Management and restoration of degraded areas by gold mining activity in madre de dios

Gestión y restauración de áreas degradadas por actividad minera de oro en madre de dios

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Bruno Sanguinetti Chirif

Agronomist Engineer

CEDE Center for Development

1228 Calle Fantasia, San Marcos CA 92069, USA

E-mail: cede@cede.ws

Francisco Román-Dañobeytia

Ingeniero Forestal, Maestro en Ciencias, Doctor en Ecología (Post-Doc en Restauración Ecológica)

CONDESAN

Las Codornices 253. Surquillo, Lima, Peru

E-mail: fromn76@gmail.com

Gorka Atxuara

Magister MSC Técnico Ambiental

CEDE Center for Development

Bajo Tambopata Km.16. Puerto Maldonado, Madre de Dios, Peru

E-mail: semillalibre@hotmail.com

ABSTRACT

This document synthesizes a model for the restoration of degraded areas by gold mining, developed between 2008 and 2016 by the Consortium Madre de Dios CMDD with the Florida University, and the support of the Government and People of the United States of America. This successful reforestation experience, continued by CMDD and CEDE, as well as by CINCIA, is part of an environmental management proposal, which with the support of communication tools and knowledge management has included the education of children with mental disabilities due to effects mercury contamination in alluvial gold mining; and since 2016 with CMDD CEDE and the Ministry of Energy and Mines MINEM, through effective interaction between stakeholders has strengthened governance and incorporated an environmental mitigation component with clean technologies. In the context of the current controversial and polemic political situation in Peru (2021) 21 miners' associations in process of being formalized in Madre de Dios are considering their implementation.

Keywords: Amazonia, Peru, restoration, reforestation, mitigation, communication, governance, degradation, responsible gold mining. Restauración, reforestación, mitigación, conocimiento, gobernanza, degradación, minería, formalización, minería oro responsable.

RESUMEN

Este documento sintetiza un modelo de restauración de áreas degradadas por la minería de oro, desarrollado entre 2008 y 2016 por el Consorcio Madre de Dios CMDD con la Universidad Florida, y el

apoyo del Gobierno y del Pueblo de los Estados Unidos de América. Esta exitosa experiencia de reforestación, continuada por CMDD y CEDE, así como por CINCIA, es parte de una propuesta de gestión ambiental, la cual con el apoyo de herramientas de comunicación y gestión del conocimiento ha incluido la educación de niños con discapacidad mental por efectos de contaminación por mercurio en la minería aluvial aurífera; y desde 2016 con CMDD CEDE y el Ministerio de Energía y Minas MINEM, mediante efectiva interacción entre las partes ha fortalecido la gobernanza e incorporado un componente de mitigación ambiental con tecnologías limpias. En el marco de la actual controversial y polémica coyuntura política del Perú (2021) 21 asociaciones de mineros en proceso de formalización en Madre de Dios están considerando su implementación.

Palavras-chave: Palabras clave: Amazonia, Perú, restauración, reforestación, mitigación, comunicación, gobernanza, degradación, minería aurífera responsable. Restauración, reforestación, mitigación, conocimiento, gobernanza, degradación, minería, formalización, minería aurífera responsable.

1 OBJECTIVES

Develop in Madre de Dios a sustainable environmental management proposal for the restoration of degraded areas by mining activity in the tropical rainforest, sustained by a reforestation system, articulating stakeholders and authorities, locally and at the central level, and valid for the entire Amazonia.

2 METHODS

Field investigations focused on soil degradation, reforestation, and the accumulation of mercury in soil and plants.

The reforestation research was carried out with four fast-growing native species, with two treatments related to planting and fertilizing. Fertilization was settled with organic biofertilizers locally produced ad hoc.

From a social approach, a miners / farmers association was sensitized about the problem, sharing knowledge with them, and implementing an environmental restoration solution with the participation of its leaders and members (Sanguinetti 2018).

In the institutional / political aspect, working meetings were promoted at the central and local levels with involved government agencies, authorities, and support institutions (Van Oosten 2013).

3 RELEVANT RESULTS

The results of the field investigations on fertilization and reforestation allowed a restoration proposal for whose work Dr. Francisco Román has received the 2015 National Environmental Award, and has been presented at the World Restoration Congress, held in the United Kingdom 2015.

Members of the association of miners / farmers of the Manuani river basin, assumed with their own capacities and resources the commitment and the reforestation task, proposing to leave mining,

supported by a training process for women and men, in a program that included environmental education and training for environmental school prosecutors, youth and children from 6 years of age, with the Public Ministry / Attorney General of the Nation (de Jesus Zissou, A., da Silva Miranda, A., Martins, F. P., Lira, J. A., Farias, P. R. S., Chase, O. A., ... & de Santanna Filho, J. F. 2020).

An international environmental organization sent a monetary donation to the association to support its efforts.

Ad hoc working meetings were held with the participation of Ministers and Vice Ministers of MINEM (Mining) and MINAM (Environment), High Commissioner for the Formalization of Illegal Mining, OSINERGMIN, representatives of miners, Mayors, GOREMAD, and Attorney General's Office. As a result, this model proposal was discussed in a meeting of the Council of Ministers at the central government.

4 MAIN CONCLUSION.

The current environmental degradation due to alluvial mining activity in the Amazonia is fundamentally a social and political problem, which can be solved, although with difficulty due to the high level of corruption. Many miners do have a genuine interest and have demonstrated their decision to reduce the environmental impact and avoid the degradation of the Amazonia by conducting best practices for responsible gold mining, but at present they do not have training on their supply chain, nor is there effective government control over responsible gold production, nor any adequate control over the purchase and sale of illegal gold in the national and international market.

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