

## August 2013 About this project

### Name

Didactic tools for designing effective, efficient and equitable policies to reduce deforestation and rural poverty in Bolivia.

### Principal investigator

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### Time frame

August 2010 – July 2013.

### Objective

To create tools that foster learning and engagement and contribute to the design of effective, efficient and equitable policies to reduce deforestation and rural poverty in Bolivia.

### Summary

This project developed scientific and simulation tools that are contributing to the process of developing an effective, efficient and equitable alternative to the REDD+ mechanism, which had previously been repeatedly rejected by the Bolivian government. Thanks in part to this project, the alternative mechanism has already attracted US\$ 27 million.

It shows that it is indeed possible to create a mechanism that takes advantage of the positive aspects of REDD+ while minimizing the negative aspects. Such a mechanism would have to combine both 'carrots' (financial and technical support for integral forest management and investments to improve agricultural productivity) and 'sticks' (taxes on deforestation and fines on illegal deforestation) in order to achieve the most desirable outcomes.



# Cutting back on cutting down

**The REDD+ mechanism is not universally popular, but bringing science and people together has produced an effective alternative for the government of Bolivia.**

Bolivia is home to some 57 million hectares of tropical forests, making it one of the most biodiverse places on Earth. But it also has some of the highest levels of deforestation – roughly 300,000 hectares is lost every year to make way for more farmland. This produces 150 million tons of carbon emissions annually, equivalent to 15 tons for every Bolivian citizen.

This makes the country an ideal candidate for participating in an international mechanism where compensation is paid in return for reduced deforestation. However, despite the promise of benefiting from massive international transfers, the Bolivian Government has forcefully and repeatedly rejected a market based REDD+ mechanism, and the country has plans to expand the agricultural frontier by deforesting at least another 8 million hectares of forest land deemed suitable for agriculture.

The high level of deforestation is of great concern both to the indigenous communities living in and off the forest as well as to the international community due to the impacts on biodiversity and climate change. The country's Ministry of Environment and Water, responsible for mitigation and adaptation to climate change is also concerned, as deforestation is the main cause of greenhouse gas emissions and also makes lowland populations much more vulnerable to extreme events, such as flooding and wild-fires.

This ESPA project has supported the Bolivian Government in the process of developing an alternative mechanism for reducing deforestation – the Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests and Mother Earth – by providing scientific and simulation tools that allow stakeholders, both at the national and local levels, to simulate the environmental and socio-economic outcomes of different policies.

## Incentivised

The scientific tools consist of OSIRIS-Bolivia (Open Source Impacts of REDD+ Incentives Spreadsheet for Bolivia) and CISS-Bolivia (Conservation Incentives Spread Sheet for Bolivia). These tools use detailed information on the drivers of deforestation across the whole country, which permit the analysis of different types of incentives for local landholders to reduce deforestation.

The main incentive types implemented are: REDD+ payments for reduced CO<sub>2</sub> emissions; conservation payments; and taxes on deforestation. Each of these types of incentives can be analyzed in many variations. For example, the conservation incentives can be directed towards different beneficiaries depending on what issues – poverty, carbon density, deforestation pressure, biodiversity – need to be addressed.

The simulation tools allow assessment of the multi-dimensional impacts of each policy design – including impacts on deforestation, biodiversity, poverty, and participation – in each municipality, in each state, and for the country as a whole.

The tools, as well as the experience gathered by the local partners while developing the tools, have helped the Bolivian Government negotiate international support for developing its alternative mechanism. So far, the Danish Embassy in La Paz has pledged US\$ 26 million and the UN-REDD+ programme has pledged US\$ 1.1 million to develop and launch the Joint Mechanism.

## Playing games

The engagement tool developed by this project is called SimPachamama and is available in both English and Spanish versions. It uses a concept familiar to anyone who has played one of the many simulation-style computer games on the market, where the player takes on the role of anything from the manager of their favourite sports team to the leader of an entire country.

The SimPachamama game mimics the behavior of a small community located at the agricultural frontier and the player takes on the role of the mayor. The objective is to implement policies so as to improve human well-being as much as possible without destroying the environment. The simulation runs for 20 years, and allows users to learn about the effects and side-effects of different policies, as well as the trade-offs involved when trying to simultaneously improve human well-being and protect the environment.

While the tools have been designed mainly for use in training and consultation workshops with local forest community leaders, they have also been used in university classes around the World. In some places, such as the Climate Change Adaptation and Risk Management course at Universidad Nur in La Paz, and an Environmental Management course at a Business School in India, the games were used in a single session to learn about and discuss options and trade-offs in the design of policies for reducing deforestation.

In other cases they were used more intensively, with students digging into the code and modifying and adapting the game to other settings.

SimPachAzuero was created by a team at University of Florida to reflect a real community with real roads and real property limits in Panama, rather than the stylized straight road and rectangular properties in SimPachamama.

## Next steps

SimPachamama will be officially launched during September 2013 in a worldwide campaign. The game – as well as supporting on-line training courses – will be made available for students, trainers and advanced users in both English and Spanish.



## New knowledge

- The two scientific tools developed in this project have permitted a detailed analysis of the advantages and disadvantages of different incentive mechanisms for reducing deforestation and rural poverty in Bolivia.
- It is clear that the REDD+ mechanism is not universally popular, but through careful analysis and engagement, alternative mechanisms can be designed that take advantage of the well-received aspects whilst addressing any concerns.
- All the tools agree that the best outcomes, in terms of reduced deforestation and reduced poverty, are achieved by taking a 'carrots' and 'sticks' approach of positive and negative incentives.

## Creating impact

- The tools and local experience gained in this ESPA project has helped the Bolivian government design and secure funding of more than US\$ 27 million for the Joint Mechanism of Mitigation and Adaptation for the Integral and Sustainable Management of Forests and Mother Earth.
- More than 50 Bolivian Master and Ph.D. students have been trained in the use of the two scientific tools. About 80 percent of these students work in the Bolivian government, and thus are either policy makers themselves, or have good access to policy makers.
- CISS-Bolivia has spawned a couple of 'children'; one student has made a spin-off applied to all the indigenous territories with forest in Bolivia, whilst another has created a spreadsheet as requested by the Governor of Pando to help optimize the COMSERBO-Pando conservation incentives program.

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