

Promoting Sustainable Land Management: A Clean Development Mechanism Project in the Caribbean Savanna of Colombia

M. Quintero¹, M. Rondon¹, S. Cajas², A. Rincón³, C. Rodríguez³, R.D. Estrada¹, D. White¹, M.I. Toro³, M. Hurtado¹, J. Martínez², N. Uribe¹

¹ Centro Internacional de Agricultura Tropical (CIAT)

² Colombian National Agricultural Research Organization (CORPOICA)

³ Environmental Corporation of the Sinú and San Jorge Rivers (CVS)



Introduction

In 2005, CIAT helped initiate a Clean Development Mechanism (CDM) project to recuperate degraded tropical savanna of northern Colombia. The project aims to enhance productivity and natural resources of 2,600 hectares by supporting the establishment of silvopastoral systems and reforested areas.

Benefits are many. Landowners will increase income with these profitable land uses, while CVS will recover their initial investment in helping to establish the land use systems. Payments for environmental services enable these benefits. The BioCarbon Fund of the World Bank acts as a broker for the carbon trades and certifies the Carbon Emission Reductions (CERs). More farmers can benefit from expanded environmental conservation efforts.

In 2006, the project met numerous stringent requirements of the CERs negotiation and certification process (below Project Cycle). This is the first reforestation/afforestation project negotiated in Colombia with the Biocarbon Fund.

Ex-ante Evaluation of Economic Benefits per Type of Project Participant

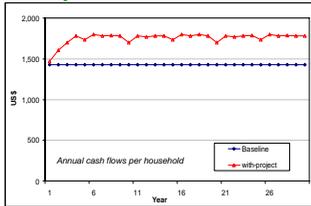


Figure 4. Silvopastoral systems in indigenous lands (San Andres de Sotavento)

Indigenous communities

Establishment: silvopastoral systems (500 ha) for better quality and quantity of forage.

Current income will increase in the *short term* (from year 3) (figure 4).

Investment costs are covered by the CVS. Communities will supply 50% of the required labor during the system establishment.

Social benefits: \$200,000 of CERs offsets will be invested in educational, health or recreation infrastructure.

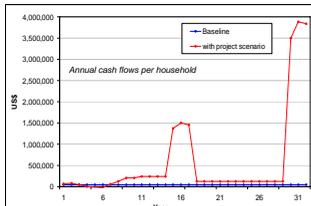


Figure 5. Timber plantations in grazing land of mediumholder livestock holders (Valencia)

Medium livestock farmers

Establishment: 500 ha tree plantations

Income will increase in the *long term* through wood extraction in years 15 and 30

All establishment costs are covered by the CVS

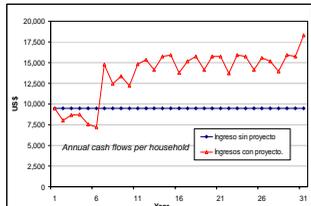


Figure 6. Rubber plantations in grazing lands of smallholder livestock farmers (Uré)

Small livestock farmers

Establishment 1600 ha rubber

Current income will increase in the *short term* (from year 5) through revenues from rubber sales.

During the first 3 years, negative cash flows will be overcome through complementary annual crops planted between rows of rubber.

All establishment costs are covered by the CVS (rubber plantations and annual cash flow crops).

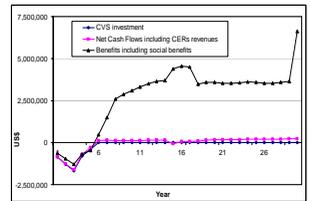


Figure 7. CVS investments and CER payback, overall social benefits

CVS- CORPOICA - CIAT

CVS will ensure the permanence of the plantations that are part of its environmental agenda.

Increased income and employment enhance overall social benefits



Figure 1. Rubber plantations in grazing areas of Uré (Department of Córdoba)

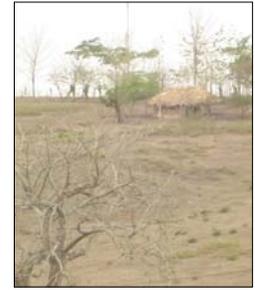


Figure 2. Current land use scenario of indigenous people during dry season

What is the role of CIAT?

CIAT provides scientific support to address numerous biophysical and socio-economic documentation requirements of the World Bank CFU and the CDM. CIAT's integrated expertise in GIS, environmental sciences, and environmental economics has been crucial for the development of the: (a) Carbon Finance Document, (b) Project Appraisal Document, and (c) Project Design Document. The main questions answered are:

- Which lands are eligible according to CDM criteria? (without tree cover before 1989; Figure 3).
- What is the 'without project' scenario in terms of emission reduction and income?
- Are the emission reductions created by the project additional to what would have happened 'anyway' without the project?
- Will farmer incomes improve? What are the socioeconomic benefits for each type of project participant? (Figures 4-7)

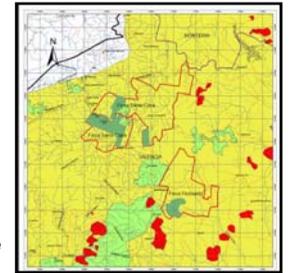
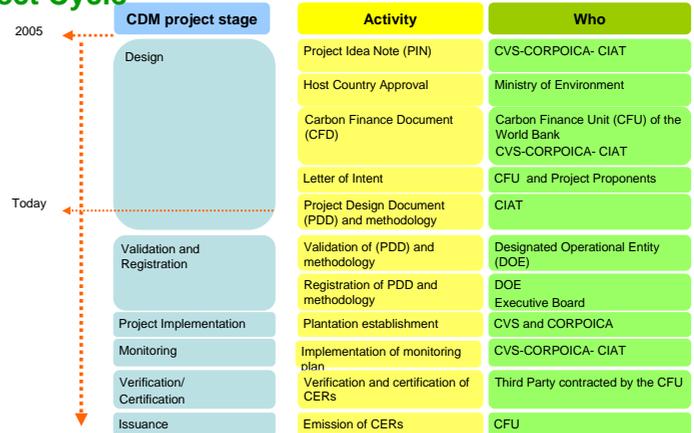


Figure 3. Eligibility of reforestation areas in Valencia. Non-eligible areas are in red, based on a multi-temporal land use analysis of satellite images.

CIAT integrated its expertise in GIS, environmental sciences, and environmental economics. In order to adequately address the diverse environmental conditions of the Caribbean savannas the analysis required the significant inputs of the CVS and CORPOICA.

Project Cycle



Conclusions

- Carbon payments enhance financial incentives for all types of participants to sustainably manage their lands.
- Partnerships between conservation and scientific institutions are crucial for deriving social benefits from environmental services provision.
- This carbon project has enhanced the capacity of CIAT, Corpoica and CVS in conducting feasibility studies and design of CDM projects.
- Smallholder farmers benefit from the project as well as medium holder farmers. The priority of capturing large amounts carbon requires the inclusion of reforestation projects. Annual cash flow needs of smallholder farmers prevent them from transiting to forest.
- New research needs include intensive greenhouse gases analysis of livestock systems. Methane emissions under different diet supplements will be studied with the support of the World Bank and the Japanese Cooperation.
- Demand is growing worldwide for qualified and effective organizations that can help calculate, design and negotiate the potential GHGs removal in the carbon market.

Frequently Asked Questions

•What is the crediting period? 20 years

•What amount of CERs will be transferred by 2017? 247,000 ton CO₂ equivalent (Each deforested hectare in the Amazon emits 262 ton CO₂ (UNEP 1999; La Rovere 2000; Cramer 2004))

•Who are the direct beneficiaries? Indigenous communities of San Andres de Sotavento (42 families), small livestock farmers (about 200 families) of Uré municipality and medium livestock farmers of Valencia municipality (2 families).

•What are the roles of the involved institutions? CVS (investor) and CORPOICA coordinates the plantation establishment, and CIAT provides technical and research support in project design and monitoring.