3.8 The impact of REDD+ projects on chainsaw milling in Peru

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Introduction

Most forest degradation and deforestation occurs in the tropics; they account for at least 15% of the global anthropogenic emissions of greenhouse gases (van der Werf et al. 2009). Timber harvesting, either small scale or industrial, is one of the major direct causes of tropical forest degradation and deforestation (Geist and Lambin 2001). With the first Reducing Emissions from Deforestation and Forest Degradation (REDD+)[1] projects under development in the voluntary carbon market, it is possible to better understand their impacts on timber harvesting, particularly on chainsaw milling (CSM).

Forest products market and legislation in Peru

With 67.9 million hectares (ha), Peru has the ninth largest forest area in the world and the second largest in Latin America after Brazil. Historically, the deforestation rate has been low: –0.1% between 1990 and 2005 (FAO 2009 and 2010). Despite these forest resources, the forest sector accounts for only 1.1% of the national Gross Domestic Product (Lebedys 2008). Most Peruvian forests (about 66 million ha) are located in the tropical Amazon known as *selva* and are relatively inaccessible. The Andes Mountains separate the *selva* from the Pacific coast, where most economic and commercial activities take place. Peru tends to import high-value products (e.g., finished high-quality paper) and export secondary processed wood products (e.g., sawnwood). As a result, import values are higher than export values, with a difference of US$288 million in 2007 (INEI 2008).

Selecting appropriate project activities and carefully understanding local realities will help REDD+ project developers address CSM in a meaningful way.

In the last ten years, the Peruvian government has favored the international timber market through reforms in the forestry sector, trading and infrastructure. With the *Forest and Wildlife Law*[3] and the 2002 logging title reform, roughly one sixth of the forest area (10.4 million ha) became permanent commercial timber concessions (Oliveira et al. 2007) with a minimum title duration of 40 years. The 2009 free trade agreement with the United

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States facilitates foreign investments in the timber, mineral and fossil fuels sectors, whose resources are mainly concentrated in the Peruvian Amazon. The completion of the Inter-Oceanic Highway in 2010, passing trough the Madre de Dios Region and connecting Brazil with the Pacific Coast, provides access to the Chinese timber market.

With some exceptions, the new *Forest and Wildlife Law*[4] prohibits chainsaw milling[5] under articles 347 and 410. Chainsaws and similar equipment[6] are permitted only in the following situations:

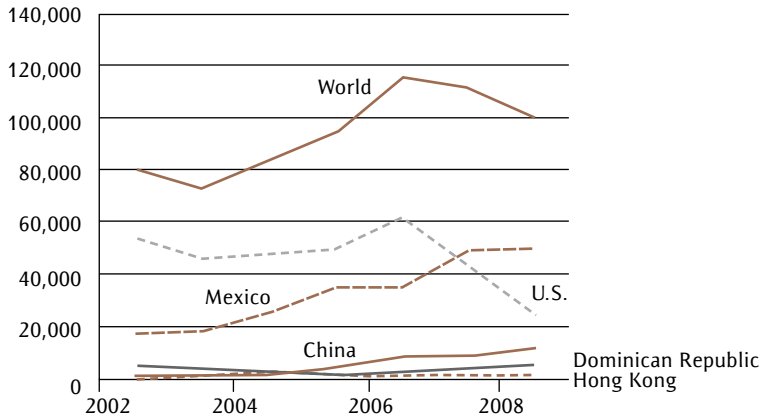
- the harvesting area is difficult to reach;
- relevant constraints are reported in the forest management plan; and
- a forest owned by native communities or a permanent timber concession allocated to qualified loggers.

All CSM equipment must be registered with the Organization for Supervision of Forest and Fauna Resources (OSINFOR).

With the 2008–09 financial crisis, major historical importers of high quality sawnwood, such as the U.S., began to lose market share while importers of lower quality sawnwood, such as China and Mexico, increased their share. In January 2009 the export value of sawnwood was 63% lower than in the same period in 2008.[7] Exports of high-value sawn timber (e.g., mahogany, or *Swietenia macrophylla* G. Kin and tropical cedar, or *Cedrela odorata* L.) decreased considerably and were only partially compensated for by the Chinese and Mexican markets (Figure 1).

Figure 1. Major importers of Peruvian sawnwood (US$000), 2002–08

Source: COMTRADE



In 2008 the domestic timber market consumed about 1,000,000 m^3, eight times the quantity of exported sawnwood.[8] This is the highest value ever documented (Caillaux and Chirinos 2003). The severe restrictions on chainsaw milling imposed by the new forest law and the stagnant export market has caused cheap sawmilled wood to be dumped on the local market. There is a substitution effect, however; if less low-quality sawmilled wood is available in the local market, chainsawn timber takes its place.

Timber markets in the Iñapari area

The study area (Figure 2) is located close to the borders with Brazil and Bolivia, at the east Peruvian end of the South Interoceanic Highway. The closest village is Iñapari, with approximately 6,000 inhabitants, the only centre in a radius of 300 km. Mahogany logging began in the 1960s and increased in the late 1980s, when the first chainsaws and sawmill equipment arrived (CESVI 2006). In 2002, with the reform of logging title, small-scale Peruvian loggers grouped together to form a single large company. At the same time, thanks to the new highway, foreign investments from Brazil and China contributed to the creation of other large timber companies in the area.

Figure 2. Iñapari and the Madre de Dios Region

Three timber companies operate in Iñapari with their own sawmills. They employ villagers, mainly immigrants arriving from the Peruvian Sierra and forestry workers from the Pucallpa area of central Peru. The companies export sawnwood to Brazil, the U.S. and China. One family-owned company supplies the local market (Table 1). Logs are mainly sourced from two FSC-certified permanent forestry concessions (Maderacre & Maderyja, or M&M) and from Bélgica Native community forest. Skidders facilitate the extraction and logs are transported by road to Iñapari to be processed. Despite the increase in international exports, most companies have suffered from the world's financial downturn, with the exception of those involved in the export to China.[9]

Table 1. Timber companies operating in the Iñapari area, 2009

company	origin	organizational structure	source of timber	market
Maderera Río Acre S.A.C.*	Peru	small association of Peruvian forest owners	own concession (49,366 ha)	export to U.S.
Maderera Río Yaverija S.A.C.*	China	branch of Chinese Nature Flooring	own concession (49,556 ha)	export to China and flooring in Lima
Agro Industrial Victoria S.A.C.	Brazil	Brazilian-owned company	own concession (6,221 ha) and Bélgica Native Community forests (53,394 ha)	export to China and Brazil
Asseradero Fundo Roble	Peru	family-based company	from other companies and CSM practised by individuals	carpentry and builders' joinery for local housing, domestic market

* Forest Management/Chain of Custody certification under the Forest Stewardship Council

In the last ten years low-quality sawnwood produced by the Iñapari sawmills and unsuitable for export has almost satisfied the local demand and replaced CSM sawnwood. As a consequence, CSM has declined in the Iñapari area. In 2010, the processing volume of the Iñapari sawmills decreased due to the financial crisis. In the short term this will likely lead to a scarcity of sawnwood for the Iñapari local market and thus likely fuel CSM.

CSM is practised in only two areas:

- along the highway, where forest is formally recognized by the government as agricultural land and where clear-cuts are allowed. In most cases, immigrants occupy agricultural parcels along the road and burn the forest without logging it in order to quickly claim land rights. In some cases, forestry workers from Iñapari with skidders are hired by these immigrants to extract logs to illegally process it locally using a frame mill (*castillo*) or chainsaw. The sawnwood is sold on the informal market for local housing, in central Peru or in the Brazilian market; and
- in Bélgica Native Community forests, with the sole purpose of building new community houses. Timber companies in this community forest release logs (usually of marketable but lower-value species such as *Dipteryx* spp. or *Shihuahuaco*) close to the village yard to be legally processed by chainsaws. Since the first contract with timber companies was signed in 2003 (CESVI 2006), this practice has become less common; timber companies tend to provide villagers directly with low-quality sawnwoods sourced from the community forest and processed by the sawmills of Iñapari.

Some CSM forestry workers on agriculture land also work in the large-scale logging business.

Impacts of REDD+ projects on CSM

In 2007, two REDD+ projects began in the Iñapari area (Table 2):

- the Madre de Dios Amazon REDD project in the M&M permanent logging concessions; and
- the REDD+ project in the Bélgica Native Community forest.

The two project areas are adjacent to each other, close to the South Interoceanic Highway. They are the major timber sources for the Iñapari sawmills (Figure 3).

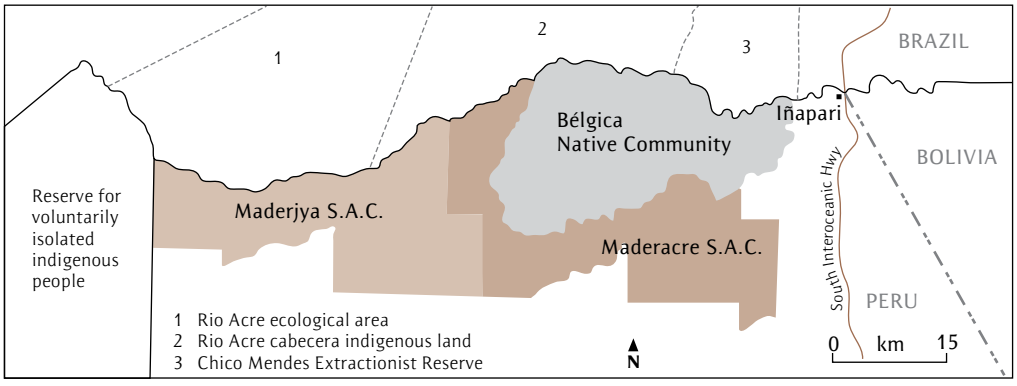
CSM occurs inside the leakage belt[10] in the project region of both REDD+ projects due to the clearing of agricultural parcels by immigrants. It is considered as a driver for deforestation and forest degradation and hence is included in calculations of the deforestation rate for the project region. In Bélgica, villagers used CSM to produce sawnwood for community housing. CSM is also considered to be a cause of degradation and a source of emissions to be addressed by project activities.

Table 2. Description of two REDD+ projects[11] in Madre de Dios, Peru

project	M&M	Bélgica
size (ha)	98,932	53,394
FSC certified	yes: FM/CoC	no
Carbon Standard	Climate Community and Biodiversity Standards (CCB)	CCB and Voluntary Carbon Standard (VCS)
status	validated and first credits sold	contracting phase
pre-project activities inside project area	selective logging for sawmills	selective logging for sawmills, slash and burn cultivation, cattle ranching, hunting and fishing by community members, CSM by villagers
project activities	▪ improved forest management (IFM) through FSC certification ▪ patrolling and establishing a new control post ▪ environmental education ▪ 100% borders delimitation ▪ agriculture land management (ALM): improve pre-existent agriculture and cattle ranching productivity in leakage belt ▪ sustainable development or rural communities living in buffer zones	▪ IFM and reducing emissions from conventional logging through FSC certification ▪ ALM: improve existing agriculture and cattle ranching productivity of Bélgica Community ▪ reduced emissions from fire and deforestation due to incursions of Brazilian farmers ▪ increased knowledge of tropical agriculture and forest management ▪ ecotourism

Source: adapted from Schroeder (2009)

Figure 3. REDD+ project areas



Improved Forest Management (IFM) is the major activity in both projects. Four Voluntary Carbon Standard[12] (VCS) methodologies are being developed that are applicable to IFM. Each of these could have different impacts on CSM (Table 3).

Table 3. Carbon methodologies under the VCS of possible use in REDD+ projects

methodology name	activities	likely impacts on CSM	likeliness of being adopted
IFM through Extension of Rotation Age	extension of rotation age	slight increase in CSM in both agriculture parcels and Bélgica due to shortness of sawnwood	likely
IFM through avoidance of re-logging and rehabilitation of logged-over forest. V. 1.0	conversion of low-productive forest to high-productive forest[13]	decrease in CSM in both areas due to short-term higher employment of forestry workers and villagers and medium-term increase of productivity in concessions	more likely than not
Estimating GHG emissions Reduction from Planned Degradation (IFM)	cessation of selective logging activities	large increase in CSM in agricultural parcels; stable CSM in Bélgica with likely increase of illegal timber logging	unlikely
Improved Forest Management — Logged to Protected Forest Methodology. V.1.3	protect currently logged/degraded tropical forest and unlogged forests from further logging; project activities can include traditional use of forests and forest products for domestic resources that do not result in commercial timber harvest or forest degradation	large increase in CSM in agricultural parcels; stable CSM in Bélgica with likely increase of illegal timber logging	unlikely

Source: www.v-c-s.org and own elaborations

Project developers in both M&M and Bélgica did not strictly follow any of the available IFM methodologies. Ending or considerably lowering the timber harvesting rate inside the project area would cause leakage — due to the displacement of harvesting activities to other Madre de Dios permanent logging concessions or the increase of CSM — and would have negative impacts on the local economy, which depends on timber harvesting.[14] Project developers preferred to adopt reduced impact-logging (RIL) techniques and plan for voluntary certification under the responsible forest management scheme of the Forest Stewardship Council (FSC). RIL techniques include inventory of the annual harvesting area and better road planning and training of forestry operators. This is expected to reduce leakage and the consequent loss of carbon credits.

The fact that M&M and Bélgica actors are involved in CSM is an important issue in the REDD+ project design. They are at the same time agents of forest disturbances and participants in a REDD+ project; this double role could lead to perverse economic incentives. For example, if the forest degradation rate increased due to CSM and was not directly linked to industrial harvesting, the REDD+ project developers would be entitled to claim higher reduced emissions per ha. In order to address this problem, project developers developed a set of activities aimed at providing alternative income to communities, and increasing their environmental awareness and control over forest resources.

In Bélgica, villagers were not asked to give up CSM but were informed about the trade-offs of cutting down trees, the possibilities of purchasing sawnwood through carbon income and income from improved land management. They were also given information about improved housing construction techniques.

M&M project developers will use carbon income to raise environmental awareness, improve grazing and agriculture practices in the leakage belt, guide the participatory formulation of a local development plan and control forest entries.

Conclusion

The forestry law and the internationalization of timber markets marginalize CSM in Peru. In the Madre de Dios region, the large availability of sawmilled timber seems to satisfy the local market demand for housing. CSM might find renewed market possibilities given the financial crisis and the export crash in the forestry sector, combined with the scarcity of low-quality sawnwood.

Each day 300 new immigrants arrive in Madre de Dios from the Peruvian Sierra and Brazil via the South Interoceanic Highway. In the next 30 years the population is expected to increase from 110,000 to 630,000 (Schroeder 2009; INEI 2008; Aramburú 2004). How will an export-focused market satisfy the domestic timber demand for housing in the near future? CSM is not likely to become an option in Peruvian legislation, but there are several alternatives:

- differentiate in the use of timber species to favour high-grade mahogany and cedar for export and use less valuable species for domestic consumption (e.g., *pashaco*, or *Schizolobium parahyba (vellozo)* and lupuna, or *Pseudobombax septenatum* Jacq.);
- increase the processing efficiency of sawmills;
- augment the durability of timber; and
- substitute concrete and bricks for wood.[15]

REDD+ projects are having an increasing impact on CSM activities. During the Oslo Climate and Forest Conference in May 2010, 58 partners pledged a total of US$4 billion[16] to these projects. They are already part of the voluntary carbon market and the case studies of the Madre de Dios region show that they could have an impact on CSM.

CSM could be fuelled by harvesting restrictions in REDD+ project areas. Selecting appropriate project activities and carefully understanding local realities will help REDD+ project developers address CSM in a meaningful way. In cases such as Iñapari, where the timber industry is the major economic driver, the FSC certification of forests represents an economic trade-off between the delivery of carbon credits and the maintenance of the local timber industry. Pursuing forest multi-functionality and preventing forest managers from focusing exclusively on carbon subsidies is essential to maintaining financial benefits for forest users in the long term, and to maintaining the forests themselves.

For more information

This research was done in the framework of the Department of Land and Agro-forestry Systems (TESAF), University of Padua (Italy). Since 1996 TESAF has carried out academic research on markets for forest products and services in Italy and Europe and in Madagascar and South America. The focus is forest multi-functionality and payment for environmental services. For more information on M&M, contact José Luis Canchaya Toledo (jcanchaya@maderacre.com) or go to www.climate-standards.org. For information on Bélgica Community, contact Cecilia Persivale (cmpersivale@gmail.com) or go to www.asesorandes.com.

Endnotes

1. In Copenhagen in December 2009, responsible forest management was confirmed as one of the financed activities in projects aimed at Reducing the Emissions from Deforestation and Forest Degradation, or REDD+ (UNFCCC 2009).
2. All views presented in this paper are strictly those of the author and do not represent the views of the organization with which he is affiliated.
3. *Ley Forestal y de Fauna Silvestre, Ley No. 1090*.
4. *Consejo Superior de Contrataciones y Adquisiciones del Estado* 2009.
5. Madera aserrada a pulso.
6. This includes local frame mills as castillos and hechizos.
7. See www.adexdatatrade.com.
8. See FAOSTAT.
9. This is based on interviews in July 2009.
10. Project area: is the area or areas of land on which the project developer will undertake the project activities. Project region: is the spatial delimitation of the analytic domain from which information about deforestation and degradation agents, drivers and rates is estimated, projected into the future and monitored. The region includes the project area and is defined by the project developer using transparent criteria. Leakage belt: the geographical area surrounding or adjacent to the project area in which displacement of pre-project activities from inside to outside the project area is likely to occur (Pedroni 2008).
11. Although M&M is called a REDD project, it is actually a REDD+ project. At the time it began, project developers did not know what the "+" stood for.
12. See www.v-c-s.org.
13. Following the "Face the Future Foundation" methodology IFM is achieved through the protection and rehabilitation of logged-over, degraded forest from further logging and the adoption of

silvicultural techniques (cutting of climbers and vines, liberation thinning and/or enrichment planting) increasing the density of trees.

14. In the northern Iquitos region deforestation and degradation of the forest increased by 468% outside concessions areas, granted in 2004, as an effect of leakage (Oliveira et al. 2007). The major cause was the increased regulations associated with logging title reform and the attempt of the state to better monitor the harvesting level inside permanent logging concessions.
15. This is already partially implemented by the government's program *Techo Proprio* (Your Own Roof), which is going to finance 150 new houses in Iñapari made with a concrete basement, walls with bricks on the bottom and wood on the upper portion, covered by corrugated iron roof.
16. See www.oslocfc2010.no/hjem.cfm.

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