

# Empowered Women Miners: Sustainable Livelihoods, Restored Environments



Women's Artisanal and Small-Scale Gold Mining (ASGM) Network in Madre de Dios, Peru

# Project Overview

**Project Goal: Women's ASGM Network of Madre de Dios members have the skills and knowledge to reforest their mining concessions, adopt profitable mercury-free mining methods, and link with new markets.**

**Name of the project:** Empowered Women Miners: Sustainable Livelihoods, Restored Environments

**Organization supporting them:** Pure Earth (NGO)

**Abstract of the project:** Pure Earth and the Women's ASGM Network of Madre de Dios are seeking Partners to fund a three year project so that the Network can reforest mining concession land, adopt profitable mercury-free mining methods, and develop leadership and business skills that will enable the Network members to be more prepared to connect with national and international buyers of responsibly-mined gold.

**Partnership:** The project will benefit the regional Women's ASGM Network in Madre de Dios. We will partner with local institutions CIN CIA (Center for Amazonian Innovation) and CITE (Center for Innovative Production and Technology) as well as the Lima-based jeweler Casa Collab. The National Women's ASGM Network was established with funding support from USAID's PREVENIR project, with which we will partner.

**Results of the previous investment:** Success stories from the past eight years are highlighted on slide 16–17 and include: reforestation and monitoring of over 17,000 native trees in 12+ hectares in four mining concessions, adoption of mercury-free mining equipment upon trainings on use and maintenance, Fairmined certification of four mines from the AMATAF mining association, and facilitation of mercury-free gold sales.



**Founded in 1999, Pure Earth is an international NGO that partners with communities to identify and implement solutions that stop toxic exposures, protect health, and restore environments.**



Pure Earth has completed 110+ environmental remediation projects in 27 countries, improving the lives of millions of people from the threat of toxic contamination, especially mercury and lead.



We work with governments, other NGOs, local and community organizations, and the private sector to design and implement low-cost, evidence-based solutions.



Our reputation as a global leader in toxic pollution and environmental health is based in our technical leadership, creativity, and capacity to manage and implement successful programs.



Since 2014, Pure Earth Peru has worked with artisanal gold miners and organizations in Madre de Dios to address their priority mining-related issues. These include the exposure of communities to mercury, environmental damage, and the lack of financial incentives to mine in a more environmentally sustainable way.

## A Strong Team in Peru

Our team in Peru consists of **France Cabanillas**, a forestry engineer who specializes in artisanal and small-scale gold mining issues in the Amazon and will serve as local project coordinator; **Sofia López**, a forestry engineer who will serve as technical assistant for the project and will help France with training miners on reforestation topics; **Claudia González**, a communications specialist who will work on stakeholder engagement and communications in this project; and **Rodrigo Velarde**, a biologist and Country Manager for Peru who will supervise the project.



(l to r): France Cabanillas, Sofia López, Claudia González, Rodrigo Velarde

# Madre de Dios and ASGM

- Peru is the largest gold producer in South America and the 11<sup>th</sup> largest in the world.
- 70% of Peru's ASGM gold production comes from the department of Madre de Dios.
- Madre de Dios has a population of ~140,000 people, half of which are involved with ASGM.
- Located in the Peruvian Amazon, Madre de Dios is a biodiversity hotspot.

Driven by poverty and the high price of gold, the proliferation of ASGM in Madre de Dios is contributing to the rapid deforestation of wide swaths of Amazon rainforest and the release of tons of the neurotoxin mercury into the environment. Madre de Dios is a significant contributor to Peruvian mercury emissions.

Destructive mining methods raze trees, devastate forest landscapes and habitats, and contaminate the soil and waterways used by communities and fauna alike.

Exposure to mercury can cause damage to the nervous, digestive, and immune systems, as well as the lungs, kidneys, skin, and eyes. Mercury is particularly dangerous to young children, babies in utero, and pregnant women.



**ASGM = #1 economic activity in Madre de Dios**



**Women play an important role in ASGM in Peru, but their contributions are often overlooked. There is a general lack of support for women miners' efforts to empower themselves.**

## Women Miners in Madre de Dios

- ➔ **30%** of formalized mining concessions are owned by women (cessionaire)
- ➔ Of the 132 legal entities formed for local mining ventures, **22%** of the shareholders are women
- ➔ Of the 9520 legal entities in the process of mining formalization, **26%** are women-led

## Women Participants in Peru's Formal Gold Trade\*

- ➔ In the category of *buying and selling gold*, **33%** of participants are women
- ➔ In the category of *selling gold only*, **14%** of participants are women
- ➔ In the category of *buying, selling, and refining of gold*, **22%** of participants are women

\*as defined by Peru's Registry for Gold Processors and Commercializers (RECPO)

This situation is often reinforced by women's traditional roles in society and in the family. In addition, access to education is limited for women in Madre de Dios: 7.8% are illiterate (compared to 1.6% of men) and 60% have completed only primary education and not continued to secondary education (compared to 40% of men).

# About the Women's ASGM Network of Madre de Dios

Established in 2022 as the National Women's ASGM Network with financial support from USAID's PREVENIR project. The network then formed regional chapters, including in Madre de Dios.

**Mission:** Promote responsible ASGM practices in Madre de Dios; bolster leadership of women miners as agents of change; incorporate and promote environmental and social best practices that are backed by national and international regulations, laws, and standards; work with private and public actors, civil society organizations, and international organizations.

**Qualifications:** Female and a) a concessionaire, b) concessionaire's daughter, c) legal representative, and/or d) possess documentation guaranteeing a connection with a concession that is formalized or in the process of formalization



## Women's ASGM Network of Madre de Dios

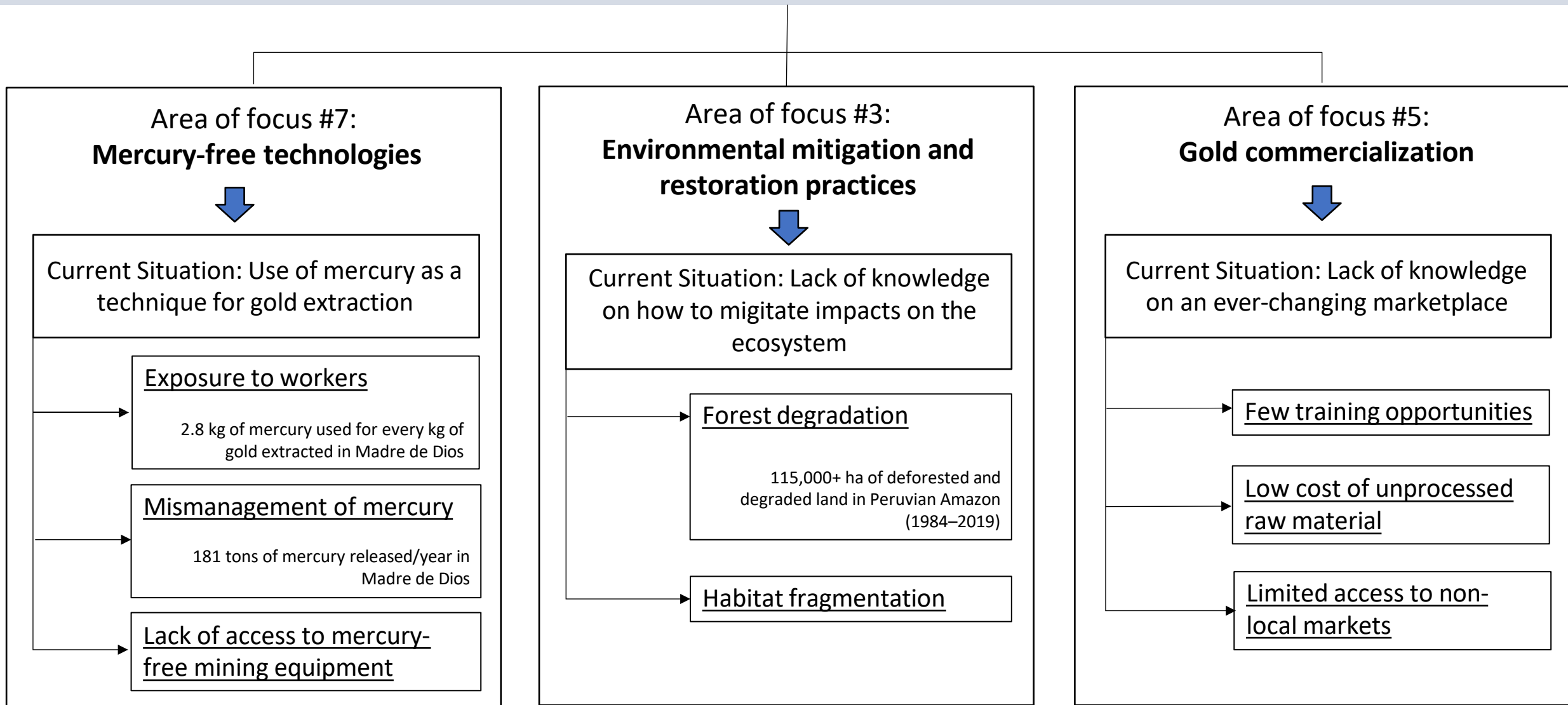
- 14 current members; 10 pending
- May 2022: First-ever meeting; members created the Network and a **Roadmap**
- Oct 2022: Elected Board of Directors
- May 2023: Legal registration
- June 2023: Began to draft work plan and capacity strengthening plan

## The Network's Roadmap focuses on strengthening capacities in the following areas:

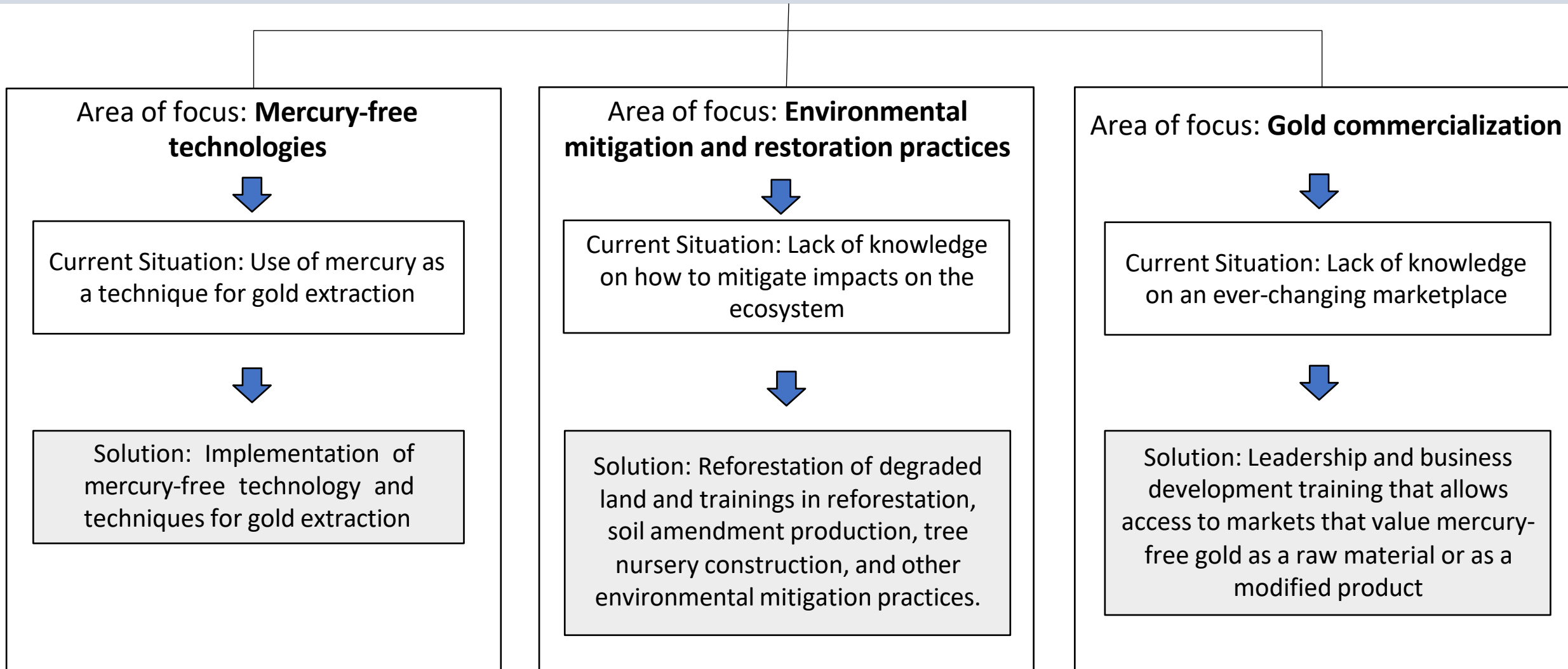
1. Institutional capacity building
2. Experiential exchange
3. **Environmental mitigation and restoration practices**
4. Legislation and laws
5. **Gold commercialization**
6. Campaigns for Network positioning
7. **Mercury-free technologies**

The Network has some preliminary knowledge mining without mercury, reforestation, and commercialization, as a key member of the Network, Vilma Contreras, is president of the mining association AMATAF. AMATAF has been working with Pure Earth for the past 3 years and currently uses mercury-free technologies, has successfully reforested over 10 hectares of land, and has made gold sales to companies that value these commitments.

**Problem: Lack of support for the Women's ASGM Network of Madre de Dios to increase capacity in their self-identified Roadmap areas of focus**



**Solution: Provide support for the Women's ASGM Network to increase their capacity in three of their self-identified Roadmap areas of focus: mercury-free technologies, environmental mitigation and restoration practices, and gold commercialization**





# About the Proposed Project

To support the self-identified goals of the Women’s ASGM Network of Madre de Dios, Pure Earth will work with the Network to implement a program with the following objectives (described in further detail in slides 10–12):

**Objective 1: Miners of the Women’s ASGM Network transition to profitable mercury-free techniques.**

**Objective 2: Mining-degraded areas are reforested with the active participation of the miners of the Women’s ASGM Network.**

**Objective 3: Miners of the Women’s ASGM Network learn ways to commercialize their mercury-free gold.**



All decisions required for the implementation of this project will be made in collaboration with the Women’s ASGM Network. This includes decisions such as but not limited to: where mercury-free equipment will be installed, which concessions will be reforested, and who will be invited to the various workshops.

Key partnerships



To assist with various workshop topics, we will work with the following expert, experienced partners:



# Objective 1: Miners of the Women’s ASGM Network transition to profitable mercury-free techniques.

## Activities



Conduct baseline survey to ascertain miners’ perception about mercury use



Conduct mineral characterization to determine most appropriate mercury-free methods



Purchase and install equipment necessary for selected technology



Train miners on use and maintenance of the selected technology

## At the end of the activities of this objective:

- Equipment to mine without mercury will be purchased and installed in at least one mining concession, or a group processing center will be established
- Miners will be trained in how to use and maintain equipment

## Key Performance Indicators (KPIs)

- Number of miners certified in the use of the selected technology
- Number of miners certified in the maintenance of selected technology

## Deliverables

- Report on the mineral composition of the mining material
- Report on miners’ perceptions about mercury use



# Objective 2: Mining-degraded areas are reforested with the active participation of the miners of the Women's ASGM Network.

## Activities



Generate baseline assessment of plot to be reforested



Purchase biochar furnace and train miners on production of biochar and other soil amendments



Train miners in tree nursery construction, operation, and maintenance



Build tree nursery with miners



Select and plan plantation of native tree species



Procure saplings and other needed supplies for reforestation



Train miners in reforestation design, planning, and implementation

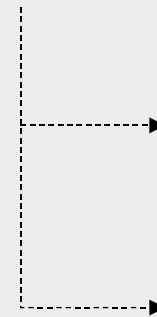


Reforestation, along with other materials; take measurements for database



Create reforestation monitoring plan

## At the end of the activities of this objective:



At least 3 ha will be reforested with 3,300 native saplings; a tree nursery will be constructed

Miners will learn how to make their own biochar (soil amendment) and at least one biochar furnace will be purchased

## KPIs

- Number of miners trained in biochar production
- Number of miners trained in tree nursery construction, operation, and maintenance
- Number of miners trained in reforestation design, planning, and implementation
- Number of hectares reforested
- Number of trees planted per hectare

## Deliverables

- Land selected for reforestation
- Environmental baseline report, with map of plot to be reforested and environmental sampling results
- Reforestation plan
- Tree nursery constructed



# Objective 3: Miners of the Women’s ASGM Network learn ways to commercialize their mercury-free gold.

## Activities



Train miners in leadership and entrepreneurship



Train miners in mercury-free gold smelting techniques



Train miners in mercury-free gold jewelry fabrication techniques



Train miners on mercury-free gold commercialization and market connections

## At the end of the activities of this objective:

- Miners will feel more confident in their leadership and entrepreneurship skills.
- Miners will learn how to smelt their mercury-free gold
- Miners will learn how make mercury-free gold jewelry
- Various mine-to-market options will be explored

## KPIs

Number of miners certified in:

- Leadership and entrepreneurship
- Mercury-free gold smelting techniques
- Mercury-free gold jewelry fabrication techniques
- Mercury-free gold commercialization and market connections

## Deliverables

- Reports of the training activities



# Project Summary

By project end, members of the Women's ASGM Network in Madre de Dios will:

- Have made measurable progress in three of their self-selected Roadmap areas of focus.
- Be certified in the use and maintenance of a selected mercury-free technology.
- Have the equipment necessary to produce gold without mercury.
- Be able to maintain and fix the mercury-free equipment if repairs become necessary.
- Understand the process and have the skills to be able to reforest land, having reforested three hectares of degraded land under the project.
- Understand the process and have the skills to construct a tree nursery, having constructed a tree nursery under the project.
- Be trained in entrepreneurship and leadership.
- Be able to produce jewelry using their own mercury-free gold.
- Be more connected to national and international markets as potential suppliers.



# Results of Previous Investments in Peru

## Project

## Partners

## Selection of Results

### Community-driven ASGM Remediation Planning in Peru

2014–2019

(US Department of State)

Paolita II concession, FORTUMIL association, Ollachea mining association, Ministries of Energy and Mines, and Health, CITE, CINCIA, Center for Research in Environmental Health (CREEH), Alliance for Responsible Mining (ARM), Roux Associates Environmental Consulting, Casa Collab

- 1st-ever implementation of community-based mine closure via reforestation plan to rehabilitate degraded rainforest. 85 community members participated. Reforested 3.5 ha, >6600 trees, 12 local species.
- Trained over 200 miners and 7 officials in mercury-free techniques; 27 government officials in toxic site assessment; 15 health practitioners to diagnose mercury poisoning; 40 miners and students and 15 government officials in reforestation methods.
- 1st sales of mercury-free Madre de Dios gold to Casa Collab by Pedro Ynfantes of Paolita II

### Mercury-Free Miner Training and Amazon Rainforest Restoration

2019–2022

(Tiffany & Co Foundation)

AMATAF, CITE, CINCIA, Restaura Amazonía (RAMAZ), Casa Collab, students from 3 Peruvian universities

- Developed ecological mine closure methodology for Tambopata National Reserve Buffer Zone (reforestation, soil amendments, monitoring), reforested 6 ha, >5000 trees, 14 local species.
- Conducted mineralogical assessment of Linda II's ore to identify suitable mercury-free technologies.
- Fixed shaking table, trained miners on operation and maintenance, and recommended equipment and process improvements to increase gold recovery rate.
- 1st-ever purchase of mercury-free AMATAF gold by Casa Collab and U.S. jeweler Dana Bronfman.
- Produced study that calculated benefits of reforesting mined-out areas and costs of mining intact rainforest with regards to mercury retention or release within AMATAF.
- Established relationships with jewelry sector: RJC, Cleaner Gold Network, Ethical Metalsmiths, Women's Jewelry Association.

# Results of Previous Investments in Peru

## Project

## Partners

## Selection of Results

### Green Mining

2022–2025

(Brilliant Earth Foundation)

AMATAF, CITE, ARM,  
CINCIA, RAMAZ, Casa Collab

- Supporting AMATAF to become Fairmined certified, reforest more land, and gain access to markets. Have reforested 3.25 ha, >5400 trees, 8 local species.
- In September 2023, 4 of AMATAF's concessions became the first mines in the Amazon to become Fairmined certified.



Thank you for your time.

For any questions, feel free to contact us at [rodrigo@pureearth.org](mailto:rodrigo@pureearth.org) or [jen@pureearth.org](mailto:jen@pureearth.org)

For more information about our projects in Peru and around the world, please visit [www.pureearth.org](http://www.pureearth.org)

