**Reapplication - accompanying letter**

Hereby attached, reapplication of the above-mentioned project. A major revision and rewriting of the project has been carried out in close collaboration between Plagbol and Dialogos following recommendations from the assessment committee and CISU advisers.

It has not been possible or meaningful to mark all the changes in the new document due to the extensive reformulation, thus the new document and budget is thought to stand alone.

With regard to the reasons for rejection in the BU note of 20/11/2019, we have made the following major changes :

**Strategy and expected results**: a major reformulation of the LFA matrix, with special emphasis on objective 2 and 3 and with improved description of activities and indicators. The specific strategic deliveries are more clearly described and the links from activities to objectives is more logical. The log frame is found in both the document and a separate sheet of the budget where the overview is better.

**Phase-out and sustainability**: Plagbol acts as a catalyst for change, while the key interest groups i.e. the cooperatives and communities via organized mercury-committees (interest groups), are ensuring local sustainability. However we seek that Plagbol will eventually act as a benchmark organization on mercury-free gold mining, just as the organization already does in the pesticide field. Thus strengthening of Plagbol will allow it to continue consultancy work with the miners organizations and Ministries of mining and environment.

**Cost level**: The project is focused on capacity building and has few infrastructure investments. However a budget review has been carried out, focusing on achieving a better balance between costs of activities and administration.

Our partner PLAGBOL FOUNDATION is already known and well established, and there has been no changes to the basedata on the organization since september 2019 (last update).

With best regards

Søren Thymann Nielsen, on behalf of the Dialogos Mercury-free mining group -Bolivia

## 1. Relevance of the intervention

Thousands of Bolivian miners are engaged in mining where they use metallic mercury to facilitate the process of gold extraction. Mercury is recognized worldwide as one of the most toxic elements with harmful effects on both health and environment.

Objective

The present project has the objective *to* ***stop environmental mercury pollution from Artisanal and small scale gold mining (ASGM), to improve environment, the health of the miners and the general population, whilst keeping the yield of gold unchanged or increased.***

Intervention

The central interventions are to *stop mercury contamination* from ASGM by introducing a mercury-free mining method in two mining municipalities in Bolivia, and *improving civil society organization* towards the dissemination of this method to local and national levels.

Actions will have *3 objectives,* namely that*:*

1) Gold miners have increased **knowledge** on mercury- free gold mining and safety methods in mining , and apply this knowledge

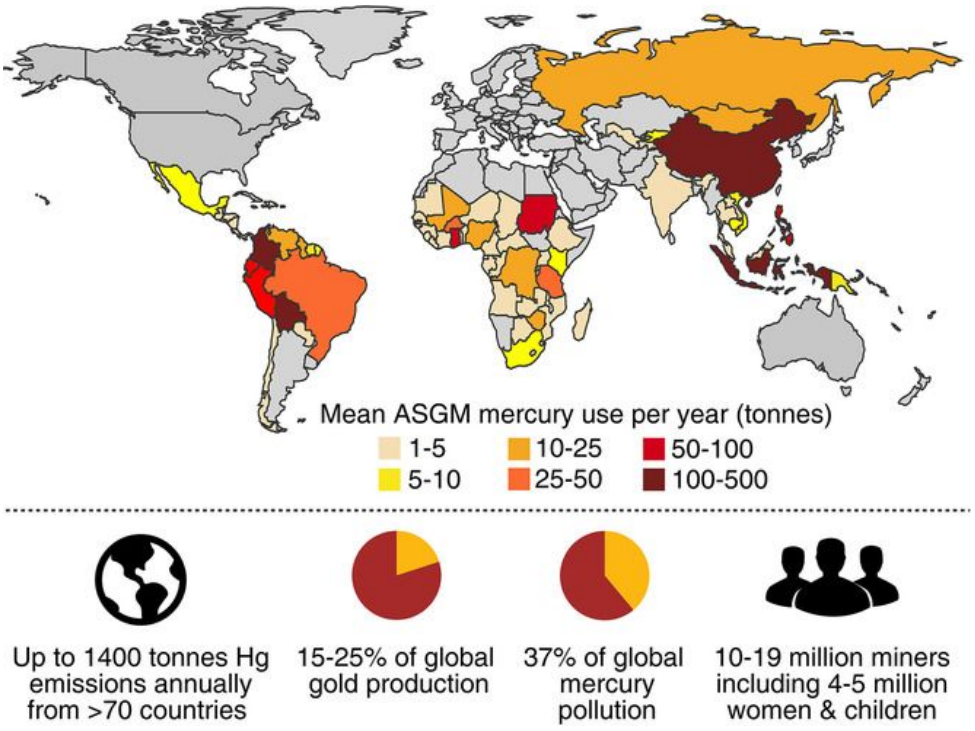
2) The civil society in the mining areas has increased knowledge on mercury pollution and its prevention **and** has improved **organization** to promote conversion to safer and mercury-free mining. This involves the formation of local committees or interest groups.

3) The interest groups, supported by our partner, are **advocating** within the mining corporations, and among decision makers from local and national governments, for the dissemination of mercury free gold mining in order to comply with the Minamata convention ratified by the Bolivian Government

The general problem of mercury use in ASGM

Mercury is a potent neurotoxin that is persistent in the environment. Exposure to high levels of mercury causes *brain and kidney damage*, but it is also well documented that **even tiny doses of mercury negatively affect the intellectual and physical performance of children when mothers are exposed during pregnancy**. Developmental delay of the generations combined with personality changes and poor health of exposed parents is a dangerous cocktail for the socioeconomic future of the mining communities and their downstream neighbors. Mercury evaporates easily and has the capability of long-range transport and contamination of areas far from the source. In the ecosystems, mercury is transformed to organic compounds that are built into microorganisms and enter the food chain. Eventually some of the mercury from ASGM ends

up in the air we breathe, and in fish we eat all over the world. However, the local mining communities remain subject to the most immediate consequences of mercury pollution.




All over the world, ASGMs mix mercury with a mineral concentrate from gold ore to form an amalgam. The amalgam is then burned resulting in highly toxic mercury vapors that are inhaled by miners, their families and people in the community. Approximately 1 gram of mercury is used to produce 1 gram of gold with this traditional method. Whole-ore-amalgamation is a modern method that is used by ASGMs in many countries including Bolivia (see map (18)). It requires a ball mill to mill the gold ore. A ball mill is a steel drum with steel balls inside which rotates and crush the ore to fine powder. Large amounts of mercury are put directly into the drum and mixed with the ore. Beside the mercury vapors from burning amalgam, whole-ore-amalgamation results in a major loss of mercury flour (small mercury particles) and gold to the tailings i.e. the fine sand that is the waste product from ASGM. Approximately 20 gram of mercury is used to produce 1 gram of gold with whole-ore-amalgamation (4), and the spread of this method is the main explanation that ASGM contributes at least 37% to the global outlet of mercury annually (5). Both types of gold extraction release phenomenal amounts of mercury, which is not only a major health hazard for Bolivia but provides a significant contribution to the global mercury pollution. Release of mercury is not only a major health problem, but *also a **financial problem***. The mercury-contaminated tailings contain high amounts of gold, which could have provided substantial addition to the country's economy. (9).

**The Minamata convention** is an international treaty designed to protect human health and the environment from mercury pollution. It is named after the Japanese city whose population went through a devastating incident of mercury poisoning in the 1950-70'es. The Convention was approved by 140 countries including Bolivia in 2013 and international trade with mercury is illegal.. To comply with the convention, Bolivia must define and execute a National Mercury Elimination Plan. This work is still underway(10). The project intervention is expected to contribute to this plan and thus the reduction of the environmental impact of ASGM at national level.

<u>Minerals and mining in Bolivia</u>

Bolivia has a primary and exporting economy, with extractive activities since the colonial days. Gold mining is a significant economic activity because of its contribution to national employment. There are several sizes and classes of mining from the state-owned Bolivian Mining Corporation, (COMIBOL) to medium and small, private and cooperative operations. Although cooperative mining societies may vary in size (from 15 up to 100+ members)(13) they are considered ASGM.

Gold mining remains an important export activity with increased activity in recent years(12), reaching 13% of Bolivia's total exports in 2017(15). Gold prices have stimulated the proliferation of gold mining globally including ASGM in Bolivia, where some speak of “Gold Fever” (16). According to the Regional Federation of Gold Mining Cooperatives (FERRECO), there are 1,700 mining cooperatives in Bolivia, of which 1,100 work with gold (65%) throughout the country. Of that percentage, 91% (1,000) are in the Department of La Paz.

Gold is extracted from hard rock (vein) in the highlands, and placer (alluvial) deposits in the slopes to the east of the Andes and the lowlands. 99% of the gold that is exploited in Bolivia comes from deposits that are in the hands of cooperatives (12); most mining is carried out manually and with the help of low-tech machinery (1). Due to ***informality*** of much mining activity there is considerable uncertainty regarding production data, however, gold produced in the dpt. La Paz in 2018 had an estimated value of 800 million USD, whereas the State barely received $ us 20 millions for that non-renewable resource (13)

Health, mining safety and working conditions

There is no controlling mechanism for proper application of mercury, and no monitoring of mining safety. One of the main consequences of informality in ASGM in Bolivia is the precariousness of the social security, health and hygiene systems that protect miners. Although there are regulations in force on social protection minimums, which must cover all employees of a mine, it is rarely met. Very few cooperatives are affiliated with the National Health Fund and, in addition, do not make long-term contributions; the majority of the small ones are not in the tax register and only those enterprises that sell their production to the Bolivian Gold Company or local manufacturers pay royalties. As a consequence, ASGM employees are exposed to a variety of **diseases and occupational hazards**, including silicosis and rheumatism as a result of exposure to gases, dust and extreme temperatures inside the mines, along with bad practices and postures in extractive work. There is generally no provision of safety equipment, in addition to insufficient labor guarantees for miners.
It is not unusual for miners to receive payments only in kind, for their work carried out under very precarious health and safety conditions. This type of work is common in the gold cooperatives in the north of the La Paz department. “Barranquilleros”, are people from communities that are allowed to do temporary work, in the cooperative's work areas and their income depends exclusively on what they manage to get during the workday(13,p8).

ASGM in Bolivia can also present situations of **gender** discrimination and **child labor**. Women actively participate in mining, mainly as “Barranquilleras”, which entail rudimentary procedures and tools like traditional panning in gold bearing river deposits, yielding a scarce income. According to UNICEF, in all there are about 3,800 children and adolescents working in the Bolivian mining sector. Child labor in mining consists of activities such as loading, transfer and separation of minerals; often to help parents in the tasks of their work.

*The mining workers of the cooperatives, the communities and the highest-risk population such as women and children are the priority target groups of the project.*

The political context affecting ASGM in Bolivia
The Bolivian Constitution was changed in 2009 with the aim to include the marginalized, indigenous population (to which many miners belong) in the new plurinational state, by a new common intercultural identity, which has been a challenge for Bolivia as a whole. However, during the past years, exploitation of natural resources and economic development of Bolivia have gained more and more priority from the president and government at the expense of the environment. Currently, following a disputed election of october 2019, a transitional government is in place, until

the general elections of may 2020.

The role of **cooperatives** in bolivian mining is a result of a financial crisis of the COMIBOL in the mid-1980'ies, where thousands of poor miners lost their employment. To counteract the social effect, a legal structure was created to promote cooperatives, where former COMIBOL employees would find a new livelihood. A *Vice Ministry of Mining Cooperatives*, is established, responsible for everything related to the control and promotion of these. Bolivia has approx. 1700 cooperatives with 120.000 members, many concentrated in La Paz, (illustration) (13). Cooperativism is recognized as a component of economic, social and political relevance which must be enhanced during efforts to formalize the sector. The context is somewhat complex with ties between cooperatives and private enterprises and political interests(13). This could be a barrier but the situation also presents opportunities for correcting errors in the system and, perhaps, rethinking of the vision and the spirit of cooperativism and its role in national development.


| Dpto. | N° cooperativas | N° socios |
|---|---|---|
| Beni | 14 | 828 |
| Chuquisaca | 9 | 471 |
| Cochabamba | 79 | 4.457 |
| La Paz | 1.239 | 59.402 |
| Oruro | 73 | 7.825 |
| Pando | 23 | 5.706 |
| Potosí | 184 | 39.264 |
| Santa Cruz | 37 | 1.021 |
| Tarija | 6 | 295 |
| TOTALES | 1.664 | 119.069 |

Fuente: Viceministerio de Cooperativas del Ministerio de Minería y Metalurgia.

<u>Mercury use in ASGM in Bolivia</u>

Mercury contamination is possibly the most significant negative environmental impact caused by ASGM, and as seen on the world map (page 2) Bolivia is among the top-5 mercury consumers of the world(18). Bolivia took the decision to ban the use of mercury in the mining industry and to ban its importation from 2020, promoting a Five-Year Plan for Mining Development. Unfortunately, the results made to date have not been as expected(10+13).

As part of the Bolivian regulatory framework, mining cooperatives must have an **environmental license** and mitigate the environmental impacts of their activity. Achieving a license is a difficult and costly procedure, with numerous requirements, which many ASGM do not comply with. The Ministry of Mining states only about 30% of the gold mining cooperatives currently have a license. There is a penalty fee, for operating without a license but government agencies lack the capacity to carry out controls. Lamentably, having a license does not necessarily mean that management is environmentally responsible, in many cases these licenses are only obtained as a procedure to ensure legality.

Given the characteristics of the ASGM in Bolivia, we see that the problem of mercury is great, so any mediation that contributes to its solution is justified. Different NGOs (ARM,Medmin) have organized training processes between cooperatives to avoid contamination, recycling mercury with retorts, but, according to the report of the same institutions, still the widespread diffusion of the retort technique has not been achieved and the damage continues.(13 s6). ARM is focused on other countries than Bolivia(14)

This project aims to *promote use of a **mercury-free method*** that is used by ASGMs in some countries but is a novelty in Bolivia.

The mercury-free method

In a fact-finding mission financed by the World Bank in 2007, MD Rasmus Køster- Rasmussen and geologist Peter Appel (both core members of the Diálogos mercury group discovered that a group of ASGMs from Benguet in the Philippines were using a mercury-free method for extracting gold. The essence of the method is a refined use of the **gravity method and smelting of the mineral concentrate with borax** (a salt of the element Boron), which is cheap and easily accessible (6). Borax is nontoxic in moderate concentrations. Borax is the main ingredient in detergent for laundry machines, and it is used in cosmetics and other products. The mercury-free method is not only superior in environmental terms but also **yields from 20-80% more gold** (7).

Diálogos implemented this method in mining communities using mercury in the Philippines 2011-2017 in a CISU funded project and managed to stop the use of mercury in one project area and reduce the mercury usage in others. The recent external evaluation of the Philippine project concluded that the mining community Gaang has now been mercury-free for 5 years. In Mozambique in 2018, during a Diálogos miner-to-miner training session with scientific monitoring, the mercury-free method yielded up to 78 % more gold than amalgamation method. Thus, we know that the *mercury-free method works* and that it is possible to implement it in mining communities that have previously been using mercury. This alternative way of extracting gold does *not require* new tools or equipment (low cost cleaning of mercury contaminated steel drums is possible, by milling about 1 ton of sand). However, it does require *new skills,* and therefore training and practice will be required before the miners are confident with the new method.

Key contributions of the intervention

The project emphasizes empowering the community of miners by *generating local knowledge* about mercury, safe mining + the mercury-free method, and *stimulating organization* of interest groups to change the practices among ASGMs in the two project areas, and to *exert influence on a national level*.

Project Areas

The project will be implemented in the Sorata and Guanay municipalities in the department of La Paz. Both municipalities sustain their economy with the rise in gold prices: gold mining is one of the main sources of income and employment for its inhabitants. According to the 2012 Census, the two municipalities have a total population of 49,788 inhabitants,with a high growth rate due to migration (because of gold exploitation) and not to fertility.
In highland Sorata (alt. 2697m) the ethnic groups are divided in 74 % spanish speaking, 13% Aymara and 11 % Quechua. In lowland Guanay (alt. 432m) 47 % of the population are Leco indigenas, 37,2 % Aymara and 8,1 % Quechua, the rest are non-indigenous population.(17)

The cooperatives in Sorata are located in areas remote from the populated centers, and the families of the miners have formed small settlements. They have a greater investment in infrastructure and machinery enabling them to extract gold from hard rock using mercury twice throughout the production, most notably whole-ore amalgamation.
In the Guanay area of the Amazon part of Bolivia, gold extraction takes place from rivers (alluvial), with the populated centers nearby. Sand and gravel are dug up from the bottom of the rivers and gold extraction is done by adding mercury at the end of the production.

## 2. Partnership

PLAGBOL

The PLAGBOL FOUNDATION is a Bolivian Non-Governmental Organization (NGO), non-profit and

of social interest, legally recognized before the Ministry of Autonomy by Ministerial Resolution No. 162/2015 of November 23, 2015, Witness No. 073 / 2016 of March 11, 2016. Organizationally it is made up of a general assembly, a board of directors, an executive director and the area managers, who assume and fulfill their responsibilities according to statutes.
PLAGBOL, has as its *main objective to improve the conditions and quality of life of the population* in general, especially the poorest and most vulnerable, so that they can enjoy a healthy, productive life and a clean environment. It has been implementing different projects aimed at reducing problems of health and environment due to the inappropriate management of substances (pesticides and mercury) and of dangerous solid waste (empty pesticide containers). Through these projects PLAGBOL has become recognized as benchmark organization and member of the National Committee on pesticides in Bolivia. The NGO has a comprehensive and articulating approach to the *information, education and communication* processes used in the projects, strengthened with knowledge-generation and preparation of educational - informative material (posters, manuals, radio programs, leaflets). Experience has strengthened the technical, operational and administrative capacity for project management and PLAGBOL works closely with both local authorities and civil society organizations. PLAGBOL staff speak several local languages and have a high legitimacy in relation to the target groups, strong experience in capacity development, as well as in promotional efforts.

In the conclusions of the external evaluation carried out of the last project implemented "Healthy food and environment, Bolivia 2017-2019" (8), the **catalytic** role of PLAGBOL is highlighted; "*It is remarkable how PLAGBOL succeeds in the role of catalyst, getting municipalities to participate locally in the project….creating synergy with other NGOs at the national level and delivering a bill on handling empty pesticide containers to the relevant ministries".*
In 2014 PLAGBOL implemented the project *"Promote mercury-free practices to improve the sustainability of artisanal gold mining as a viable livelihood,"*. The first training took place in October 2014 in Bolivia to introduce the technology. The results were generally positive, and the proposed methodology works well, with high gold yields in the areas studied.
PLAGBOL's experience in this “pilot” has contributed constructively to the design of the proposed intervention.

Dialogos

Dialogos is a Danish organization with about 240 members, founded in 1994 mainly by health professionals with broad work experience form developing countries. The organization has considerable experience in projects within the fields of health and the environment, mainly through projects funded by Danida and CISU in Bolivia, Nepal, Uganda and the Philippines. The vision of Dialogos is: *“that the Worlds most impoverished people are knowledgeable of, and able to take care of, their rightful basic health and live in a healthy environment.”*
Projects are framed within the core competencies of occupational and environmental health, and intercultural health organizations. The core values are *empowerment, local anchoring of projects in the south, voluntary work in the north, interdisciplinary work and scientific documentation.*
Dialogos has a proven track record of collaboration with organizations ranging from local NGOs to government authorities, universities and international organizations such as WHO.

For each Dialogos project, a voluntary workgroup is established. Members of the mercury project groups have professional backgrounds in areas such as toxicology, geology, occupational health, public health and health care planning, environmental planning, medical anthropology, philosophy and medical teaching and research. Several of the group members are affiliated with the University of Copenhagen and the University of Southern Denmark and have published a variety of scientific articles on ASGM and mercury contamination. The group members have work experience in health

and ASGM projects in developing countries on five continents.

Partnership with PLAGBOL dates back to 2001. This has produced extensive experience and insight into the Bolivian context, the target groups and the problems posed by the intervention.

The proposed project is also based on the experience of current Dialogos projects in Uganda *Free your mine* and *Reducing mercury contamination in small-scale gold mining - Philippines*, during which the method of extracting gold without mercury was implemented. The effect of this civil society intervention was documented in several scientific publications. Most of the grinding stations in the T'boli project area in the Philippines (from 2014 to 17) abandoned the amalgamation of whole ore and reduced their mercury output by approximately 70-80%

Dialogos also acts to strengthen the general knowledge of development activities in Denmark. On the issue of mercury, for the past 5 years this has included public meetings, professional networks and to a wider audience such as the radio assemblies on Radio P1 'Orientering' and 'Panorama' by Lise Hermansen in 2016. Dialogos participated in the formation of the educational site www.grundstof80.dk on mercury contamination for school children. It also participated in the Danish documentary DR1 produced "Det ufødte barn" ("The unborn child") on the long-term effects of mercury contamination, and contributed to the production of "Geoviden 2015 nr. 02: Kviksølv" (Mercury), which is a 20-page booklet used in primary schools. In addition, one of the films produced by the project, a 10-minute introduction to the mercury-free method, has had more than 630,000 views on YouTube. There are also versions of the video with dubbing in Spanish and Indonesian.(6)

<u>Division of roles in project implementation</u>
PLAGBOL, as the executing agency, has the responsibility, in coordination with DIALOGOS, of the management and practical implementation of the project. To fulfill this function, it shall:

i) Establish and define the methodologies, activities and resources to ensure the success of the project. ii) Ensure inter-institutional relations through specific agreements. iii) Ensure technical and administrative management of the project. iv) Ensure overall coordination in the execution between partner and collaborating institutions. v) Participate in internal and external evaluation processes, vi) Prepare progress reports, vii) Prepare educational - informational materials, viii) Carry out systematization and socialization of the experiences of the project.

PLAGBOL, in addition, has the responsibility to accompany and strengthen the capacity of action of the collaborating organizations, as well as the in-house capacity building of PLAGBOL itself (i.e. by Dialogos experts on mercury toxicology and in advocacy and fundraising). This to raise the probability that the actions implemented with the project can be sustainable. Its role as a *catalyst* is both familiar and essential, in order to: 1) promote inter-institutional relationship 2) facilitate that the beneficiary groups and collaborating organizations appropriate the project 3) generate new links and opportunities to spark similar interventions in other regions,

DIALOGOS, as a financial entity, has the responsibility of ensuring the proper execution of the project. To fulfill this function it shall: i) Guarantee the resources committed, ii) Review, approve and follow up on the global and annual planning of the project, iii ) Monitor and evaluate the progress and achievements of the intervention, iv) Develop the guidelines for internal and external monitoring and evaluation of the project, v) Participate in internal and external evaluation processes, vi) Review and approve monitoring reports and evaluation, internal and external, vii) Discuss policies, principles and readjustments that are relevant to the execution of the Project.

In addition DIALOGOS must also secure and transfer its experience from similar projects thereby assuming a more active role in: 1) supporting the validation and transfer of the mercury-free method and 2) supporting in the development of capacities and / or knowledge strengthening of the

target groups, specifically with regard to mercury and its effects on people's health, as well as its prevention.

Incorporating collaborating organizations

The MUNICIPAL AUTONOMOUS GOVERNMENTS and the MINISTRY OF MINING AND METALLURGY, are two key institutions to give operation to the project and achieve its sustainability, so that according to their competencies they will be encouraged to take responsibility for: i) Support and co-finance the information, education processes and training, ii) Proactively coordinate with institutions linked to the problem of mercury, iii) Direct the analysis and discussion spaces, municipal and departmental, iv) Follow up on the activities, distribution and control of the materials and supplies delivered, v ) Ensure the active participation of its technical personnel during the execution of the project, vi) Participate in the monitoring and evaluation system, internal and external, vii) Promote the mercury-free method in ASGM.

The federations of cooperatives; FERRECO and FENCOMAN, being a hub for the users of the new gold extraction method, will be encouraged to take responsibility for): i) Ensuring the participation of their staff / members in the training and transfer processes, ii) Participate and support the process of validation and adaptation of the borax method, iii) Establish agreements for any purchase of equipment and supplies necessary for the use of the borax method. It should be noted that these Associations bring together 900 gold cooperatives in dpt. La Paz.

All of the above-mentioned actors will formalize an ***Executive Committee****,* comprising two representatives from each institution who will hold virtual quarterly meetings in addition to an annual in person meeting, since they have the capacity and legitimacy necessary to promote a set of measures and / or actions that can reduce the use of mercury in ASGM.

## 3.Target groups

**Right holders**

Miners

Miners, women and men, who work in ASGM environments with high exposure to mercury, have long been fighting for the recognition and respect of their rights and well-being. The project will support, strengthen knowledge and develop the skills necessary for the establishment of a social, environmental and economically sustainable production system. To achieve this, miners cooperatives in both project areas, will be introduced to health information and have training in the mercury-free method.

It should be noted that these prioritized groups have previously been informed in meetings, workshops and interviews, about the scope, objectives and benefits of the project, which has allowed us to motivate and ensure participation in order to benefit at least **300 mining workers**), all directly related and involved in the ASGM.

Miner cooperatives

The miners in the cooperative of Sorata and Guanay are organized in mining cooperatives, which are both duty bearers and rights holders. The cooperatives are made up of a minimum of ten people and organized by the general assembly with administration and supervisory councils. The project will include 4 mining cooperatives from Sorata, that practice ASGM in the mountains, and 4 ASGM mining cooperatives in Guanay of the river, since they will become the main users of the mercury-free gold extraction method.

Communities, local organisations and public servants

The project emphasizes the importance of empowering the mining communities, thereby hoping to impact the ASGM community in general. This in turn will empower the poorest members of the mining community.

The general population is exposed to organic mercury pollution but can also come into contact with inorganic mercury (inhaling mercury vapors/direct contact with mercury spills) if they are close to work activities. For this reason, the project aims to train, inform and communicate about the consequences that mercury has on health and the environment, in addition to mitigation measures, placing greater emphasis on some of the *Healthcare Workers, teachers and civil organizations.*

For the project, the Civil Society Organizations (CSOs), such as the communities, neighborhood boards and school boards, are key actors of the project, being spaces of representation and expression of the needs and aspirations of the population before the state and the private interests of the market. **50** members/ key actors from the local organizations will receive training and support by the project.

The health care workers of the local health centers are a direct target group of the project, and at least **20** health workers (10F / 10M), of 14 health centers health (8 in Sorata and 6 in Guanay) have already expressed interest. The health workers have a direct influence especially on children and pregnant women who are at the highest risk when exposed to mercury. Training will focus on intoxication treatment and prevention and communication when giving health talks in communities.

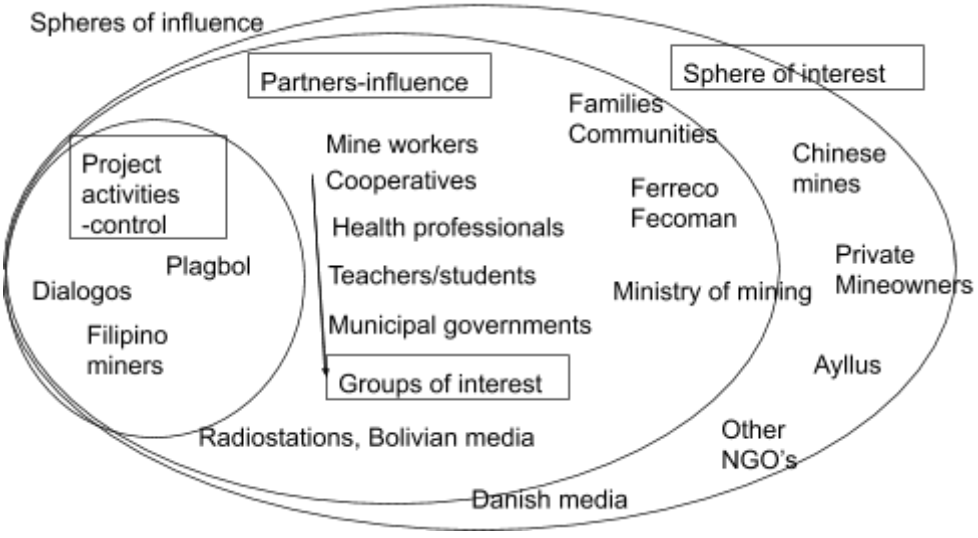
Teachers

Teachers are of particular interest to the project, owing to their influence on children and youth who are the most vulnerable to mercury exposure. For this reason, it is intended to reach **50** teachers (25f / 25M) in the project area. In addition to the benefit that this work will bring to the project, teachers will benefit from strengthening their teaching processes on environmental issues.

**Duty bearers**

Local municipal authorities

The Autonomous Municipal Governments (GAM), have the legal responsibility to promote sustainable development of their territory, to ensure welfare through the implementation of cantonal public policies. They are charged to coordinate municipal citizen security councils, with participation of police, the community and other organizations related to security matters, which will formulate and execute local policies on prevention, protection, security and citizen coexistence. GAMs must also prevent and control environmental pollution in the territory in a manner articulated with the national environmental policies.




Due to the above, which demonstrates the support that GAMs can provide in the implementation of the project, the project will train **50** municipal and local union authorities (20 F / 30M), and will promote dialogue between the various actors that are involved with the project. In this way it will be possible to generate a common & shared objective, becoming a part of the public agenda, and thus be able to promote actions aimed at addressing them.

Ministry of Mining and Metallurgy

The Ministry is a key institution in the project. Through advocacy activities the project intends to strengthen the authority in promoting responsible mercury-free mining, contributing to the commitments assumed as a country by being signatories of the Minamata agreement.

FERRECO and FENCOMAN

The two mining federations organize some 900 cooperatives and through advocacy the project aims to achieve their collaboration in promoting conversion to mercury-free mining.

Secondary and indirect target groups

- The families of the mining workers
- The 12 Educational Units
- The 2 Health Networks consisting of 14 health centers, (8 in Sorata and 6 in Guanay).
- The population living in the intervention municipalities, approximately 49,788 people.
- NGO´s working in Bolivia: PureEarth, Sello responsible, Better Gold Initiative.

## 4. Strategy and expected results

Development objective

The development objective is *to stop environmental mercury pollution from ASGM, to improve environment, the health of the miners and the general population, whilst keeping yield of gold unchanged or increased.*

Specific project objectives

1) Gold miners have increased knowledge on mercury free gold mining and safety methods in mining , and apply this knowledge

2) The civil society in the mining areas has increased knowledge on mercury pollution, it's prevention and has improved organization to promote conversion to safer and mercury-free mining.

3) The interest groups are advocating for mercury free gold mining within the mining corporations, and among decision makers from local and national governments to comply with the Minamata Convention ratified by the Bolivian Government.

Logical Framework (also shown in the budget worksheets)

| Objective | Output | Activity | Indicator/MoV |
|---|---|---|---|
| 1)<br>Gold miners have increased knowledge on mercury free gold mining and safety methods in mining , and apply this knowledge. | **1.1**<br>A demonstration line for teaching mercury-free gold extraction is in use in both areas of action. | **Construction and validation of 2 mercury-free production lines (budgetlines 1.1.1-1.1.6 + 1.1.14-1.1.20)**<br>a) Gather information and experiences concerning the method of mercury-free gold extraction.<br>b) 4 participatory workshops to evaluate the characteristics of current production systems and identify critical points.<br>c) Build production lines.<br>d)Validate, test and operate production lines. | ● Two Production Lines are built and running.<br>● Gold yield shown to be unchanged or increased by approximately 30% when testing the mercury-free method.<br><br>*Source: inspection reports, measurements, photos* |

| | | | |
|---|---|---|---|
| | | e)Compile the technical manual. | |
| | **1.2**<br>60 miners (20 women and 40 men) are able to implement the mercuy free gold mining method and to train other miners in the use of mercury-free method and safety in mining. | **Expert education in mercury-free gold extraction**. **(budgetlines 1.1.7-1.1.10 + 1.1.14-1.1.20)**<br>a)Hold meetings in 8 cooperatives and 20 communities to identify the miners to participate in the training process.<br>b) Develop the training program and educational materials - informative for the formation of the miners.<br>c) 2 meetings to plan the selected HR training process.<br>d) Implement the process of training and transfer of the method with Filipino miner-experts. (6 theoretical and 4 practical courses events).<br>e) 2 Workshops to assess quantitatively and qualitatively the degree of learning of the HR formed<br>f) Exchange of experience and lessons learned between cooperatives. | ● 70% of the trained miners pass the exam in the method of min. 70/100 points.<br>● 70% of the trained miners make use of the new method for gold extraction contributing to the decrease in mercury consumption in Sorata and Guanay.<br>*Source: Workshop exam Results*<br>*Endline evaluation* |
| | **1.3**<br>Larger group of min.300 miners, have increased their knowledge on mercury-free method and mining work safety and are motivated to put it into use. | **Spreading knowledge from 'expert miners' to fellow miners (budgetlines 1.1.11-1.1.13 + 1.1.14-1.1.20).**<br>a) Prepare the transfer program and educational materials - informative for the training of mine workers.<br>b)Implement the theoretical and practical training in the method. (20 events).<br>d) Support the adoption of the method on a day to day level. | ● Knowledge on mercury free gold mining has increased among fellow miners<br>● In half of the cooperatives and among 50% of the unorganised (barranquillero) miners mercury-free gold extraction is used and there are examples of practical improvements in working environment and safety conditions in the mines.<br><br>*Source: Existence of manual describing the mercury-free method* |

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| | | | *and safe mining practices.*<br>*Interviews, inspections, photos* |
| 2) The civil society in the mining areas has increased knowledge on mercury pollution, its prevention and has improved organization to promote conversion to safer and mercury-free mining. | **2.1**<br>● A baseline on local knowledge on mercury and mining exists<br>● A communication strategy and materials exists<br>● Materials for awareness raising and advocacy exists | **Development of communication strategy (budgetlines 1.2.1-1.2.3 and 1.2.9-1.2.16 )**<br>a)Pre- and post evaluations of knowledge on mercury poisoning and mercury free gold mining among civil society groups.<br>b)Develop a communication strategy.<br>c)Design and print educational materials - (1000 folders, 2 gigantografía, 2 radiospots, 1000 calenders, 2000 triptychs, 200 health manuals, 200 teaching manuals) | ● Baseline study has been used for elaboration of strategy and informative materials.<br>● Appropriate educational materials (poster, triptych, guides, manuals) are available for each interest group.<br><br>*Source: Results of the baseline and endline studies.*<br>*Inspection of information and advocacy materials.* |
| | **2.2**<br>● Key stakeholders have acquired knowledge on mercury poisoning and mercury free gold mining.<br>● Mining workers and key stakeholders have formed *interest groups* promoting the mercury free method.<br>● Awarenes raising and advocacy activities are conducted by interest groups in | **Awareness raising and lobbying among villagers, politicians, in hospitals and schools (budgetlines 1.2.4-1.2.6 and 1.2.9-1.2.16)**<br>a) Coordinate, plan and implement a training process including communication and advocacy in a total of approx. 18 workshops with 60 women and 60 men from the stakeholders (50 municipal and union authorities, 20 health professionals and 50 teachers).<br>b) Establish *'interest groups'* of volunteers after the trainings.<br>c) Plan and celebrate activities by the interest groups to increase awareness in the civil society.<br>d) Health personnel have trained 100 women (organized and unorganized) on health and | ● Knowledge of mercury's toxic effects and alternatives to mercury free mining has increased by 50% among trained stakeholders.<br>● Minimum 2 interest groups have been formed.<br>● At least 5 advocacy activities have been celebrated by each of the interest groups.<br><br>*Source: Inspection of materials and documents and stakeholder interviews.* |

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| | the civil society focusing on women and children, as they are particularly vulnerable. | environmental problems arising from the use of mercury in mining, as well as their prevention measures.<br>e)Teachers have trained 120 children and young people on health and environmental problems arising from the use of mercury in mining, as well as its prevention measures. | |
| | **2.3**<br>The Municipalities support information on mercury toxicity and have a plan for conversion to mercury-free gold mining within their Municipality. | **Awareness raising in the Municipality and among the local politicians. (budgetlines 1.2.7-1.2.8 and 1.2.9-1.2.16)**<br>a)Celebrate meetings in the Municipalities to discuss the mercury pollution and advocate for mercury free mining<br>b)Formulate a plan for a Mercury free Municipality proposal for support for municipal board meetings<br>c)Present the plan at the Municipality for approval. | The municipal authorities have supported a strategy to spread knowledge on mercury poisonings and taken action to promote alternatives to the use of mercury in gold mining within their Municipality.<br>*Source: photos, reports, interviews.* |
| 3) The interest groups are advocating for mercury free gold mining within the mining corporations, and among decision makers from local and national governments to comply with the Minamata convention ratified by the Bolivian Government. | **3.1**<br>The interest groups have secured attention and support from key institutions that can help stop the use of mercury in gold mining. | **Lobbying with national authorities and organizations. (budgetlines 1.3.1-1.3.2 and 1.3.13-1.3.14)**<br>a) Systematise the experience gained and the guidelines of the Minamata Convention in a simple and clear fashion developing a tool that helps us to create alliances and agreements.<br>b)Stage four events (discussions, symposia, forums) to present, analyze and discuss the issue of mercury in the country and the need that exists to contribute its solution. | ● Central mining organizations (FERRECO and FENCOMAN) advocate for mercury-free gold mining among its members.<br>● The problem of mercury has been positioned as a topic of political interest and the practice of mercury-free mining has been promoted as an initiative to comply with the Minamata Convention<br>*Source: reports, interviews.* |
| | **3.2**<br>Authorities from national to municipal level | **Promoting a draft mercury-free management plan. (budgetlines 1.3.3-1.3.6 and 1.3.13-1.3.14)** | ● A management plan that contributes to meeting Bolivia's obligations in the |

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| | and actors from CSOs have drawn up a draft plan to stop the use of mercury in gold mining. | a) Conduct technical meetings (approx. 8) for drawing up the plan for the integrated management of mercury.<br>b) Design and print the management plan. (About 400 units)<br>c) Plan and conduct a workshops to present the plan (1 National, 2 municipal) | Minamata Convention is being prepared or is in place.<br>*Source: documented plan / policy. Minutes of meetings.* |
| | **3.3**<br>Plagbol has strengthened its knowledge and capacity in the mining field, and increased experience in advocacy and fundraising. | **Increase capacity of Plagbol on mining issues. (budgetlines 1.3.7-1.3.8 and 1.3.13-1.3.14)**<br>a) Additional capacitation of Plagbol personnel in themes of mining, advocacy and fundraising<br>b) Detail planning, execution, coordination and monitoring the project in supported by Dialogos.<br>c) Exchange of experience with other NGOs in mining and environment nationally and internationally.<br>d) Through work with authorities of mining ministry and FERRECO/FENCOMAN to establish network connections and reach a role of consultant to these entities. | ● Plagbol has prepared a new intervention project on mining safety and health.<br>● Plagbol function as a consultant for Ferreco/Fencoman and the mining cooperatives on mining safety and health.<br>*Source: project reports, minutes from meetings.* |
| | **3.4**<br>Experience from the project has been disseminated nationally and internationally in journals and in conference. | **Diffusion of project experiences (budgetlines 1.3.9-1.3.12 and 1.3.13-1.3.14)**<br>a) Plan and conduct 2 workshops presentation of the proposed intervention.<br>b) Write 4-6 articles based on project experience<br>c) Celebrate an international conference on mining health and safety<br>d) Publish relevant project materials on web. | ● 4-6 popular and scientific articles has been published.<br>● The project information materials are made publicly available on the web.<br>● An international conference on working environment including mercury-free gold mining has been celebrated in Bolivia.<br>*Source: Inspection of articles, web and conference papers.* |
| **Presump-** | New method can be verified for use in Bolivia with small and medium-size mines. | | |

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| **tions**<br>Objective 1) | Goodwill and interest from cooperatives.<br>Interest and willingness among miners to learn new methods<br>The miners trained as experts are able and willing to share knowledge<br>Conversion to new method is possible without major investments<br>The suggested mining security measures are realistic and practical. |
| Objective 2 | There are miners particularly interested and willing to spend time and effort, through interest groups, to improve conditions for themselves and others.<br>The groups (or municipal committees) may also involve interested teachers, health workers, and other local key stakeholders.<br>Those engaged in the groups can read / write reasonably and have talent for dissemination of ideas.<br>Interest and benevolence of the population, authorities and health professionals. |
| Objective 3 | Political will and stability is sufficient to focus on the problem.<br>Available financial resources<br>Technical capacity in the Ministry and at FERRECO / FENCOMAN is sufficient<br>Interest of magazines, scientific journals<br>Interest of the scientific and NGO society |

**Strategic deliveries:**

Miner to miner training:

**60** enthusiastic, extroverted and robust miners are selected to become local miner trainers. Experienced ASGM experts from the Philippines conduct a series of training sessions. Local miners that learn to master the mercury-free method and learn to teach it, becoming expert miners. The miner-to-miner training takes place in a constructed training facility. 6-10 participants can join each course. It takes approx. 3 days to learn to master the mercury-free technique. Along with the technical training, the miners receive a 1-hour course in mercury toxicology including instructions in how to avoid mercury fumes from fellow miners still using the amalgamation method.

Formation and training of interest groups

During the training of expert miners, a number of dedicated and suited individuals will be invited to join interest groups. These groups will also include local key persons i.e stakeholders (teachers, authorities, health care workers, etc). Special attention will be given to support the formation and strengthening of these groups, and training sessions concerning communication and advocacy will be conducted.

Training of health care workers:

The training of healthcare workers will include all healthcare facilities associated with the project areas. Health workers will receive training suitable for their level , in mercury toxicology and in how to communicate the message and advocate for phasing out mercury.

The training is carried out by Diálogos in a 2 days course. An essential part of the course is how to pass on the knowledge and changed perception on mercury to fellow healthcare workers and to the public. The healthcare workers will in turn pass their acquired knowledge on to the villagers during educative fairs and “health talks” given in communities.

Training of teachers:

The earlier Diálogos partner Bantox developed a mercury-free schools program. PLAGBOL will teach this to the school teachers in the project areas. The program includes basic training in mercury toxicology. The schoolteachers will incorporate the program into the education of the schoolchildren. The schoolchildren will in turn tell their parents and friends about the toxicity of mercury and in that way advocate for stopping the use of mercury among their ASGM family

members.
Healthcare personnel & teachers are characterized by rather high work rotation. Therefore it is anticipated that the experience and training received by the project will be further disseminated (multiplier effects) in their new work places and areas after completion of their work cycles.

Mercury-free facility:
The installation of two real-size production lines, which will be used to objectively demonstrate the effectiveness of the borax gravitation method and for the training of experts in the use of the method. This is where the local master trainers teach their fellow miners the mercury-free gold extraction method. We expect the trainings to have a multiplier effect as knowledge is expected to be passed on to fellow ASGMs in their cooperatives and villages as they realize the economical, environmental, and health benefits of mercury-free gold extraction.

Occupational health:
In the information, education and communication processes, aspects related to environmental safety, occupational health, decent work, will be addressed during miner training. Work safety standards as known from a danish context might not apply but still **feasible** safety measures will be identified and promoted. It will strengthen the target group, according to their competences and their degree of participation and influence. All of this in order to achieve a more critical and preventive posture.

Organisational capacity of Plagbol
In-house training of Plagbol in mercury toxicology, and further training in advocacy and fundraising will also contribute to the impact and sustainability of the project. The aspiration is that Plagbol may become a benchmark organization of mercury-free mining, similar to its position in pesticides, and function as consultant to the Ministry of mining and/or the federations of Cooperatives.

Advocacy
Strategic deliveries, like training sessions, cannot stand alone. There is a need to *empower the society* to exert pressure on the miners to change practice. *Advocacy is considered crucial* in the proposed project, and it will be an integrated part of all project activities. Thus, project participants will be urged to pass on their knowledge to peers and others, and the project will try to strengthen the ASGMs ability to speak their own case. The formation of mercury interest groups in corporation with the local government unit and a strengthening of the ASGM's organizations by empowering members, including women, through teaching sessions on organizational issues, are seen as important tools in this process. Advocacy activities are mainly focused on stakeholders in the project areas but will have the potential to reach out to a much larger audience.

Mercury-free mining program:
The project partners will, during the project, formulate a strategy disseminating mercury-free extraction methods to other mining communities in the region.
A desired result is generating a *draft plan/program* that provides technical and methodological guidelines to mitigate impacts, reduce and eliminate the use of mercury in mining regions, which will strengthen the capacity of action of authorities and miners federations.

Media exposure:
Like in Diálogos earlier mercury projects there will be a comprehensive media exposure of our activities and results in both Bolivia and Denmark. Local awareness rising through local media (radio) is essential in the advocacy for transition to mercury-free mining.

Scientific articles:
Diálogos has a long tradition for documenting the effect of the projects with scientific methods.

Many of the members in the Diálogos mercury group are researchers in their professional fields (geologists, medical doctors, engineers, philosophers, anthropologists etc.). Diálogos will further contribute to the project by writing articles, participate in the organization and celebration of an international conference on occupational health in mining in Bolivia and draw upon their contacts (i.e ICOH scientific committees, colleagues from universities etc), all on a **voluntary** basis, i.e. not covered by the Project budget.
Baseline and follow-up studies will be conducted and will document the change in knowledge, attitudes and practice regarding the use of mercury in the mining communities through the project duration.
The results will be published in peer reviewed international scientific journals, and these will in turn, be subject to media exposure of the project.

**Strategy to achieve objectives**
As a result of the emerging problems due to the use of mercury, Bolivia, being part of the Minamata agreement, has pledged to eliminate the use of these substances from gold mining. Unfortunately, without achieving the expected results. Among the causes for this, are the reluctance from miners to change practices, and that the problem is just not a technical one: the solution to the problem is not simple, because it must be oriented to changing habits, customs, culture, production processes, which have a lot to do with social and economic political aspects that could affect all actors directly or indirectly involved.
It is under this framework on which the project strategy is based, i.e. to generate a process of both *productive and institutional transformation.*

**Component 1: Aimed at achieving the immediate objective 1.**
This component becomes the main vehicle with which we intend to introduce the gravitation method with borax into ASGM, as a replacement for the use of mercury in the refining stage. This alternative has a *better gold yield* than amalgamation, in addition to this, it *does not require strong investments or complicated training*.
Despite the evidence for the method, it is however not being used due to the lack of adequate dissemination, the little experience in intensive production systems and the resistance to change among mining workers.
Under this framework, the component proposes several activities, which have been grouped into **three (3)** steps, interrelated and complementary to each other.

**Step 1**: A participatory research process will first be developed, which will allow us to validate, test and adapt the method of gravitation with borax and select the preventive measures to solve the critical points that can be identified within the entire process of production and extraction of gold. Then, with the agreement with cooperatives in each project area, who have expressed interest, the production lines will be constructed, which will be used to train, demonstrate and disseminate the practice of cleaner and more responsible mining. At this stage, the mining workers of the cooperatives where we will work will be *key actors*.

**Step 2**: It is aimed at the *training of experts* in the management of the new method of gold extraction and the practice of responsible mining. The miners trained will be responsible for guiding, facilitating and supporting all the work that will be developed to introduce the borax gravitation method into ASGM. The training process will be implemented under a participatory pedagogical approach and in two phases (theoretical and practical).
In the *theoretical phase,* two modules will be developed, (of two days each), and where aspects related to the problem of mercury and the concepts and guidelines for the practice of responsible mining will be touched.

In the *practical phase,* taking advantage of the installed production lines , the skills necessary for the use of the method of gravitation with borax will be developed. This phase will be supported by mining experts from the Philippines, who have not only been using this method in their daily work, but have also taught it in several other countries .
At the end of the two phases, miners trained as experts will be trained to generate advocacy and training processes.

**Step 3:** It will be aimed *at promoting the use of good practices* and the method of gravitation with borax. For this, it is intended to organize field days, where the experts and trained experts, taking advantage of the installed production lines will share their knowledge and skills to mining workers who will be invited, from inside and outside the areas of influence.
All this work will be strengthened with the educational material that will be elaborated and the benefits of the new method disseminated by miner-to miner training. This will ensure the appropriation of the new method by cooperatives and communities.

**Component 2: Aimed at achieving the immediate objective 2.**
This component aims to make the problem generated by the use of mercury in gold mining visible. The aim is to create awareness of the problem and encourage the active participation of the actors involved. *Formal and informal training processes* are in focus in this component.
Referring to the *formal* training processes, they consist of the realization of workshops, developed under a constructivist pedagogical approach where the learning by the participants does not consist of passive reception of the previously defined contents, but is the result of dynamic and active processes of and between the participants and the facilitator.
These workshops will be directed at a first stage at: i) decision makers such as municipal and union authorities, ii) teachers and iii) health personnel. **Interest groups** formed by the project, among these 3 groups and the expert miners, will eventually become the *generators of change*. They will be strengthened with skills to generate advocacy and subsequent training processes aimed at the most vulnerable population such as children, young people and women.
*Informal processes* will not only strengthen and consolidate a greater understanding and knowledge of the problem by the most vulnerable population, but will also allow us to attack one of the causes that is part of the problem, such as the little knowledge the population has on the subject.
All this will be achieved with the realization of events, fairs and / or competitions and the continuous dissemination of a mass communication strategy that will make use of radio and TV.
Parallel to this work the technical team of the project, will work to achieve a better and a greater interrelation between all the actors and existing powers of the municipality, which will allow to form and formalize a space of analysis and municipal discussion, that promote more changes. In this way, a circle of improvement will begin with positive changes in people, for their own and collective benefit.

**Component 3: Aimed at achieving the immediate objective 3.**

The central idea of this objective is to *strengthen the governance and agendas* of the main actors and decision makers, i.e. FERRECO & FENCOMAN, the GAMs, and the MINISTRY OF MINING AND METALLURGY. This is based on the participation of organized civil society through interest groups, since it has been seen that many of the former initiatives did not give the expected results.

This component involves a heavy focus on *Advocacy and Political pressure/awareness raising,* to raise the likelihood that the elaborated *draft plan* for mercury-free mining can be used as a proposal of national scope.

**Step 1:** Seeks to include in the agendas of each of the actors (i.e. interest groups), the need to work in the search for creative solutions to deal with the problem of mercury.
To meet this challenge, the technical staff of the project will carry out a series of *activities (meetings, discussions, workshops)*, to analyze and discuss the situation and scope of the problem, present experiences and / or proposals for interventions and finally to form and formalize an inter-institutional team.

**Step 2:** It consists of a *purely technical work* of the inter-institutional team, which will be carried forward to the head of the MINISTRY OF MINING AND METALLURGY.
At the end of this step, a Consensus document will have been elaborated, which defines the conceptual, methodological, logistic and technical elements necessary, in order to carry out the comprehensive management of mercury in ASGM, complying with the Minamata convention.

**Step 3:** It will be aimed at *socializing and presenting* the plan that was elaborated in step 2. For this, it is intended to hold two events, one national and one international, as well as meetings and workshops in other mining regions of the country.

In addition to all the above, in a parallel and continuous manner, the technical team will direct its efforts to position the PLAGBOL FOUNDATION as a Reference and Advisory organization for the practice of mercury-free gold mining, as well as in the adoption of a system of quality management, which allows the PLAGBOL FOUNDATION to provide products and services that meet the requirements, demands and expectations of our stakeholders (beneficiaries, public and private institutions, professionals and financing entities).

**Final considerations**
The work to be carried out in each of the components has a common denominator, which has to do with:
a) *the training of participants and beneficiaries*, where the true importance of this lies in their interest and will to take ownership of the objectives of the project. This requires that dedicated people, with the right combination of knowledge and skills, being in the right place and at the right time to perform the necessary work, are included.

b) the *gender perspective* as a transversal. Most of the miners are men in Sorata cooperatives, except 3 women who cook for their husbands. In Guanay however, mining activity is based on the community, where half of the population is female. In the project female ASGMs will play a key role. The strategy is using gender-sensitive methods based on social and cultural constructions in the target groups: 1) Meetings before large meetings with women only to ensure their under-standing of the methods, 2) Local and sensitive education, 3) Meeting hours adapted to the work schedules of housewives, 4) Leadership training, 5) Collection of data disaggregated by sex, 6) Focus on family structures, etc.

c) *advocacy,* since promotion is considered crucial in the proposed project, and will be an integrated part of all project activities. A *promotion strategy* will be developed, and activities will strengthen the ability of ASGMs to express their own case and have the potential to reach a much wider audience. The project will seek to include powerful actors such as landowners, mining cooperative leaders and politicians. Through seminars and meetings, the project will *raise awareness* among these stakeholders about mercury contamination and facilitate how the local government can assist in addressing the problem. It is part of the project strategy that the Government of Bolivia and the GAMs will support the implementation of the project.

In respect to strategy it is important to highlight the articulation and balance that exists between

capacity development, political impact and strategic deliveries, *balancing the components of **the development triangle,*** since: 1) The partner organizations know the issue and have a healthy organizational capacity (organizational capacity), 2) the project strategy delivers the arguments and technical evidence to deal with the problem of mercury (strategic deliveries) and 3) gives great force to the advocacy process and interaction and agreement between the different sectors and actors.

**Main assumptions**

- Local and central government being cooperative and supportive of the project and eliminating mercury in their ASGM communities
- Stable project and donor currencies
- Interest in learning and teaching about mercury toxicity from miners, communities and collaborating partners
- Miners showing interest in learning and implementing the mercury-free gold extraction method
- The Bolivian Government is stable and will continue the implementation of the Minamata Convention with policies and enforcement of a ban of mercury. This supports a push effect for miners converting to mercury-free method.

**Risks**

There are possible risks or obstacles but also som mitigating factors to these:

- The economic crisis has forced governments to introduce deep cuts in public finances. This has resulted in a significant reduction of public employees and the attention of their skills.
  - *The project interventions are anticipated to be cost/time/resource neutral for the public institutions, and project results, plans & strategies will be shared with these*
- Public administration in the areas of influence, is dominated by interests and paternalistic culture. The result is a high turnover of staff and a lack of continuity, which prevent the institutional strengthening of public institutions.
  - *The projects work with strengthening the capacity of the miners and their organizations is anticipated to contribute to local organizational sustainability and possibly have a 'trickle-up' effect vis-a-vis public institutions.*
- The strong migration in the Guanay area could make it difficult to organize people in the communities, since they do not share the same objectives or interest.
  - *To counteract this, the project aims at strengthening organization around project activities and thus further miners' immediate interests.*
  - *Higher economic outcome from adopting the new techniques, may motivate people (especially men) to stay in the area and participate in the production on a full-time basis*
- The currency is stable and is actually strengthening due to progress in the country.

**Monitoring**

Monitoring and evaluation will be continuous processes, according to the indicators of the logical framework.

**In Bolivia Plagbol** will ensure:

- **Annual operating plans** and **Quarterly reporting** (technical and financial) to Dialogos. Monthly work meetings of the project staff to review and evaluate the progress. Internal workshops at the end of each quarter. The staff will evaluate and continously adapt the project activities.
- **Funds management** will be carried out in accordance with the financial guidelines by CISU, both by Dialogos and the Plagbol according to established rules and procedures.
- **Internal evaluation** will be carried out in the middle of the project, with the objective of

providing immediate feedback to improve the execution of the intervention in progress. External evaluation will be carried out at the end of the project by an external evaluator and socialized with stakeholders before closing the project.

- At the start and end of the project, *a baseline* and corresponding *endline survey w*ill be done, to document expected positive changes in knowledge and behavior as seen from indicators. Information is gathered by means of questionnaires, interviews and statistics in the districts and at national level. Data will be analyzed using sound standard statistical programs.
- The **project executive committee and Plagbol board,** stakeholders and local organizations will meet quarterly and evaluate project plans, quarterly reports and accountability and provide technical input where needed.
- An **external audited annual report** will be carried out and a year report will be elaborated, conducted by an external company, according to the financial institution standards for foundations. The Plagbol Foundation prepares the financial statements required by the audit firm.

**In Denmark Dialogos will:**

- **Monitor project activities** based on the review of the quarterly reports and annual reports including financial reports. The recommendations will be systematized and presented in a document, to be taken into account in the preparation of the Annual Operational Plans.
- **Quarterly digital** meetings in the project executive committee

o At least once a year Dialogos will *visit the project* to see the activity progress and activity compliance, in addition to assessing possible difficulties encountered and solutions implemented.
o Elaborate and send *reports t*o CISU.
o Keep the *Danish accounts* by following the administrative rules by donor.
o Submit the reviewed *annual accounts* to the donor

## 5. Phase-out and sustainability

Gradual elimination

To ensure that the interventions developed continue once the project ends, six months before closing, we will begin a process of gradual and planned departure from the areas of influence, which comprises *four stages:*

*Stage 1,* which will last 1 month, will be aimed at quantifying and qualifying the work carried out, for this, meetings, interviews and evaluations will be held to the different actors and beneficiaries of the project,

*Stage 2,* with a duration of 2 months, will be aimed at consolidating and achieving the proposed results. For this, strengthening courses and inter-institutional meetings will be carried out that allow formalizing agreements and commitments

*Stage 3,* with a duration of 1 month, will be aimed at the external evaluation of the project. If it is deemed positive, work will be done on the preparation of a second phase and

*Stage 4*, with a duration of 2 months, will be aimed at complying with the recommendations and suggestions of the evaluation, preparation of the final report and the completion of the closing workshop.

Future sustainability

The sustainability of the actions to be undertaken in the project is ensured because it is based on *four fundamental pillars,* which are:

*The articulation* with the policies and agreements that the Plurinational State of Bolivia has and has signed, being able to support the commitments assumed by Bolivia as part of the Minamata agreement.

*The active, informed and organized participation of all actors*, ensuring that they have all the

knowledge and the necessary elements (operational, logistic and technical) to develop actions.

*The training of participants and beneficiaries as generators of change,* achieving a change of ethics and values in people, for their own and collective benefit.

*Cleaner production* in ASGM processes, which in addition to eliminating the use of mercury, will contribute to a better quality of life and possible higher income for miners.

The proposed project follows the principle of ***not setting up expensive infrastructure*** that must be maintained when the project is phased out. The training facilities are to some degree an exception from this principle, but it is expected that the mercury-free method has disseminated to many private milling stations and hopefully there will be no need to maintain the training facility after the project has ended. It does *not require major investments to* change to the mercury-free method, as just minor and cheap adjustments are needed in the equipment the miners already have. The project does *not intend to create complicated new procedures and activities t*hat will fall apart if not phased out properly.

If the project is successful in reducing the use of mercury, it can be used as a concrete example in future promotion and as a catalyst to initiate a process for other mining communities in the region to eliminate mercury. The most vulnerable exposed population will be supported in their struggle for their needs and aspirations and will encourage the main authorities to clarify and strengthen their actions on the subject. Therefore, neither the local partners nor the target groups are abandoned in an inappropriate dependency relationship when the execution period expires.

Everything mentioned is aimed at achieving the sustainability of the actions that will be implemented. Executing the project will allow PLAGBOL to achieve recognition and positioning as benchmark institution regarding mercury-free mining. This will increase possibility of sustainability of the project as a whole, of the participating organizations, and of Plagbol itself.

Exit strategy

Should the necessity arise to close down activities after the proposed project, the phasing out in the project area will start half a year before the project closes down completely. Emphasis during the phasing out, will be put on ensuring that all the people trained during the project are handling their new knowledge and skills as confidently as possible. If necessary, refresher courses will be carried out. Furthermore, it will be ensured that the teaching materials elaborated during the project are distributed to as many stakeholders as possible. If the evaluation of the project shows that the project should not be continued, it will be an important task of the evaluation team to come up with further suggestions in relation to the exit strategy to ensure as smooth an exit as possible.

## 6 Information in Denmark

The objective of information work in Denmark is to inform the general public about the results of the project by improving the general understanding of the importance of development work and the transfer of new knowledge to people in need. In the information work, Dialogos use different tools such as web pages and Facebook as well as printed material.

Dialogos produces a newsletter "DialogosNyt", twice a year. Through cooperation with the UNESCO collections of the Moesgård Museum, many people who do not necessarily seek news from the developing countries themselves are reached. In addition to the Dialogosmedia itself, attempts will be made to bring the information to the mainstream media. All information related to the project will be executed by professionals with established and close links with Dialogos and by members of DASAM, experts in documentation and teaching on occupational and environmental health issues. Dialogos / DASAM periodically disseminates the experiences of these projects and their results in scientific articles, conferences, seminars and workshops aimed at different groups,

including universities and professional scientists.

Information about the project will be the result of a systematization process, in order to extract the lessons learned. It is the result of collective learning between and for partners and collaborators.

## 7. An extension of previous cooperation

The experience of previous cooperation, knowledge, capacity and experience of Plagbol in projects similar to this, as in others, have contributed constructively to the design of the proposed intervention. It should be noted that the proposal is the result of an analysis and discussion process that was carried out based on the learning (positive and negative) achieved in 2013, with the project "Promote mercury-free practices to improve the sustainability of artisanal mining of gold as a viable livelihood, "a project funded by the European Union, the Danish Embassy and the Geological Survey of Denmark and Greenland. As recommended in the Note of the Evaluation Committee, (16-1926-SP-Sep) CISU, **Plagbol has the potential** to move to other areas such as mining and industrial pollution. In addition to this, this new project is also based on lessons learned from previous Dialogos Projects such as "Free your mine: mercury-free gold mining in Uganda 2018-21", financed by the civil society fund. “New Horizons Project” financed by the Climate and Environment Fund and the experience of the Dialogos project "Mercury-free mining in the Philippines 2011-17".
This intervention has been developed in cooperation between Plagbol and Dialogos during the last year, in parallel versions in Spanish and English, to meet the needs of our partners and CISU. The Dialogos send a research mission to Bolivia in June 2019 (Peter Appel and Simon Høegh) (11) in collaboration with Plagbol, where project ideas were discussed with mining cooperations, local authorities and FERRECO in La Paz, to ensure local ownership by target groups. The plans were discussed and elaborated later during the final evaluation of the project; "Healthy food and environment, Bolivia 2017-2019", in August 2019. Plagbol wrote the first draft, which was discussed in the Mercury-Bolivia Dialogos group and both institutions advanced to the draft of this project proposal.
CISU stressed in the evaluation of the association (16-1926-SP-Sep), that Plagbol could not attract sufficient funds to become financial sustainability. The ongoing project *has addressed* these problems. As a fundraising strategy, Plagbol began a new cooperation with Swiss Contact on pesticide management, which makes it more sustainable.
All the above mentioned shows that the formulation of this intervention has had an active participation of the interested parties and the target groups and is the result of the experience accumulated through 10 years of collaboration between DIALOGOS and PLAGBOL.

## 8. References


1. Bocange, Danilol. 2001. *Bolivia Estudio Nacional/Regional sobre Pequeña Minería y Artesanal Proyecto*
2. Fundación Jubileo. 2012. *Diagnóstico del sector minero.* www.jubileobolivia.org.bo
3. COMIBOL. 2012. *Bolivia concentra sus exportaciones de minerales en seis países.*
4. Perez E, Appel PWU, Koester-Rasmussen R. 2007 Training of Small Scale Miners and their Families in Safe Handling of Mercury During Extraction of Gold in the Philippines. Report for the World Bank from the Geological Survey of Denmark and Greenland (GEUS).
5. Arctic Monitoring and Assessment Programme (AMAP)/The United Nations Environment Programme (UNEP). Technical background report for the global mercury assessment 2013. Oslo, Norway/Geneva, Switzerland: AMAP/UNEP, 2013, p.263.
6. Dialogos film on youtube.com https://www.youtube.com/watch?v=X6Sawj0HyF0
7. Appel PWU and Na-Oy L. The Borax method of gold extraction for small-scale miners. Blacksmith Institute J Health Pollut 2012; 2: 5–10.
8. Ferrufino Kathia. External evaluation ”Healthy food and environment, Bolivia 2017-2019. 2019.

9. Enriquez, Juan Carlos.2002. “Minería, Minerales y Desarrollo Sustentable en Bolivia” en Minería, Minerales y Desarrollo Sustentable en América del Sur. http://pubs.iied.org/pdfs/G00581.pdf
10. Ministry of environment of Bolivia, news article 4.march 2020. MMAyA y Naciones Unidas para el Desarrollo Industrial alistan plan de control del mercurio en Bolivia
11. Appel, Peter & Høegh, Simon. Fact finding mission in Bolivia, 2019
12. Fundacion jubileo 2018: Reporte de Industrias Extractivas (page 57)
13. Fundacion jubileo 2016: Oro: Análisis del subsector cooperativo en La Paz
14. Alliance for Responsible Mining - Where we work?
15. Observatory of Economic Complexity data of 2017
16. T.Graham, World Politics Review 16/9/2019 Gold fever grips Bolivia, but at what cost?
17. Source: Population data, from The national Institute of Statistics, survey from 2012
18. *Global Mercury Assessment 2013. Sources*, *Emissions*, *Releases and Environmental Transport*, United Nations Environment Programme, Chemicals Branch, Geneva, Switzerland, 2013.

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