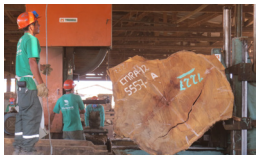
Fact sheet:

Estimating the Economic Value of Peru's Forest Sector - Beyond Conventional Wisdom



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Deutsches Institut für Entwicklungspolitik

50 Years | 1964–2014
German Development Institute

While Peru's forest sector is economically undervalued, it may be much larger than official statistics suggest – and the potential to improve its contribution to the GDP is vast.

In this document we provide a quick overview of Peru's forest economy and identify some of its challenges and potential for growth. We rely partially on official statistics, but have sought to improve the estimates by broadening the definition of what is usually accounted for in the forest sector and through a wider use of sources. Our objective is that this factsheet becomes a useful input for discussion for the strategic planning of Peru's forest sector.

KEY MESSAGES

- Even though half of Peru's surface area is forested, the economic value of the forest sector is low compared to other forested countries, and the forest sector is not a major source of wealth and wellbeing.

- Peru's timber comes largely from concessions in natural forests, and the current state of these concessions suggests that a large part of them operates in an inefficient and unsustainable manner.

- Commercial plantations are incipient in Peru, but the volume of timber currently produced in plantations relative to natural forests suggests that plantations offer great potential for growth.

- In addition, Peru's abundant forest resources are sold largely as low-grade, low-value products with little transformation or added value.

- Despite these challenges, there is significant current and potential value which is either untapped or unaccounted for, underlining the enormous possibilities for further value creation.

Even though half of Peru's surface area is forested, the economic value of the forest sector is low compared to other forested countries, and the forest sector is not a major source of wealth and wellbeing.

- *Large forest area.* Peru has more than 73 million hectares of forests, 94 percent of which is Amazon rainforest. It has the fourth largest area of tropical forest, and the ninth largest area of forests worldwide.[1]

- *Little value created.* However, according to the Forest Investment Program, currently forest-related activities account for no more than 1 percent of the country's GDP.[2] This is markedly lower than in neighboring countries like Chile, where forestry accounts for around 3 percent of GDP.[3]

- *Large informal sector.* Moreover, the largest part of Peru's forest sector activity is informal. About three quarters of the 9.5 million m^3 of timber accounted for in 2012 was informally harvested firewood. This means that, while forest resources are an important part of people's livelihoods (*e.g.* in the five Amazon regions alone, there are approximately 910,000 rural households[4]), they are not exploited on a scale and in a manner that creates additional value to the economy.

- *Low employment.* Although FAO estimates that the forest sector generates approximately 250,000 jobs in Peru, household survey data suggests that the majority of workers are employed informally. Only about 15 percent of those employed in silviculture

1 Ministerio del Ambiente (MINAM) & Ministerio de Agricultura (MINAG) (2011). El Perú de los Bosques.

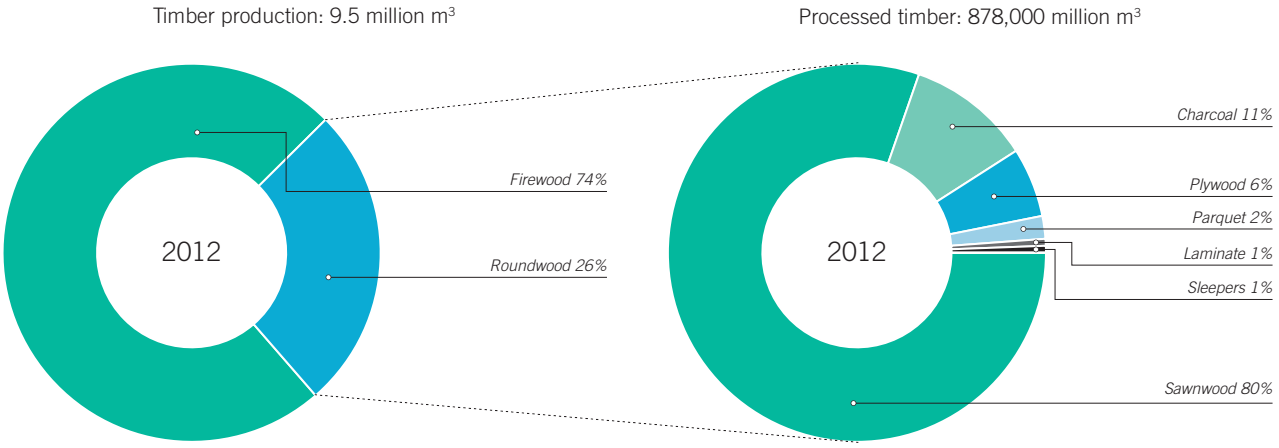
2 Forest Investment Program (FIP) (2013). Documento de trabajo -borrador- V20/06.

3 Instituto Nacional Forestal de Chile (2014). Anuario Forestal 2014.

4 Instituto Nacional de Estadísticas e Información (INEI) (2008). Censos Nacionales 2007.

Figure 1. Peru's timber production in 2012

Three quarters of Peru's timber production are firewood

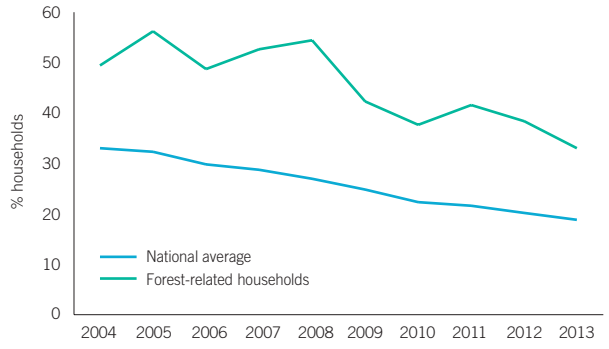


Source: DGFFS, Perú Forestal en Números 2012.

and wood manufacturing have access to ESSALUD, the national health insurance for workers, which is half of the national average.

- *Large incidence of poverty.* In addition, the socio-economic indicators of households involved in silviculture or the manufacture of wooden products are consistently below the national average. Multidimensional poverty (an index that combines the measure of a household's quality of housing, overcrowding, access to sewage, children's access to school and economic dependency) in households that depend on forest activities is on average 20 percent higher than the national average.

Figure 2. Percentage of households with multidimensional poverty* *Multidimensional poverty is higher in forest-related households*



* Forest-related includes households dedicated to both silviculture and the manufacture of wood products.

Source: INEI, Encuesta Nacional de Hogares, 2004-2013.

Peru's timber comes largely from natural forests, but the current state of forest concessions suggests that a large part of them operates in an inefficient and unsustainable manner.

- *Natural forests are exploited through concessions.* In 2012 about 10 million hectares –some 14 percent of Peru's forest area– were given in concession for use, of which close to 8 million hectares were for timber production.[5] In concessions, the land remains property of the state but permission is given for resource use.

- *But many concessions are not working.* Few concessions have the financial and operative means to work profitably and sustainably. Almost a third of the 609 timber concessions have been cancelled due to non-compliance with regulations and two thirds are

5 DGFFS (2013). Perú Forestal en Números Año 2012.

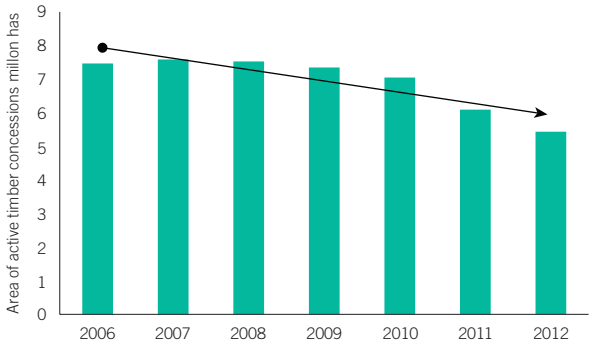
being investigated for presumed irregularities about extracted timber volumes.[6] The problems plaguing concessions have opened the door for more suspect and less sustainable forest exploitation. Some concessionaries have been found to use their concessions to "whitewash" timber originating from illegal logging operations.[7]

- *And non-concession extraction is on the rise.* On non-concessioned forest land, timber and non-timber forest products (NTFPs) can be accessed via so-called permits and authorizations, which are issued for forests on private land, community forests, forest plantations, and others. The timber volumes which are officially approved for permits and authorizations are considerable: in 2012, they amounted to approximately 1.9 million m^3 of roundwood - *i.e.* 78 percent of Peru's total roundwood production. While there is no data to prove that these volumes were actually extracted from the area of permits and authorizations, they seem to play an important role while the effective area under concessions has diminished as concessions expire or are investigated for non-compliance.[8]

Box 1. Success stories: concessions can work!

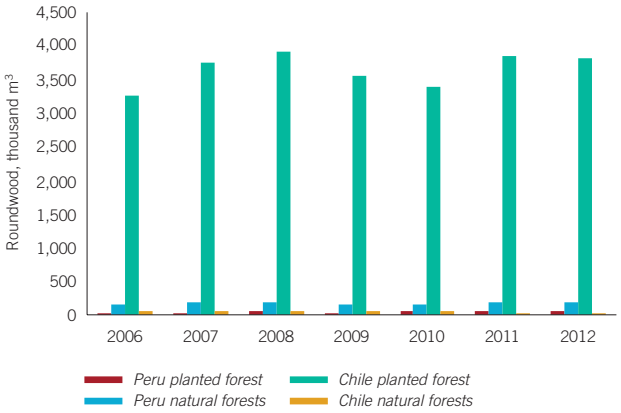
Despite concerns about the sustainability of the Peruvian concession system, there are several success stories. For example, in the Madre de Dios region there are a number of FSC-certified concessions which are profitable, while complying with social and environmental standards. Our review suggests that success factors of these companies include: (1) adequate financial capital, (2) technical and managerial skills, (3) large concession areas (> 40,000 hectares), (4) high stock and quality of standing timber, (5) road access, and (6) clearly defined land rights and no overlapping claims with communities.

Figure 3. Area of timber extraction via concessions
The area under operating timber concessions has declined 30% between 2006 - 2012



Source: DGFFS, Perú Forestal en Números, 2007-2013.

Figure 4. Relative importance of plantations and natural forests in Chile and Peru* *Chile's forest economy is built on plantations - Peru's on natural forests*



* Planted species are Eucalyptus and Pine.
Source: DGFFS, Perú Forestal en Números, 2006-2012; Instituto Nacional Forestal de Chile, El Sector Forestal Chileno 2012.

Commercial plantations are incipient in Peru, but the volume of timber currently produced in plantations relative to concessions suggests that plantations offer great potential for growth.

- *Current area.* According to official government statistics there are more than a million hectares of forest

6 Finer *et al.* (2014). Logging Concessions Enable Illegal Logging Crisis in the Peruvian Amazon.

7 Environmental Investigation Agency (EIA) (2012). The Laundering Machine.

8 DGFFS (2013). Perú Forestal en Números Año 2012.

plantations in Peru. However, the area of commercially managed plantations is likely much lower. Based on the amount of Eucalyptus and Pine (the two main planted species) produced, we estimate that in 2012 only between 25,000 - 60,000 hectares of plantations were harvested.[9]

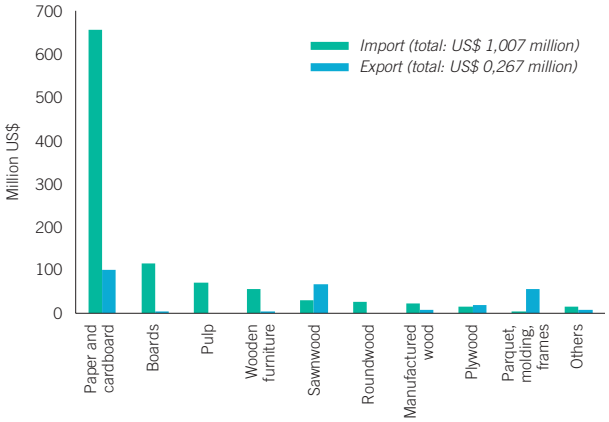
- *Untapped potential.* This is still very small compared, for example, with Chile, where about 2 million hectares of industrial-scale plantations are a major driver of the forest economy. However, despite the small area, plantations in Peru account for a relatively large amount –up to 24 percent in 2012– of roundwood production. Given that Peru is estimated to have up to 2 million additional hectares suitable for plantation, the potential to boost production through properly managed plantations is enormous.

In addition, Peru's abundant forest resources are sold largely as low-grade, low-value products with little transformation or added value.

- *Poorly developed value chains.* Production is dominated by sawn wood and secondary transformation is small and undifferentiated. Some of Peru´s neighbors, in particular Chile and Brazil, have developed not only large areas of forest plantations, but also specific value chains for primary (pulp, paper, panels and sawn wood) and secondary transformation processes (engineered wood products, doors, windows and furniture).[10] In Chile, the forestry industry contributed almost 8 percent of the total export value in 2009.[11]

- *Negative trade balance.* Despite its vast natural wealth, Peru is a net importer of wood products. The import/export balance of timber products is 4:1, and most exports are products with little value added. According to official estimates the combined value of Peruvian forest exports (wood and wood-derived products) was just under 300 million US$ (FOB), just 4 percent of the nearly 5.4 billion US$ (FOB) exported by Chile that same year.[12]

Figure 5. Wood export versus import in Peru, 2012
Peru imports four times more timber products than it exports



Source: DGFFS, Perú Forestal en Números 2012.

Box 2. Promoting plantations and adding value are needed to boost the forest sector

Sustainable production in natural forests must be complemented with commercial forest plantations. Selective, reduced impact logging in natural forests can produce high-value species with high market prices for exports. Forest plantations can be used to produce either valuable species (*e.g.* teak) or high amounts of biomass of comparatively low-value species (*e.g.* pine) for use in the domestic market for furniture or construction.

Continues in page 6 ⟶

9 Based on expert opinions, we assume a productivity of 10 - 25 m³ of roundwood per hectare per year.

10 United Nations Economic Commission for Europe (UNECE) & Food and Agricultural Organization (FAO) (2002).

11 Forest Products Annual Market Review 2001-2002. Chapter 5: Chile's forest products markets - a plantation success story.

12 Secretariat for International Forestry Issues (SIFI) (2010). Challenges and Opportunities in Chile´s Forest Sector. DGFFS, Perú Forestal en Números 2012; Instituto Nacional Forestal de Chile, Anuario Forestal 2014.

Box 2. Continued

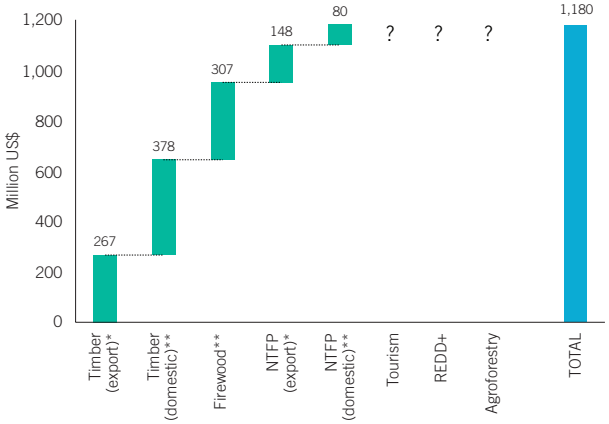
Moreover, unless Peru improves the value chains of its forest products, the overall contribution to economic development, employment and social inclusion will continue to be low. If Peru professionalized production in natural forests and plantations, as well as respective value chains, the forest sector could cover a broad market segment both for domestic and export purposes.

Despite these challenges, there is significant current and potential value which is either untapped or unaccounted for, underlining the enormous possibilities for further value creation.

- *The contribution of forests is likely undervalued.* Even though the commercial exploitation of forest resources in Peru is incipient, forests provide a wide variety of goods and services for many people. Official statistics are strongly biased towards formal export markets, so it is not easy to assess the magnitude of this unaccounted for value. Given the pervasiveness of informality in the timber and NTFP markets, official statistics have to be triangulated with other sources and methodologies. According to our estimates, the approximate value of the domestic timber and NTFP market in 2012 (870 million US$) is likely to be more than double the size of the timber and NTFP exports for that year (415 million US$). If firewood is included, it would be about three times as big (1.2 billion US$).[13]

- *Forest value – beyond timber.* The wealth of Peru's forest resource goes well beyond timber and non-timber forest products. Forests provide a range of services like recreation, carbon capture, and shade and pollination for crops, the demand for which is likely to increase in the future. Although there are some initiatives to tap into the economic value of these services, the potential for growth based on the magnitude of Peru's forest resources is enormous (see box).

Figure 6. Economic value of timber, NTFPs and other forest-related products: official statistics and estimates
The economic value of forest products and activites is far larger than official statistics suggest



* Official statistics (Sources: DGFFS, Perú Forestal en Números 2012);

** Own estimates (based on DGFFS, Perú Forestal en Números 2012; DGFFS, Anuario de Precios de Productos Maderable y no Maderables 2012; Galarza & de la Serna, 2005, Las concesiones forestales en el Perú: ¿cómo hacerlas sostenibles?; MINCETUR & SIICEX, 2014, Reportes para el sector biocomercio; INEI & MINAGRI, 2013, IV Censo Nacional Agropecuario; MINCETUR, 2013, Estadísticas; Wunder, 1996, Deforestation and Wood in the Ecuadorian Andes; and VCS, 2014, The VCS Project Database. The methodology to estimate the value of the domestic market of timber and NTFPs is based on Galarza & de la Serna, 2005).

[13] The market value of firewood is based on firewood prices of Wunder (1996). Deforestation and Wood in the Ecuadorian Andes. Prices were adjusted for inflation in 2012.

Box 3. Realizing the value of Peru's forest resources

There is vast potential to develop the value of Peru's forests through the promotion of non-traditional activities as tourism, agroforestry, biotrade and bioprospection, as well as through mechanisms like payment for ecosystem services (including REDD+). Such mechanisms can generate incentives for the conservation and sustainable use of forests, but it is crucial to include smallholders and local communities in these initiatives.

Tourism. There are no official statistics on forest-based tourism, but our estimates suggest it is quite low. The five Amazon regions combined generated approximately 200 million US$ of tourism revenues in 2012, some of which is likely to be forest-related. This represents only 2 percent of Peru´s total revenues from tourism. Moreover, only some 700 thousand people visited Peru's protected areas in 2012,[14] compared to the more than 1.6 million visitors to the protected areas in Costa Rica (a country that is 3 percent the size of Peru) the same year.[15] Given the size and diversity of Peru's forests, there is much room for the development of a sustainable tourism industry.

REDD+. Until the 3rd quarter of 2014, the voluntary market of REDD+ (Reducing Emissions from Deforestation and forest Degradation) in Peru generated approx. 2.3 million verified carbon units, worth 13.3 million US$.[16] In 2009, Peru´s greenhouse gas emissions from forests amounted to 56 million tonnes (41 percent of its total emissions).[17] In the voluntary market,[18] the mitigation of these emissions would be worth 330 million US$. In view of the scale of Peru's natural forest endowments, a well implemented REDD+ strategy can become a major source of revenue and positive social impacts.

Agroforestry. There is no data separating agroforestry from conventional agriculture, but many economically important products such as coffee are grown in a farmland / forest mosaic, and depend on the shade and pollination services provided by forests. If only 5 percent of the production of coffee and cacao were generated in agroforestry systems in 2012, its value would have been 83 million US$, although these figures are a conservative estimate.

Other ecosystem services. In addition to the services described, forests provide many services such as erosion prevention, water purification and retention, and bioprospecting. These and many other services have been estimated to provide as much as 406 US$ per hectare in tropical forests in Latin America.[19] While these services are currently provided "free of charge", there is great potential for capturing their value through well-designed and socially inclusive mechanisms for payment for ecosystem services.

14 SERNAP (2013). Perú visitas de ANP.

15 Gerencia SINAC (2013). Memoria Anual Institucional.

16 Voluntary Carbon Standard (VCS) (2014). The VCS Project Database.

17 PlanCC (2013). Actualización del Inventario Nacional de GEI al año 2009.

18 Ecosystem Marketplace & Bloomberg (2013). Maneuvering the Mosaic – State of the Voluntary Carbon Markets 2013.

19 The Economics of Ecosystems and Biodiversity (TEEB) (2014). TEEB Valuation Database.

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