is important to point out that the project manager of the MDDC, Bruno Sanguinetti, comes from a Food and Agriculture Organization (FAO) background, where this methodology has been widely applied (Sanguinetti, personal interview, October 10, 2017).

What They Achieved

Even though the scientific findings after all this work on scientific research and social change are not particularly encouraging or definitive, particularly the scientific component, this process has been significant to determine that “More experimental reforestation and remediation studies are needed to improve the science and practice of forest restoration in gold mined areas” (Román-Dañobeytia et al. 2015, p. 45).

Thus, this project, and the specific experience with AMAAM, can be viewed as opening the door for other projects and initiatives to focus on restoring gold-mined landscapes, particularly in the Amazon basin, and creating further knowledge on this subject matter. This is the case with the current CINCIA project (<http://cincia.wfu.edu/en/>), which is also partnered by USAID and where the chief scientist is Dr. Román Dañobeytia, who worked directly with AMAAM as part of the MDDC.

On the policy side, as a direct result of this experience in Manuani, the MDDC reached an agreement with the Ministry of Energy and Mines (MINEM) to promote recovery of areas degraded by alluvial gold mining and to promote the process for legalization of informal miners (ISU 2016, p. 33). Prior to this experience, restoration of mined areas was not at all the focus of the MINEM. It is important that as a result of this project this has changed, because many people will continue to practice informal and illegal mining activities, as these informal miners are a symptom of the lack of opportunities in the formal work chain and will continue to emerge until many other policy reforms, not only related to mining, are in place and operational.

However, the most important and lasting impact this project has had has been the involvement and appropriation of land restoration by the beneficiary population, an actual social change experience. As the ICAA-wide Final Report (ISU 2016) clearly states, the MDDC’s achievements were significant:

... with local land-owners to develop restoration techniques for the recovery of degraded soils. Based on participatory research, the Manuani community has developed technologies that are now being adopted by governmental agencies in other outmined areas in the Tambopata [National Reserve (added)] buffer zone. The Manuani people now are able to transfer technology for the implementation of ecological restoration in degraded areas and act as service providers. (p. 27)

The MDD consortium developed field research on restoration in outmined degraded areas with members of the Manuani community. Its success in terms of restored area and people

able to apply this technique in other areas was nationally recognized by winning the Premio Ambiental Antonio Brack Egg. (November 2015) (p. 41)

These indicators clearly show that the installed capacity that AMAAM attained through the ownership of the nurseries, as well as the bio-digesters, has been put to use and has elevated the social value the AMAAM can deliver, not only internally but also as external service providers. But particularly it demonstrates that these *beneficiaries* breached the gap between receivers, to actual partners, and finally implementers of their own change and that this experience could and should be replicated in similar scenarios, because its feasibility has already been proven.

As discussed in the World Congress on Communication for Development (IBRD/WB 2007, p. 74), “Communication about the environment shouldn’t be so difficult because people do care about the environment – it is important to give people a reason to care, to act.” The people in Manuani definitely cared and decided to act, and because the communication tools were effective, the transfer of technological knowledge that they needed to apply to their daily life was effective as well.

Once ICAA II came to a closing by 2016, the AMAAM continued with their restoration work, both at their experimental plots and offering their services to other mining associations. This did not played out particularly well, however, since they lacked the institutional leverage the MDDC, as part of the ICAA II-wide initiative, offered.

As reported by Vanessa Romo (El Comercio, 2014), the problem of illegal and informal miners invading AMAAM is a harsh and constant reality; therefore, they need institutional support to be able to carry on with the work they have started.

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