ARTISANAL MINING GRAND CHALLENGE: THE AMAZON

FINALIST

GOLD ECO-LEACHING

High Efficiency **Mercury-Free Alluvial Gold Extraction System**

B2B

An ecological leaching system that seeks to remove mercury from the gold extraction process while capturing higher gold yields.

Adoption of the technology will have social and environmental benefits, reducing the use of mercury in artisanal gold mining and supporting the Peruvian government in meeting its commitments with the Minamata Convention.

CLEANER MINING TOOL

Lima, Peru

National University of Engineering in Peru

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Adolfo La Rosa Toro

toro@uni.edu.pe

www.uni.edu.pe

Problem

Current methods of artisanal and small-scale gold mining (ASGM) are inefficient and only manage to recover up to 80% of the available gold. In addition, miners using gravimetric tables leave behind fine gold tailings that they cannot recover and are forced to use mercury, a toxic chemical released into the environment through mine effluents, exposing communities and lives wild to this dangerous chemical.

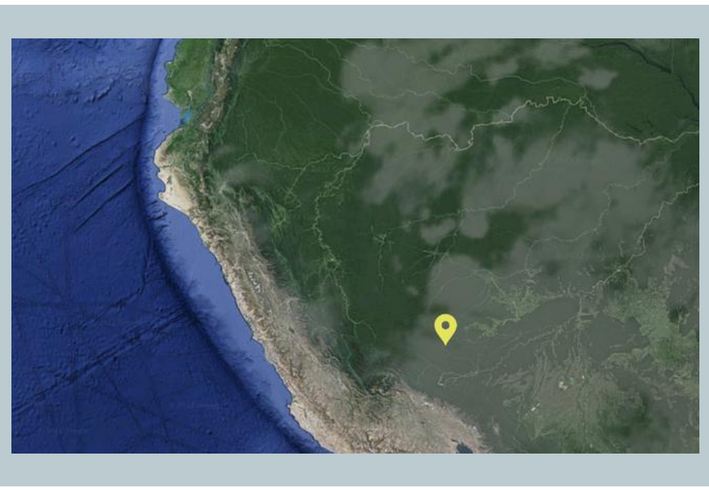
Solution

A new formulation of ecological leaching, composed of diluted sodium chloride and bleach, integrated into a rotary leaching reactor with a capacity to treat 40 kg batches.

One can substitute with higher gold recovery yields without the use of mercury and at an affordable price. In addition, it can treat black sand and tailings with much economic advantage.
The first results report an leaching efficiency in black sand of 87.2% and in tailings from the gravimetric table of 98.31%.

Market

Artisanal and small-scale miners for the treatment of their tailings and black sand; jewelry companies seeking to comply with Fairmined certifications that can contract a clean gold extraction service; and government agencies and non-governmental organizations promoting mercury-free technologies with miners.



Gold Eco-Leaching is being tested in Madre de Dios, Peru, in partnership with CITE Minero and as part of its participation in the Amazon CoLab.

Organization

The development of the Gold Eco-Leaching system is led by the renowned professor of electrochemical engineering, Dr. Adolfo La Rosa Toro Gómez.

The team is seeking a patent in Peru for the technology and has already secured additional funding from ProCiencia (Peruvian government funding for applied scientific research) to continue product development in 2023.

Competitive Landscape

The Gold Eco-leaching system offers many advantages over existing methods and fills an unmet demand for gravimetric table tailings treatment.

It is a higher efficiency system that captures more, higher quality gold without the use of mercury and with low operating costs.

Future Development

The system has been tested with black sand and tailings, obtaining high efficiency, for which reason a dialogue will be held with businessmen and investors to implement the leaching system as part of their processes removing mercury from their practice; and dialogue with government actors for technical assistance and support for responsible policies related to mercury-free ASGM.

The Artisanal Mining Grand Challenge: The Amazon is implemented by Conservation X Labs in partnership with the United States Agency for International Development (USAID), the Gordon and Betty Moore Foundation, Microsoft, and Esri. The Challenge seeks to advance innovation solutions that make artisanal and small scale mining more environmentally responsible and socially equitable.

www.artisanalminingchallenge.com

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