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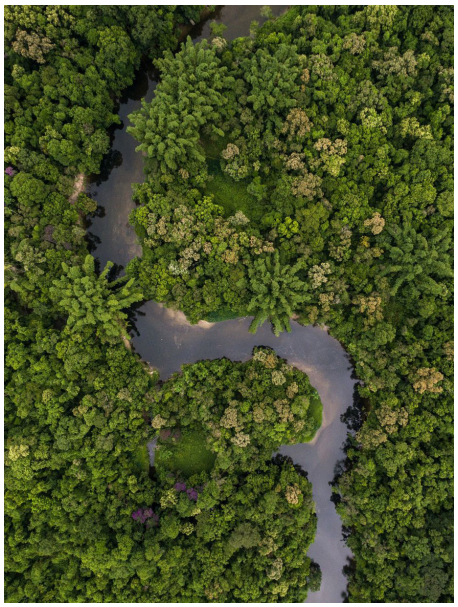
Economía y legislación forestal ambiental en países de América Latina

Economics and Environmental Forestry Legislation in Latin American Countries

IUFRO Working Party 9.06.01
Iberoamerican forest and environmental law
Red Latinoamericana de Derecho Forestal Ambiental
RELADEFA



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Red **La**tinoamericana de **De**recho **F**orestal **A**mbiental - RELADEFA

Coordinación/Coordination:
Gloria Sanclemente Zea, Heinrich Schmutzenhofer, Peter Herbst

Autores contribuyentes/Contributing authors:
Argentina: Alejandro Orlando Vera
Bolivia: Wilson Rocha, Julisse Mendoza Eyzaguirre, Claudia Katerina Aramayo García
Brasil: Paulo de Tarso de Lara Pires, Edson Luis Peters, Alessandro Panasolo, Camila F. Balbinot, Janaina Hurst
Chile: Carmen Paz Medina Parra
Colombia: Gloria Sanclemente Zea, Juan David Vargas Alonso
Costa Rica: María Fernanda Corrales Solis, Carlos Alberto Bolaños Cespedes
Cuba: Daimar Cánovas González
Dominicana, República: Marisol M. Castillo Collado
Ecuador: María Cristina Puente Salinas, Walter Armando Palacios
Guatemala: Alexander Sandoval Portillo
Panamá: Ericka Edith Estrada Saavedra
Paraguay: Héctor Hernando Herebia
Perú: Lucia Delfina Ruiz Ostoic
Uruguay: Maria Marta Albicette, Gloria Sanclemente Zea, Robert Scoz
Venezuela: Osvaldo Encinas Blando

Traducción al inglés por/English translation by:
Authors/autores y Agustín Rosello Hinrichs

Traducción al alemán por/German translation by/deutsche Übersetzung durch:
Heinrich Schmutzenhofer (deutsche Übersetzung bei IUFRO auf Anfrage erhältlich)

Fotos en la cubierta/photos on cover page by:
Heinrich Schmutzenhofer, Alessandro Panasolo, Alexander Buck

The Latin American Network of Environmental Forestry Law (RELADEFA), within the framework of IUFRO Working Party 9.06.01, has compiled information about the situation of forests in 15 Latin American countries, with special emphasis on forest legal frameworks and related effects on management and administration, state of economy as well as forest and nature protection. The outcome is not a scientific publication but is mainly intended for communication purposes so that readers learn about the situation of each country.

List of Contributions

Acknowledgement
IUFRO Working Party 9.06.01 deals with forestry law and environmental legislation in Ibero-America. IUFRO would like to thank all the experts involved in this group, who also represent the RELADEFA network (Network for Forest Law and Environmental Legislation in Latin America), for their valuable input. We would like to extend special thanks to *Gloria Sanclemente Zea* for coordinating the work. Our thanks also go to IUFRO Honorary Member *Heinrich Schmutzenhofer* and *Peter Herbst* as Deputy Coordinator of the IUFRO Research Group 9.06.00 Forestry Law and Environmental Legislation for the active support of this initiative. In addition, we would like to acknowledge *Agustín Rosello Hinrichs* (IFSA) for his support with the translation of the reports into English during his internship at IUFRO Headquarters.

Introduction

Gloria Sanclemente Zea, Colombia, representative of RELADEFA before IUFRO

(Machine-aided translation)

The Latin American Network of Environmental Forestry Law – RELADEFA – is a multidisciplinary network of professionals and organizations dedicated to studying Environmental Forest Law and promoting its effective application, offering and promoting spaces for debate, projects, scientific and doctrinal studies. The Network is a benchmark that, due to its transparency and capacity for study, has managed to influence the public, private and academic sectors, national and international, contributing to the construction of sustainable forest development policies in Latin American countries.

RELADEFA has a Latin American Coordinator – currently this is the lawyer Wilson Rocha Vera - based in the city of La Paz, Bolivia, and three regional coordinators: Álvaro Noguera, a lawyer based in Managua, Nicaragua for Mesoamerica; Gloria Sanclemente, a lawyer based in Bogota, Colombia, for the Amazonian and Andean region; and Paulo de Tarso based in Curitiba, Brazil, for the Southern Cone. Each country also has a national focal point and national working groups.

RELADEFA is registered as Working Party (WP) 9.06.01 of Division 9 of the International Union of Forest Research Organizations – IUFRO, a non-profit, voluntary, non-governmental, non-discriminatory and non-political organization established in 1892 that unites more than 15,000 scientists in approximately 700 affiliated institutions in now 110 countries. Within the framework of this organization, three Latin American forest law congresses took place before the fourth congress held in the city of Santiago de Chile in 2003 gave rise to RELADEFA.

From there on, the network continued as WP 9.06.01 to support and organize Latin American congresses as a space for the analysis, evaluation and construction of public forest policies of the countries, as well as for discussing issues related to sustainable forest management, community participation in forest management, the conceptualization of forest law as a legal discipline, the role of law in the implementation of REDD projects and the state of institutionality within the framework of forest policies and climate change. The venues of the congresses were: Mexico in 2005, Ecuador in 2007, Brazil in 2009, Costa Rica in 2011, Peru in 2013, Colombia in 2016.

In January 2021, IUFRO officials contacted RELADEFA to learn about the interest of its members in publishing a publication on the state of forests in Latin America for the Austrian forestry journal "Forstzeitung". As a background information it was mentioned that the journal had recently published a series of reports from countries of Eastern Europe, with data on forest management, policy and ways to protect forests. After meetings between members of IUFRO and RELADEFA, it was agreed by the Latin American countries represented at a Zoom meeting to contribute to the publication. The presentation of information on the basic data of forestry, the situation of forests in each country, management and administration, the state of economy for the country, forest and nature protection, the problem or vision of the future, would be carried out by each member country of RELADEFA, who would coordinate the assembly of each article in each country. The outcome is not a scientific publication but is mainly aimed for communication purposes so that readers learn about the situation of each country.

In this way, the articles were compiled by country, organizing the information in a way to facilitate reading. Below are the documents from each of the 15 Latin American countries that produced a report.

The data and information contained in each of the documents are the responsibility of the authors of the reports; RELADEFA is considered the compiler of the information to be published by IUFRO under the title: "Economics and environmental forestry legislation in Latin American countries".

Forest Regulations in Argentina

Author: Alejandro Orlando Vera, Lawyer, Argentina
Translation from Spanish by the author

Nothofagus in autumn colors (Heinrich Schmutzenhofer)

GENERAL INFORMATION			
Country name	Argentina	Number of hectares in processes of rehabilitation or reforestation (6)	165.139
Total population (1)	45.808.747	Representativeness of the forestry sector in the GDP or contribution in 2020 (7)	0,36%
Extensión in hectáres (2)	376.127.400	Annual rate of deforestation (8)	0,32%
Number of hectares in forest cover (3)	31.443.873* 64.975.518** 1.200.000***	Emmissions reduction target (9)	No exceed 359 million tons of CO_2 equivalents in 2030
Number of hectares under forest reserve categories (includes protected area categories) (4)	1.905.036	Presence of ethnic communities in areas with forest cover SI ( ) NO ( ) Specify type of communities: (10)	SI Indígenas
Hectares under conservation systems or management, or sustainable use. (specify certification schemes)(5)	10.838.245* 32.266.937** 10.194.546***	Forest land and forestry ownership structure (11)	Private and public property and use following the legislation exists

(1) Fuente: Instituto Nacional de Estadística y Censos www.indec.gob.ar Proyección a julio de 2021. Población según último censo (año 2010): 40.117.096

(2) Fuente: Instituto Geográfico Nacional (www.ign.gob.ar). Al Continente Americano corresponden 2.791.810 km² (incluyendo las Islas Malvinas: 11.410 km²); al Antártico 965.597 km² (incluyendo las Islas Orcadas del Sur: 750 km²); y a las islas australes 3867 km² (Georgias del Sur: 3.560 km² y Sandwich del Sur: 307 km²)

(3) Fuente: Primer Inventario Nacional de Bosques Nativos. SAyDS. Año 2005 (www.argentina.gob.ar/sites/default/files/primer_inventario_nacional_-_informe_nacional_1.pdf)

(4) *Tierras forestales y bosques rurales

(5) **Otras tierras forestales: corresponden a formaciones arbustivas de uso mixto en diferentes niveles de degradación.

(6) ***Has. que ocupan los bosques implantados. Fuente: Ministerio de Agricultura, Ganadería y Pesca de la Nación. Año 2012 (www.senasa.gob.ar/sites/default/files/infografias/bosques2-01.png)

(7) Fuente: Secretaría de Ambiente y Desarrollo Sustentable de la Nación. Informe Nacional Ambiente y Áreas Protegidas de la Argentina 2008-2018 (www.argentina.gob.ar/sites/default/files/informe_ambiente_y_ap_final_0.pdf).

(8) Corresponde a la superficie de bosque dentro del total correspondiente a las áreas protegidas nacionales (3.455.357 has.)

(9) Fuente: Ministerio de Ambiente y Desarrollo Sustentable de la Nación. Informe de implementación de la Ley Nro. 26.331 de Presupuestos Mínimos de Protección de los Bosques Nativos. Julio 2020 (www.argentina.gob.ar/sites/default/files/informe_implementacion_bosques_corregido26_02_0.pdf)

(10) *Superficie correspondiente a categoría I (rojo), de alto valor de conservación (pasible de ser afectada a planes de conservación)

(11) **Superficie correspondiente a categoría II (amarillo), de mediano valor de conservación (pasible de ser afectada a planes de manejo)

(12) *** Superficie correspondiente a categoría III (verde), de bajo valor de conservación (pasible de ser afectada a planes de explotación)

(13) Fuente: Ministerio de Ambiente y Desarrollo Sustentable de la Nación. Informe de implementación de la Ley Nro. 26.331 de Presupuestos Mínimos de Protección de los Bosques Nativos. Julio 2020 (www.argentina.gob.ar/sites/default/files/informe_implementacion_bosques_corregido26_02_0.pdf) Corresponde a la cantidad de has. afectadas a "Planes recuperación del potencial de conservación o productivo", en zonas rojas y amarillas, denunciados al Registro Nacional de Planes por las autoridades locales ambientales.

(14) Fuente: Instituto Nacional de Estadística y Censos. Valor Agregado Bruto a precios básicos por rama de actividad económica. Valores anuales en millones de pesos a precios de 2004. Silvicultura, extracción de madera y servicios conexos. Tercer trimestre del año 2020. Porcentual obtenido del valor asignado al sector (1.887 millones), en relación al total (511.235 millones) (www.indec.gob.ar/indec/web/Nivel4-Tema-3-9-48)

(15) Fuente: Ministerio de Ambiente y Desarrollo Sustentable de la Nación. Informe de implementación de la Ley Nro. 26.331 de Presupuestos Mínimos de Protección de los Bosques Nativos. Julio 2020 (www.argentina.gob.ar/sites/default/files/informe_implementacion_bosques_corregido26_02_0.pdf) Pérdida anual de bosque nativo (%) correspondiente al año 2019.

(16) Fuente: Ministerio de Ambiente y Desarrollo Sustentable de la Nación. Segunda Contribución Determinada a Nivel Nacional de la República Argentina (www.argentina.gob.ar/sites/default/files/segunda_contribucion_nacional_final_ok.pdf)

(17) Fuente: Ministerio de Ambiente y Desarrollo Sustentable de la Nación. Informe de implementación de la Ley Nro. 26.331 de Presupuestos Mínimos de Protección de los Bosques Nativos. Julio 2020 (www.argentina.gob.ar/sites/default/files/informe_implementacion_bosques_corregido26_02_0.pdf) El 65,6 % de las comunidades indígenas registradas en el país se encuentran dentro de alguna categoría del Ordenamiento Territorial de Bosques Nativos.

(18) Interpretación en base a la clasificación regulada por los 225 a 241 del Código Civil y Comercial de la Nación. No se encontraron datos disponibles acerca de la superficie en cada tipo.

The legal and institutional framework in Argentina in forestry matters is conditioned by two main aspects. On the one hand, as form of Federal State, which determines that the provinces maintain the original domain over these resources and broad regulatory and supervisory powers, whether they are on public or private lands. On the other hand, the evolution of the legal, economic and technical perceptions of natural forest throughout its history. The succession of regulations issued in the last century present the forests as woody formations, inadequate lands "*for agricultural crops or pasture*[1]*",* forestry undertakings or the most modern formula: natural forest ecosystems with many associated species of flora and fauna[2]. These points of views are still alive and reflect conflicts that go beyond the strictly legal.

Leaving some specific antecedents aside, the first national legal landmark is the National Law 13.273, passed in 1948. This early regime, still in force, constitutes a federal regulation, applicable not only to public and private forests but also to native and exotic ones. Its forest classification (protection, permanent, experimental, special and production) influenced in the institutional and legal sphere dictated in the last century. Even though its regular regime contemplates some prohibitions, nowadays overcame by other rules, its main strategy is centered on certain voluntary economic instruments, shown in what is called "*special* forestry *regime*".

Some years later, the national legislation used economic instruments through the National Law 24.857[3] of the year 1997 and the National Law 25.080[4] of the year 1998. The first one grants physical stability for a certain period to restoration activities, care, management and utilization of forests and even to commercial activities of wood products and non-wood products. The second one regulates tax and financial benefits for the promotion of forest plantations, meaning that, those that allow "*to satisfy the current and potential demand of raw material by different industries, whether it is in pure or mixed plantations, or in agroforestry systems*[5]*."*

These regimes and the profuse expansion of modern environmental regulations adopted by provincial law were not enough to stop the high rates of deforestation of native forests, registered at the end of the 20th century and the beginning of the 21st century. The case of the province of Córdoba is representative of this situation. In 2007, the deforestation rate of this province was 14 times over the world's rate[6]. The expansion process in agriculture in the departments in the northern Córdoba, between 1970 and 2000 caused the loss of over 10 thousand km2 of seasonal xerophilous forests (*chaqueños*) by conversion to annual crops, mainly soy[7].

1 Art. 2° Law 13.273 (B.O. 6/10/1948)
2 Art. 2° Law 26.331 (B.O. 26/12/2007)
3 (B.O. 11/9/1997)
4 (B.O. 19/01/1999)
5 Art. 4° Law 25.080
6 Argentina. SAyDS. (2002). First National Inventory of Native Forest Planned supported by the World Bank (BIRF 4085 – AR)
7 Cabido, M. y Zak, M. (2010) "Deforestación, agricultura y biodiversidad". In:*Revista Hoy La Universidad*. Córdoba: Universidad Nacional de Córdoba

The constitutional reform of the year 1994 granted the Federal Government a new legal form to face the environmental problem provoked by the instability of the local governments to change the situation: the minimum standard laws. In 2007, the National Congress used this new type of regulation –compulsory for the provinces– in order to create an environmental protection regime for this type of forest (National Law 26.331, passed on 11/28/2007 and enacted on 12/19/2007). Its main managerial instrument was the environmental organization of territory.

To ensure its effectiveness, this law introduced two solutions for consultation. One solution was that the provinces should carry out an environmental land management of their native forests and classify them according to their high, medium or low conservation value (red, yellow and green area respectively), thus determining forests target to conservation, limited management or exploitation, according to each case. The other solution was that the provinces and the holders of forest lands whose free exploitation was limited, could access direct and non-refundable economic compensation, once the ordinances had been carried out. Such compensations are paid to those who obtain the approval of conservation plans or management plans, in the presence of the local authorities.

Besides, so that this decision-making power in the hands of the provinces would not detract from the purposes of the law, some limits or control mechanisms were included in the system by the Federal Government. First, sustainability criteria present in the annex to the norm; secondly, the mandate that these regulations be carried out in a participatory manner[8], thus ensuring the oversight of the process by civil society; and thirdly, a prohibition to approve interventions until the ordinance was concluded[9].

These mechanisms tried to underpin the organization process in the provinces ensuring that they are performed on time and in the appropriate manner.; with the duress, not only legal, as it is about a minimum budget law, but also economic. Economically negative on the one hand, since if the provinces did not complete the rapid ordering, their economy could slow down by not being able to authorize new exploitations, and economically positive on the other hand, by pursuing also the promise of accessing national funds through compensation.

Between 2008 and 2016, the 23 Argentine provinces ended their regulations on territories of native forests[10]. Until now, three of them have proved in the presence of the national authority their corresponding updates, which must be done every five years. Like the first process, the updates predict conflict scenarios and a possible legislative modification of the national frame.

The budget allocation for the Trust Fund for the Environmental Protection of Native Forests, the figure created to administer the aforementioned compensations, was $ 570,500,000 in 2019 (approx. U $ D 6,255,400). In 2018, approximately 3.540.710 hectares

8 Art. 6° Law 26.331

9 Arts. 7° y 8° Law 26.331

10 Argentina. MAyDS (2020). *Report on implementation of the Law Number 26.331* of Minimum Budget for the Protection of Native Forests. July 2020.

were under some conservation or management plan[11]. Even though an increase in funds and in affected surface can be seen, the values are still low compared to the total area of native forest and the income that other land usages give. Regarding deforestation rates, the annual percentage of loss decreased since the enactment of the law in 2007 (approximately 0.9% at national level), until 2014 (0.35%). Then it stabilized and started to show a tendency to increase in 2017 (0,38 %) and 2018 (0,42 %) and an important decrease in 2019 (0,32 %)[12].

In the institutional aspect, the regime of Law 26.331 established shared responsibilities for the authorities in environmental matters. On the one hand, the national enforcement authority (Ministry of the Environment and Sustainable Development) has the main function of approving the territorial regulations of forests carried out by the provinces, managing the National Fund and ensuring compliance with the minimum budgets of the regime. The local enforcement authorities (in general, environmental agencies of the provinces) keep the main functions of inspection, licensing and approval of the conservation and management plans presented. In another order, the forestry enterprise regime regulated by Laws 24857 and 25,080 is managed by the agricultural authorities, both of the Federal Government and of the provinces.

Salix in the Río Limay valley (Heinrich Schmutzenhofer)

11 Argentina. MAyDS (2020). Ob.cit.
12 Idem.

State of Integral and Sustainable Management of Forests in Bolivia

Authors: Claudia Katerina Aramayo García, Julisse Mendoza Eyzaguirre, Wilson Rocha Vera / Translation from Spanish by Agustín Rosello H.

GENERAL INFORMATION	
Country name	BOLIVIA
Total Population	11.633.000
Surface area in hectares	109.858.100
Area in ha of forest cover	52.500.000 [1]
Area in ha of Permanent Forestry Production Land	41.235.487[2]
Area in ha. of forest in Forest Reserves	12.388.200 [3]
Area in ha of forest in Protected Areas	23.941.229 [4]
Causes of Deforestation	Extensive agriculture and livestock farming, road construction, mining, oil exploitation, etc.
Area in ha. of rehabilitation and/or reforestation areas	55.809
Annual rate of deforestation in hectares	173,994 ha deforested/year between 1990 and 2000. 243,120 ha deforested/year between 2000 and 2010. [3]
Area in ha of areas with environmental functions	29.000.000[5] instad of a figure for CO2 reductible see abofe!
Area in ha of forests in Community Lands of Origin	21.026.527 [6] (9,098,184 ha in TPFP and 11.928343 in TCBADU)
Area in ha. of forest in Rural Communities	6.475.503 (3,771,057 ha[7] in TPFP and 2,704,446 in TCBADU)

1 Ministry of Development Planning; Nationally Determined Contributions, 2015.
2 Official Gazette of Bolivia; Supreme Decree No. 26075; Year 2001
3 Forest Reserves of Bolivia; Forest and Land Control and Control Authority; 2015.
4 Ministry of Environment and Water, Sub-national Protected Areas; Year 2012. Protected areas with forests at the national level 17,053,980 ha, at the departmental level 5,236,578 ha and at the municipal level 1,650,671 ha.
5Ministry of Development Planning; Nationally Determined Contributions, 2015. "Emission Reduction Goal: Bolivia has not set a CO2 reduction emission target, however, it has set an area of 29 million hectares with preserved and restored environmental functions. The environmental functions referred to are carbon fixation and capture, organic matter in soil, water regulation, biodiversity conservation, among others."
6 Ministry of Environment and Water, Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests; Year 2013.
7 Idem footnote 6.

Area in ha of forest with individual agricultural property rights	6.328.158 [8]
Area in ha of forest with forest use rights	9.738.334 [9]
CO2 emissions from deforestation processes	4.839,00 Ggt CO2[10]

Article 386 of the Political Constitution of the State establishes that natural forests and forest soils are of strategic nature for the development of the Bolivian people, recognizing the right of exclusive forest use in favor of communities with agrarian property rights on forests and also that of private operators, previously named forest concessions. It also promotes the development of conservation and exploitation activities for the generation of added value to forest products and the rehabilitation of degraded areas.

However, it is important to refer to the origin of Bolivia's forestry vocation, which was born from the extraction of cinchona (fever-tree) and elastic gum during the 19th and early 20th centuries, thus constituting these activities as the most significant historical background of Bolivia's insertion in the world market through forest resources. After the fall of the price of rubber on the international market in the 1930s, the first industries for the processing of Brazil nuts were established in the northern Amazon, and in the 1940s the concern for the commercial exploitation of timber became evident in State policies (Bohan Plan, cited in Quiroga and Salinas, 1996).[11]

The expansion of the timber industry from Santa Cruz to regions of the Beni (passing through Guarayos) intensified in the 1970s with the opening of the road linking Santa Cruz with Trinidad, while in the 1990s, this process of timber exploitation intensified in the north of La Paz and Pando. On the other hand, timber exploitation in the Chapare was associated with colonization since the 1950s, but it was not until the 1970s that commercial extraction intensified due to the construction of a new highway. The Chaco Region had a different process, relatively early in 1930, when the commercial extraction of timber species for the elaboration of sleepers, charcoal for the mining industry, construction and furniture manufacturing started.

8 Idem footnote 2. The area of 6,475,503 ha corresponds to agricultural properties which are distributed as follows: 2,104,086 ha in Agricultural Enterprises; 1,269,032 ha in Medium Properties and 2,955,040 ha in Small Properties)
9 Ministry of Development Planning. Social Economic Development Plan 2015 – 2020; Year 2015. Forest Use Rights Sup. 9,738,334 ha, distributed as follows: 493,690 ha in Social Groups of the Place; 2,067,966 ha in Special Transitional Authorizations; 1,744,699 ha in Forest Harvesting Authorizations (AAF) of Peasant Communities; 3,405,036 ha in AAF of Indigenous Communities; 1,480,045 ha in AAF of private property; 50,085 ha in Authorizations for Research Universities.
10 CO2 emissions due to Land converted from forests to other uses for the years 2006 and 2008. 80% of the carbon emissions of the country. https://es.wikipedia.org/wiki/Gas_de_efecto_invernadero
11 Gamarra, 2007 "Development of the Amazonian North in Bolivia.

On the other hand, it should be emphasized that the forested areas of the country were traditionally inhabited by Guaraníes, Chiquitanos, Mojeños, Baures, Itonamas, Maropas, Cayubabas, Canichanas, Movimas, Tacanas, Mosetenes, Cavineños, Guarayos, Yuracarés, Sirionós, Morés, Yuquís, Weenhayek, Yaminahuas and Machineris, Chácobos, Pacahuaras, Araonas and Esse Ejjas, Yuracarés, Sirionós, Morés, Morés, Yuquís, Weenhayek, Yaminahuas and Machineris, Chácobos, Pacahuaras, Araonas and Esse Ejjas, which are currently the indigenous peoples and nations with the largest areas of forest titled in agrarian property.

Likewise, the struggle for the consolidation of agrarian property rights and forest use rights has allowed indigenous and peasant communities and individual owners of forest lands to have the constitutional recognition of the exclusive use and exploitation of the forests on their property, also taking into account that the Bolivian forest potential can contribute to the development of a sustainable economy over times, based on the use of timber and non-timber forest products, as well as the progressive increase of added value.

In the last 10 years, the indigenous and peasant communities, as traditional forest users, do no longer concentrate their forest use on timber forestry activities, but are now diversifying their activities according to the forest cycle by using non-timber forest resources such as Brazil nuts (December to March), asaí harvesting, a palm fruit (April to June), timber harvesting (June to September), In some Amazonian communities they still harvest rubber and in communities of the Chiquitanias, Chiquitana Almonds are harvested (September to November).

On the other hand, and in terms of current public policy, it is important to note that in 2016 the Social Economic Development Plan 2016 - 2020 (PDES) was launched as a national policy document approved by Law 786 of March 9, 2016, which integrates goals and results of relative importance to advance in increasing the area of forests under community forest management, the strengthening of timber and non-timber forest production complexes, the reduction of deforestation, the increase of forest GDP and the expansion of the forested and reforested area, without neglecting the recognition and valuation of the multiple environmental functions of forests.

It is worth wise mentioning that this prioritization of goals and results to be achieved in five years, fully coincides with the ratification[12] and implementation of the Paris Agreement by the Government of Bolivia (Law No. 835). 835), a document in which, through the Nationally Determined Contributions (NDC), direct financial investment is foreseen to eradicate extreme poverty in forest areas, reduce illegal deforestation to zero, restore forest cover to more than 4.6 million hectares, consolidate community forest management in more than 16.9 million hectares, increase forest GDP to 6%, preserve the environmental[13] functions of forests in more than 28 million hectares and have a forest area in 2030 of at least again 52 million hectares in native forest and emerging from afforestation and reforestation processes.

12 Law 835 dated September 19, 2016, through which the Paris Agreement is ratified by the Plurinational State of Bolivia.
13 Social and Economic Policy Analysis Unit, 2005; Forest GDP 3.5 %.

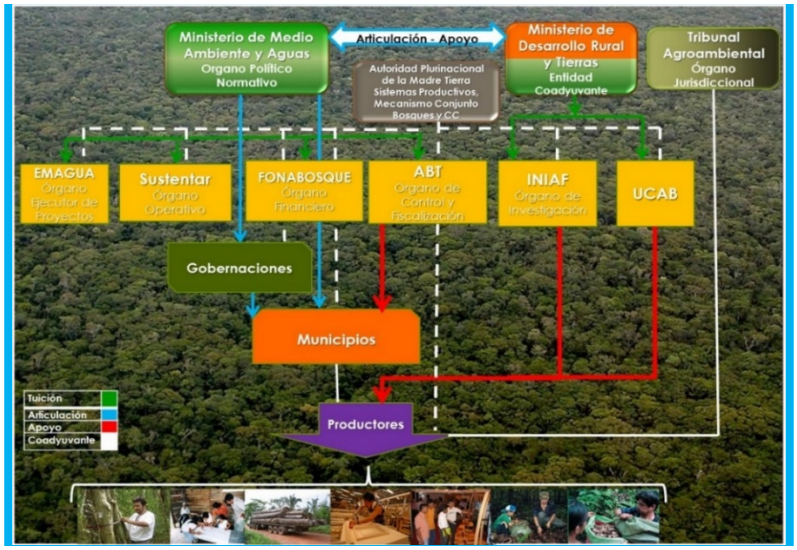
With regard to the institutional framework, the Ministry of Environment and Water is the governing body of the Bolivian forest regime in charge of the design of public policies and regulations, assisted by the Ministry of Rural Development and Lands, and the Ministry of Productive Development and Plural Economy at the national level, to achieve the goals and results of the PDES and NDC. At the departmental (regional) and municipal (local) levels, the governments and municipalities, as well as the indigenous and aboriginal peasant autonomy, are constituted as contributors to the integral and sustainable management of forests, according to the needs, priorities and vocations of land use, established by the economic and productive actors. This institutional framework is complemented by deconcentrated, decentralized, self-sufficient entities such as the Plurinational Authority of Mother Earth, the Authority of Control and Inspection of Forests and Lands, the National Service of Protected Areas, the National Fund for Forestry Development, the Fund for Indigenous Development, among other bodies that implement programmes and projects.

With regard to the current regulatory framework, the Political Constitution of the State in its article 386 and following articles establishes forests and forest lands as a strategic resource of the State, which can be used and exploited within the framework of Forestry Law No. 1700 and the Framework Law on Mother Earth and exploitation within the framework of the Forestry Law No. 1700 and Development for Living Well No. 300, complemented by supreme decrees and technical norms that regulate the integrated and sustainable management of forests with a focus on mitigating and adapting to climate change, the generation of economic benefits and the progressive increase of added value in the forest products to advance food security and poverty reduction.

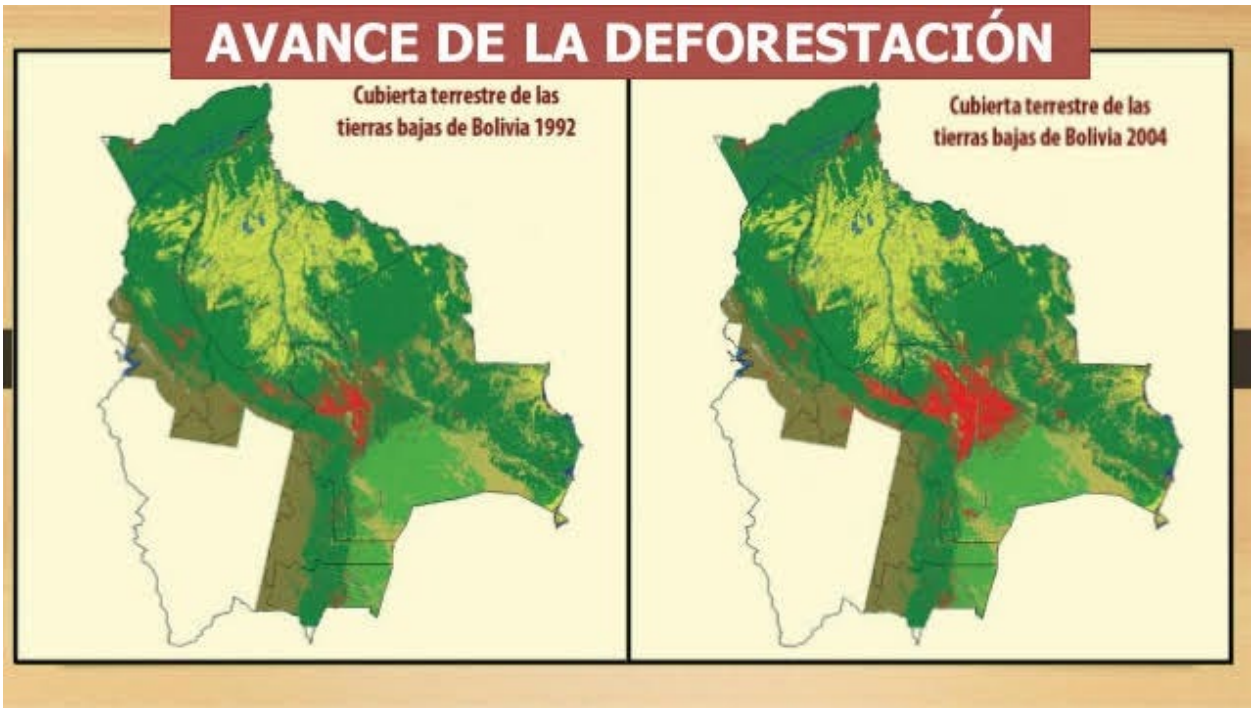
Finally, in the last two years climate change is affecting the country's forests and forest lands, especially in the northern Amazon region and the Chiquitania, since the long periods of drought have caused forest fires that have consumed at least 1,707,555[14] hectares of forest in 2019 and up to 1 million hectares in 2020;[15] process of deforestation and fires that result from bad practice in the use of fire to enable forest land for agricultural and livestock uses or the implementation of procedures for human settlements. It is worth mentioning that in the northern Bolivian Amazon region, drought has reduced the volumes of Brazil nut and cocoa production, which has undoubtedly had a significant economic impact on local populations.

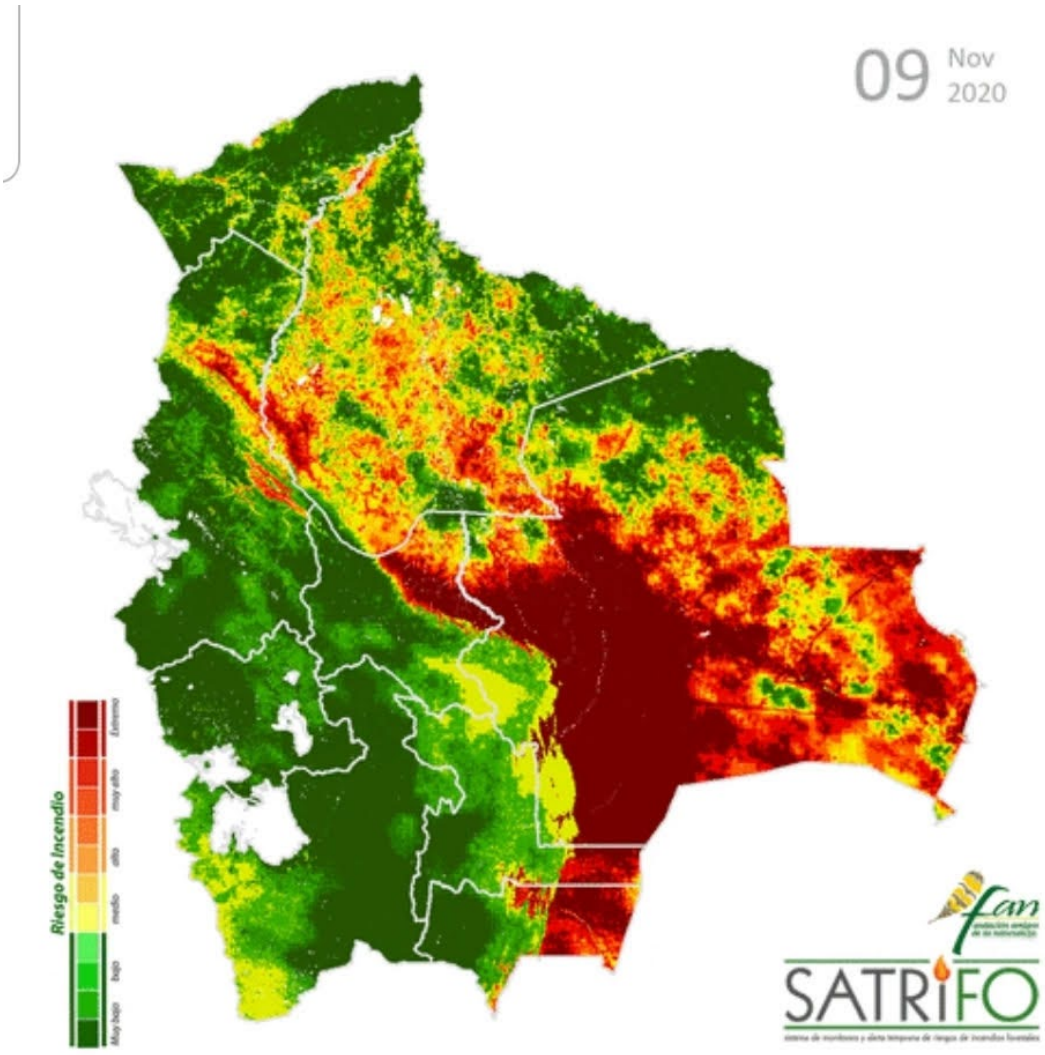
14 Ministry of Development Planning, Restoration Plan for Areas Affected by Forest Fires; Year 2020.
15 Mongabay, Latan; Aminos foundation of Nature; Year 2020

Fig. 1. Institutional Framework of the Forest Regime and Interveners in Forest Management in Bolivia.



Source: Own elaboration, based on current legal provisions.





Referencias

Situación de los incendios forestales en Bolivia – 2020:

Economy and Environmental Forestry Legislation in Latin American countries – Brazil

Authors: Paulo de Tarso de Lara Pires, Edson Luiz Peters, Alessandro Panasolo
Camila F. Balbinot, Janaina Hurst
Translation from Spanish by the authors






GENERAL INFORMATION	
Country name	Brazil
Number of hectares in rehabilitation or reforestation	There is no official data on rehabilitation or reforestation processes. Currently there is a deficit (areas to be recovered) of about 21 million hectares in all Brazilian biogeographic regions (Soares-Filho et al., 2014)[1].
Population	212 million people[2]
Representativeness of the forestry sector in GDP or contribution in 2020	The forestry sector (planted forests) in 2019 represented 1.2% of the national GDP and generated a total gross revenue of R$ 97.4 billion[3].
Extension of Brazil in hectares	851 million hectares[4]
Annual deforestation rate	According to data from the National Institute of Space Research (INPE) [5], the deforestation rate between 2019 and 2020 in the Legal Amazon was 11,088 km^2.
Number of hectares in forest cover	The forest area of Brazil is equivalent to 58.5% of its territory, covering an area of 497,962,509 hectares. 98% of this value correspond to natural forests while only 2% are planted forests. The most frequent phytophysionomy is the Dense Ombrophylous Forest, with 39.2% and 195,284,061 hectares in area, present in the Amazon biome. The area of planted forests is equivalent to 9,839,686 hectares[6] (PEVS/IBGE 2018).
Emission reduction target	37% until 2025 and 43% until 2030 in relation to the 2005 levels[7].
Number of hectares of forest reserves (including categories of protected areas)	334 federal conservation units with 171,424,192 hectares of protected areas, being of full protection or sustainable use, managed by the Chico Mendes Institute for Biodiversity Conservation – ICMBio, spread throughout all Brazilian biomes – Amazon, Caatinga, Cerrado, Atlantic Forest, Pampa, Pantanal and Marine[8].
Presence of ethnic communities in areas with forest cover **YES (X) NO ( )** **Specify type of communities: Afro-descendants,**	According to the Institute for Society, Population and Nature (ISPN), the Amazon contains most of the Brazil's indigenous population, with approximately 200,000 people, 420 different cultures, 86 languages and 650 dialects. There are more than 180 indigenous peoples, as well as several isolated groups living in the Amazon. In addition, there is the presence of rubber tappers, quilombolas (descendants of slaves), riverside people, anglers, family farmers, piaçabeiros (piaçaba fiber extractors), peconheiros

1 http://lerf.eco.br/img/publicacoes/Soares_Filho_etal_2014_artigo_Science.pdf. Accessed on: 2021/02/08.

2 https://www.ibge.gov.br/geociencias/organizacao-do-territorio/estrutura-territorial/15761-areas-dos-municipios.html?=&t=o-que-e. Accessed on: 2021/02/07.

3 https://www.iba.org/dados-estatisticos. Accessed on: 2021/02/07.

4 https://agenciadenoticias.ibge.gov.br/agencia-sala-de-imprensa/2013-agencia-de-noticias/releases/27737-ibge-atualiza-dados-geograficos-de-estados-e-municipios-brasileiros. Accessed on: 2021/02/09.

5 http://www.obt.inpe.br/OBT/noticias-obt-inpe/estimativa-de-desmatamento-por-corte-raso-na-amazonia-legal-para-2020-e-de-11-088-km2/NotaTecnica_Estimativa_PRODES_2020.pdf. Accessed on: 2021/02/09.

6 https://snif.florestal.gov.br/pt-br/os-biomas-e-suas-florestas. Accessed on: 2021/02/09.

7 www4.unfccc.int/sites/NDCStaging/Pages/Party.aspx?party=BRA. Accessed on: 2021/02/09.

8 https://www.icmbio.gov.br/portal/populacoestradicionais. Accessed on: 2021/02/08.

indigenous people etc.	(açaí extractors-fever tree)), among other communities[9].
Number of hectares in conservation, management, or sustainable use systems (specify if there are any certifications)	According to the National Public Forest Registry, SNIF, Brazil has 309.2 million hectares of public forests (CNFP/SFB, 2018)[10]. In Brazil, certification is a voluntary process with the objective of verifying compliance with environmental, economic, and social issues. According to data from the Forest Stewardship Council – FSC, Brazil currently has 7,628,406 hectares certified in the forest management modality and involves 145 management operations, between areas of native and planted forests[11].
Ownership of forest land and woods	Forests in Brazil have regulations applied to private and public properties through Federal Law No. 12,651/12 (Forest Code), which establishes general rules on the protection of vegetation, especially for Permanent Preservation Areas (APP) and Legal Reserves (RL). In addition, private properties must maintain Legal Reserve areas ranging from 80% to 20% of the total area of the property, depending on the biome in which it is inserted. On the other hand, public forests are regulated by Federal Law No. 11,284/2006, which provides for their management and sustainable use. The aforementioned federal law conceptualizes public forests as "natural or planted forests, in goods under the domain of the Union, States, Municipalities, and the Federal District", categorizing them into several modalities, such as Indigenous Lands, Conservation Units, Settlements, Military Areas and others.

ADDITIONAL INFORMATION

The Brazilian Federal Constitution of 1988 attributed to environmental preservation a constitutional status, granting all individuals the right to an ecologically balanced environment. It imposed the duty to defend and preserve the environment for the present and future generations to the collective, thus establishing this competence to all federative entities acting in the protection of the environment and in the preservation of forests, fauna and flora.

The Ministry of the Environment – MMA, according to Federal Decree No. 10,455/2020, is the direct federal public administration body responsible for the policy of preservation, conservation and sustainable use of ecosystems, biodiversity, and forests, as well as the definition of strategies, mechanisms and economic and social instruments to improve environmental quality and the sustainable use of natural resources. Its attributions also comprise international strategies and instruments for the promotion of environmental policies.

In this scenario, the Secretariat of Biodiversity and Forests, linked to the Ministry of the Environment – MMA is responsible to propose policies, norms and define strategies, considering the various Brazilian biomes, in line with forest protection (the preservation and

9 https://ispn.org.br/biomas/amazonia/povos-e-comunidades-tradicionais-da-amazonia/. Accessed on: 2021/02/08.

10 https://www.florestal.gov.br/documentos/publicacoes/4261-florestas-do-brasil-em-resumo-digital/file. Accessed on: 2021/02/09.

11 https://br.fsc.org/pt-br/fsc-brasil/fatos-e-nmeros. Accessed on: 2021/02/09.

control of forest fires), deforestation and other forms of destruction, both in native and planted forests.

Therefore, Federal Law No. 11,284/2006, regulated by Decree No. 7,390/2010, which provides for the management of public forests for sustainable production, instituted the Brazilian Forest Service -SFB, in the structure of the Ministry of the Environment – MMA, and created the National Forest Development Fund – FNDF. In addition, according to information from the Brazilian Forest Service – SFB, under the modality of forest concession to the Union, States and Municipalities, through bidding, the management of public forests in a sustainable way and through payment to obtain products and services is authorized. There are currently six national forests (FLONAS), located in the states of Pará and Rondônia. They are under concession contracts, representing around 1 million hectares of forest, which will be managed according to a rotation system in which, on average, four to six trees will be removed per hectare, and the management in the same area can only happen after 25 to 35 years, allowing the growth of remaining trees[12].

It is also worth mentioning that Federal Law No. 12,561/2012 (Forest Code currently in force) establishes the general rules for the protection of native vegetation and forest exploitation. This legislation amended environmental protection rules for private properties and incorporated mechanisms to assist land regularization.

In addition, Law No. 9,985/2000 establishes the National System of Nature Conservation Units (SNUC), defining conservation units and establishing a special administration regime, to which protection guarantees apply (Article 2, item I).

In this sense, the conservation units are arranged in two groups with specific characteristics: full-time protection units and units for sustainable use. The first group aims to preserve nature, and only the indirect use of its natural resources is allowed, except for cases prescribed by law. The second group has as its basic objective to make nature conservation compatible with the sustainable use of a portion of its natural resources.

In relation to indigenous policy, in view of the strong presence in forest areas and their important role in environmental preservation, in addition to the protection provided by the Indigenous People Statute (Law No. 6,001/73), in the Federal Constitution of 1988, in the international conventions and normative acts of FUNAI[13], the National Council for Indigenous Policy – CNPI was established in 2016, created by Federal Decree No. 8,593/2005, being a collegiate body of advisory nature, responsible for the elaboration, monitoring and implementation of public policies aimed at indigenous peoples.

According to data from Global Forest Watch, between 2001 and 2019, Brazil lost 56.5 million hectares of tree cover, equivalent to an 11% decrease in tree cover since 2000[14].

Thus, considering this scenario, the National Plan for the Recovery of Native Vegetation – PLANAVEG was established in 2017, through Federal Decree No. 8,972/2017, aiming to expand and strengthen public policies, financial incentives, markets, recovery technologies, good agricultural practices and other measures necessary for the recovery of native vegetation,

12 https://www.florestal.gov.br/ultimas-noticias/1977-concessao-florestal-protege-as-florestas-e-gera-emprego-local. Accessed on: 2021/02/09.

13 National Indian Foundation is the official indigenous agency of the Brazilian state, established by Law No. 5,371, of December 5, 1967.

14 https://www.globalforestwatch.org/dashboards/country/BRA. Accessed on: 2021/02/07.

especially in the Areas of Permanent Preservation (APP) and legal reserves (RL) of rural properties[15].

Regarding climate change, considering the significance of this issue, Brazil, in 2009, instituted the National Policy on Climate Change (PNMC), through Federal Law No. 12,187/2009. This Standard aims to guide the country through actions related to the voluntary contribution to curb/decrease greenhouse gas (GHG) emission, as well as promote the country's adaptation to climate change.

It is important to highlight that Brazil is a signatory to the Paris Agreement (signed at COP-21 at the end of 2015), with the goal – updating its Nationally Determined Contribution (NDC) – of reducing emissions by 43% by 2030 compared to 2005 levels[16]. The national climate commitment also announces an indicative goal of achieving climate neutrality by 2060. Finally, it proposes the achievement of this goal through the implementation of sectoral mitigation plans applied to various sectors of the economy.

15 https://snif.florestal.gov.br/images/pdf/publicacoes/planaveg_publicacao.pdf. Accessed on: 2021/02/07.

16 www4.unfccc.int/sites/NDCStaging/Pages/Party.aspx?party=BRA. Accessed on: 2021/02/07.

Regulations and Forestry Development in Chile by 2020

Author: Carmen Paz Medina Parra
Translation from Spanish by Agustín Rosello H.

GENERAL INFORMATION	
Country name	Chile
Total Population (1)	19,678,363
Extension in hectares (2)	75,677,000
Number of hectares in forest cover (3)	17,930,343 * 14,636,995 ** 3,114,223 *** 179,125 ****
Number of hectares under forest reserve categories (includes protected area categories) (4)	14,790,000 * 3,796,191 **
Number of hectares under conservation regimes, forest management or sustainable use systems (specify if there are hectares under a certification scheme) (5)	6,400,980* 4,960,970**
Number of hectares in rehabilitation or reforestation processes (6)	91,820* annually reforested, 2,440** per year forested
Representativeness of the forest sector in GDP or contribution in 2020 (7)	1.9%
Annual rate of deforestation (8)	11,558* hectares per year due to deforestation, 11,169** hectares of loss annual Native Forest
Emission reduction target (9)	6,136,473 average annual tons of CO2
Presence of ethnic communities in areas with forest cover **IF (X) NO ( )** **Specify type of communities: Afro-descendants, indigenous, romm, raizales, etc. (10)**	YES Indigenous
Forest land and forest ownership structure (11)	Public (4,083,430 hectares) and private (13,846,890 hectares)

Created by Elke Huss Catalán, Forest Engineer, Chile.

(1) Source: www.ine.cl/estadísticas Statistics projection to June 2021.
(2) Source: https://es.wikipedia.org/wiki/Chile_continental
Corresponds to the area of continental Chile (99.976%).
(3) Source: INE, 2020. Environment Annual Report 2020. 171 p.
*Corresponds to the use of the forest land that includes native forest, plantations and mixed forest.
**Corresponds to the surface of native forest.
***It corresponds to the surface of forest plantations.
****It corresponds to the surface of mixed forest.

(4) Source: FAO, 2020. Global Forest Resources Assessment 2020, CHILE Report. 128 p.
*Corresponds to the total area within the categories of SNASPE, National Parks (Conservation and protection), National Reserves (Conservation and use) and Natural Monuments (absolute protection for the conservation of specific species).
**Area with native forest (99.1%), plantations and mixed forest. It does not include Private Protected Areas.

(5) Source: FAO, 2020. Global Forest Resources Assessment 2020, CHILE Report. 128 p.
*Productive use (sustainable management) includes plantations and young native forest on slopes <60%, discounting soil and water protection zones and forests in SNASPE protection categories. Includes forest area with independent forest management certification.
**Multiple use (sustainable) includes adult, adult/young and squat native forest on slopes <60%, discounting soil and water protection zones and forests in SNASPE protected areas.

(6) Source: FAO, 2020. Global Forest Resources Assessment 2020, CHILE Report. 128 p.
* Annual reforestation area that includes logging roads, collection fields, firebreaks and streams. Consider the annual average of the last 4 years.
**Annual afforestation area that includes logging roads, collection fields, firebreaks and streams. Consider the annual average of the last 4 years.

(7) Source: INFOR, 2020. Forest Yearbook 2020. 26 p.

(8) Source: FAO, 2020. Global Forest Resources Assessment 2020, CHILE Report. 128 p.
*Deforestation (loss of land use Forest), annual rate for the period 1990-2020.
**Loss of native forest includes loss by substitution, annual rate for the period 1990-2020.

(9) Source: CONAF, 2020. Presentation "Payments for results under the REDD+ approach. National Strategy for Climate Change and Vegetation Resources (ENCCRV)".

(10) CONAF, 2016. National Report of the Process of Dialogue and Participation of Indigenous Peoples (ENCCRV). 77 p.

(11) Source: FAO, 2020. Global Forest Resources Assessment 2020, CHILE Report. 128 p.

Cactus in the Cordillera de la Costa bordering the Atacama Desert (Heinrich Schmutzenhofer)

Forest legislation has been developed based on a duality that has marked Chile's forest history. On the one hand, through the promotion of forestry activity, either through bonuses for afforestation, application of management techniques, soil recovery or enrichment of forests; and, on the other hand, through regulations that oblige whoever harvests a forest to maintain forest cover, avoiding the loss of forested areas or other formations. This system, which has operated, is based on the premise that forests in Chile are appropriable assets, with respect to which private property is guaranteed.

Under the dichotomy indicated, the main Chilean legal bodies can be highlighted, this are, the Forest Law (Supreme Decree 4,363, of 1931, of the Ministry of Lands and Colonization), the D.L. 701, of 1974, on Forest Development and Law 20,283, of 2008, on Recovery of Native Forest and Forest Development. The difference between these laws is related to their temporality, that is, to the time in which each has had been established, and also by the normative approach to the forest resource, differentiating if the bonuses and regulations focused on any type of forest, such as D.L. 701, of 1974, which promoted afforesting with exotic species, in contrast to the Law on Native Forest Recovery and Forest Development, a subsequent regulation, which seeks -precisely- to focus on native forests.

On the other hand, the regulations that come with the previously mentioned legal bodies that, broadly speaking have acceptance in society, that in order to cut native or planted forests it is necessary to do so in a sustainable manner, under a management plan approved by the competent authority, that is, the National Forestry Corporation, and that any area cut or exploited must be reforested mainly on the same property. Violations of the previously mentioned regulations have legal consequences, such as contraventions of forest legislation, under the typification of "non-compliance with the management plan" or "unauthorized cutting" and are sanctioned by fines and reforesting what corresponds.

The legal bodies indicated remain in force in their regulations, that is, the cutting of native and planted forests must comply with the obligations indicated in the preceding paragraph, as established by D.L. 701, of 1974, on Forest Development, and the Law on Recovery of Native Forest and Forest Development, these being mandatory standard. However, the rules of promotion or delivery of benefits are only in force for the recovery of the native forest. In fact, the promotion of plantations in Chile has not operated since 2013.

In this way, it is interesting to refer to the phenomenon created by D.L. 701, of 1974, in this southern country, since it is interesting to retrospectively analyze its application, since it had two stages. A first period, that is, between 1974 and 1997, sought to increase forest plantations for the timber industry, subsidizing 75% of the value of afforestation and its management, also declaring the inexpropriability of land with plantations, as well as exemption from territorial taxes. The emphasis of that first period was oriented towards forestry companies.

Subsequently, after the amendment to D.L. 701, of 1974, on Forestry Development in 1998, the benefits were directed to small forest owners, who received a bonus of 90% of the afforestation costs for the first 15 hectares and 75% with respect to the rest. Meanwhile, the rest of the owners of planted forests, were subsidized with 75% of the benefits of the Law.

However, after almost forty years, there was no consensus to maintain the system of promotion of the establishment of plantations in Chile, and the granting of bonuses through plantations associated with D.L. 701, of 1974, ended the year 2013. Then, a broad discussion has been installed in Chile within the framework of the Forest Policy Council([1]) instance that showed that, although this regulation managed to position the country as the second component that generates foreign exchange and the first based on renewable resources, it generated -in turn- social and environmental problems linked to the plantations of exotic species, such as the replacement of native forest concentrated in certain areas of the country, the existing water imbalance in areas planted with exotic species, generating conflicts between rural communities and indigenous communities with forestry companies.

As a result of the analysis of the Forest Policy Council, a Plantation Protocol was built in 2017 ([2]) that established minimum standards for the protection of soils and waters in order to reduce the processes of erosion, compaction and degradation of soils, reduce sedimentation and turbidity processes at the level of watersheds, improve water quality and regulate the flow of flows in water courses and bodies. Then, this protocol addressed the management of forest interface areas in order to establish discontinuity of combustible material associated with recurrent and serious forest fires that affect the territories. This instrument also sought to agree on the recognition of the ecological functionality that forest plantations can have, and, finally, addressed associativity through the proposal to generate conditions that improve the quality of life of the rural population for the creation and management of forests in a context of sustainability.

In short, the scenario of plantations in Chile has not changed substantially since 2017, existing, under the protection of the Forest Policy Council agreements with a view to perfecting the aforementioned protocol, which has no binding force, because it is not a legal instrument, but an agreement based on Chile's forest policy. In any case, before designing new forestry legislation in Chile, basic aspects associated with public forestry institutions and necessary for the development of promotion laws that leave aside the social and environmental liabilities that were linked to D.L. 701, of 1974, of forest development, must be resolved.

As for the promotion of the native forest, whose law has been in application for 12 years, and which aims to recover and improve native forests, in order to ensure forest sustainability and environmental policy, it is necessary to improve the benefits associated with forest management, since these benefits are limited and with limitations per hectare managed, which has not allowed it to become a real incentive according to the object of the law, and that has even implied declaring inadmissible the authorization of agricultural land to the

1 The Forest Policy Council (2015) is a broad, participatory and representative body of the different perspectives for the development of forestry activity, its purpose is to analyze, debate and define the strategic orientations of the forest sector, for which it proposed the Chilean Forest Policy from 2015 to 2035. This Forestry Policy was approved by Supreme Decree No. 12 of 10 May 2016 of the Ministry of Agriculture.

2 Protocol of Forest Plantations (2017) is a document created by the Forest Policy Council, whose purpose is to address issues associated with forest plantations through the protection of soils and waters, the management of interface and discontinuity of fuel and the recognition of the ecological functionality of forest plantations, among others.

detriment of the native forest, a situation that was resolved in 2020 in the courts of justice, since in certain areas of the country agricultural cultivation is more attractive than the forest management of areas with native forests.

Finally, Chile is addressing one of the most important processes since the return to democracy in 1990, which is the beginning of a process of elaboration of a new constitution by a joint constitutional convention, which will surely incorporate fundamental aspects related to the environment, climate change and the demand for natural resources.

Forest Management in Colombia from a Legal and Regulatory Perspective

Authors:
Gloria Sanclemente Zea, Juan David Vargas Alonso
Translation from Spanish by Agustín Rosello H.

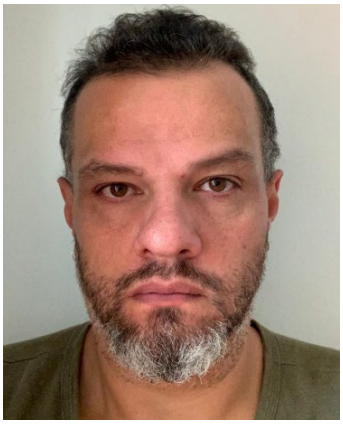


Foto makalu on Pixabay

GENERAL INFORMATION	
Country name	COLOMBIA
Total Population[1]	50.372.424
Extension in hectares[2]	TOTAL 207,040,800 Ha Continental area 114,174,800 Hectares Maritime area of 92,866,000 hectares
Number of hectares in forest cover[3]	59,326,968 hectares
Number of hectares under forest reserve categories (includes protected area categories)[4][5]	• National Protective Forest Reserves (59): 563. 196,69 hectares (4) • Regional Protective Forest Reserves (96): 213. 704,47 hectares(4) • Forest reserves established by Law 2a of 1959: 48,345. 845 hectares (5)
Number of hectares under conservation regime, forest management or sustainable use systems (specify if there are hectares under a certification scheme)[4]	• National Natural Park (43): 12,567,722.98 Hectares • Regional Natural Parks (60): 789,036.68 Hectares • National Integrated Management Districts (4): 341,937.20 Hectares • Regional Integrated Management Districts: (110): 2,576,487 Hectares • Civil Society Nature Reserve (922): 189,594.74 Hectares • Soil Conservation Districts (18): 115,150.55 Hectares • Recreation Areas (10): 792.90 Hectares. • Unique Natural Area (1): 640.62 Hectares • National Protected Forest Reserves (59): 563,196.69 Hectares • Regional Protected Forest Reserves (96): 213,704.47 Hectares

1 National Administrative Department of Statistics -DANE- Population projections at the national level. period 2018 - 2070. https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/proyecciones-de-poblacion.

2 Agustín Codazzi Geographical Institute, IGAC. Surface of Colombia. http://www2.igac.gov.co/igac_web/contenidos/plantilla_general_titulo_contenido.jsp?idMenu=212

3 Institute of Hydrology, Meteorology and Environmental Studies (IDEAM). Change of the Area Covered by Natural Forest (National) by National Consolidated periods: 2017-2018. http://smbyc.ideam.gov.co/MonitoreoBC-WEB/pub/reporteGeoproceso.jsp?id_reporte=7297

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Number of hectares in forest production[6]	• Forest production (plantation) is now 568,769 hectares (2019).
Representativeness of the forest sector in GDP or contribution in 2020[7]	Forestry sector accounts for 0.2% of Colombia's GDP and generates an average of 74,000 jobs
Annual rate of deforestation[8]	-0.33% (192,175 hectares deforested in the period 2017-2018)
Emission reduction target[9]	Reduction of 51% of the country's greenhouse gas emissions by 2030.
Presence of ethnic communities in areas with forest cover IF (X) NO ( ) Specify type of communities: Afro-descendants, indigenous, rom, raizales, etc.[10][11]	• Indigenous: 27,481,928 Hectares (9) • Black Communities:5,756,961 Hectares (10)
Forest land and forest ownership structure	Forest land is under private position. Legally defined is wasteland, fallow-land and collective territories of indigenous or afro-descendant communities.

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10 García, E., Suárez, P., Ome, A., Leguía D., Camacho, A., Yepes, A, Rodríguez, M. Perspective of the indigenous people in the face of deforestation and degradation of the territory: an input for the construction and implementation of Forests Territories of Life - Comprehensive Strategy for the Control of Deforestation and Forest Management. UN-REDD Colombia Programme. Bogotá, 2018.

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Plantación de Cupressus lusitania (Foto Heinrich Schmutzenhofer)

Legislation and Regulations

The first provisions relating to the development and management of the country's forest areas were contained in the Legislative Decree No. 2278 of 1953, which contains the general rules for the supervision, conservation, improvement, reservation, repopulation and exploitation of forests, as well as for the harvesting, trade, movement and export of forest products. Subsequently, in 1959, Act 225 was passed, declaring the nation's seven forest reserves for the promotion of the forestry economy and the protection of soil, water and wildlife; this Act stipulates that the Government shall regulate the logging of public and private forests. However, these areas have presented difficulties in terms of control and surveillance, which has led to colonization processes and social and land-use conflicts.

Subsequently, the National Code on Renewable Natural Resources and Environmental Protection, Act No. 2811 of 1974, sets out guidelines for the management of forests and establishes forest harvesting models and the requirements for their mobilization (Title III, Chapter II on forest harvesting). With regard to institutional and forest planning issues, mention should be made of Act No. 37 of 1989, which created the National Forestry System and structured the National Forestry Development Plan.

To date, the National Forest System (see Act 37 of 1989) has not yet been put into operation, being the Ministries of Environment and Sustainable Development and Agriculture and Rural Development the competent ones in forestry matters, as established in Decree 3570 of 2011 and Decree 1985 of 2013.

In line with the above, with respect to the creation of environmental institutions in the country, Law 99 of 1993 created the Ministry of the Environment (currently the Ministry of Environment and Sustainable Development). This law constitutes an important advance in institutional matters in the country since it reorganized the public sector in charge of the management and conservation of the environment and renewable natural resources, and organized the National Environmental System (SINA).

With regard to rural development, in 1994, with the issuance of Law 160, the National System of Agrarian Reform and Rural Peasant Development was created as a mechanism for the planning, execution and evaluation of activities aimed at the development of the peasant economy and the promotion of progressive access to land ownership, a system that is still in force today. Later, in 1996, a new regulation was defined with Decree 1791, which contains the forest harvesting regime and the harvesting of wild flora products and non-timber products.

In environmental matters, it is relevant to consider Decree 2372 of 2010, which regulated the National System of Protected Areas (SINAP) and the management categories that comprise it, determines the permitted uses associated with each category, and defines SINAP as the set of protected areas, social and institutional actors and management strategies and instruments that articulate them, which contribute as a whole to the fulfilment of the general conservation

objectives of the country. This decree restricts and guides land use in the areas belonging to the system.

In terms of risk management in 2012 with the issuance of Law 1523 of 2012, the risk management policy is adopted and the National Disaster Risk Management System is established, where actions are developed with the purpose of contributing to the safety of people and sustainable development, linking recommendations for preparedness and response to emergencies caused by fires.

Regarding the zoning and environmental management of the Forest Reserve Areas of Law 2 of 1959, the Ministry of Environment and Sustainable Development carried out and adopted its zoning, establishing the guidelines for the management of the reserves for the different productive sectors of the country and specifying the permitted activities. Subsequently, in 2015, the single regulatory decree of the environment and sustainable development sector, Decree 1076, was issued, which collects and unifies the environmental regulations including those related to the sustainable management of the country's forests.

In relation to land management, Decree 2363 of 2015 created the National Land Agency (ANT) as the highest authority of the Nation's lands, with the function of executing the policy of social ordering of rural property, promoting its use in compliance with the social function of property, and administering and disposing of rural lands owned by the Nation. Through Decree Law 902 of 2017, measures were established to facilitate the implementation of the comprehensive rural reform in terms of access to and formalization of land, agreements 058 of 2018 and 118 of 2020 define the regulations for the granting of rights of use on vacant land of the Nation located within the forest reserve areas of Law 2 of 1959 and vacant land in areas where processes of exploitation of non-renewable natural resources are advanced.

About governance and inter-institutional coordination required for the control of deforestation and sustainable forest management, Decree 1257 of 2017 created the Intersectoral Commission for the Control of Deforestation and Integrated Management for the Protection of Natural Forests (CICOD), an instance replaced by Law 1955 of 2019 Article 9 which created the National Council to Combat Deforestation and other associated crimes (Conaldef) for the defense of water, biodiversity and the environment. This body is responsible for proposing policies, plans, programs and strategies to combat deforestation, defining and coordinating inter-institutional measures for its control, evaluating progress in the fight against deforestation and other associated environmental crimes, among others.

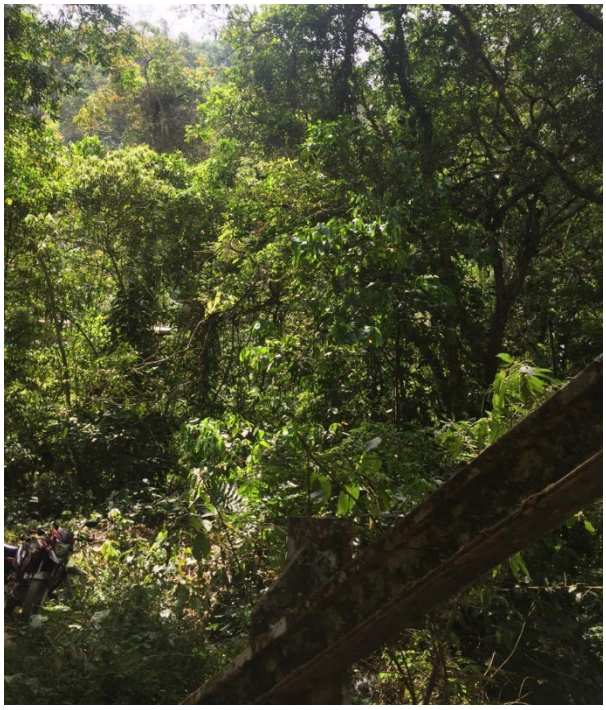
For this same year and based on the National Program for Monitoring and Tracking of Forests and Areas of Forestry Aptitude, the forest resource information instruments were structured and put into operation, through Decree 1655 of 2017, which established the organization and operation of the National Forest Information System (SNIF), the National Forest Inventory (IFN) and the Forest and Carbon Monitoring System (SMByC) that are part of the Environmental Information System for Colombia.

On the other hand, it is important to consider Resolution 261 of 2018, issued by the Ministry of Agriculture and Rural Development, which defines the national agricultural frontier as the

boundary that separates areas where agricultural activities are developed from protected, special management and ecologically important areas. The definition of the national agricultural frontier is a determining factor in the fight against deforestation and the management of forests, because the agricultural frontier is a planning tool that will make it possible to manage the territory in an appropriate manner and facilitate the work of local authorities.

Other relevant norms are: Decree 870 of 201739, regulated by Decree 1007 of 2018, which established the guidelines for the implementation of Payments for Environmental Services (PES) in the country, as part of the strategies to promote the conservation of natural ecosystems and the improvement of the quality of life of communities living in areas of special environmental interest. Also, Decree 1390 of 2018, which regulated the compensatory rate of Article 42 of Law 99 of 1993, related to timber forest harvesting in natural forests located in public and private domain lands.

Also, Resolution number 1479 from 2018 by which the minimum rate of the compensatory fee for timber forest harvesting in natural forests is fixed, Decree 1532 of 2019, which generated new guidelines for the registration of protective and protective producing plantations to promote their establishment and provide alternatives to be included in the productive models in protected areas with forest vocation. Decree 2398 of 2019, which updated the registration and use of crops or plantations for commercial purposes and agroforestry systems, as well as Resolution 213 of 2020, which establishes the single national formats for the registration of forest plantations. And Decree 130 of 2020, which updated the operation of the Forestry Incentive Certificate (CIF).



In addition to the aforementioned norms, there is jurisprudence that has strengthened the protection of ecosystems, and specifically forests, such as the Sentence STC 4360-2018 of 05 April 2018 of the Supreme Court of Justice declaring the Amazon region subject to rights and issuing a series of orders to various State institutions for the formulation of an action plan to control deforestation in this region.

State of Forests, Forest Policy and Legislation – Costa Rica

Authors: Maria Fernanda Corrales Solis, Carlos Alberto Bolaños Cespedes
Translation from Spanish by the authors

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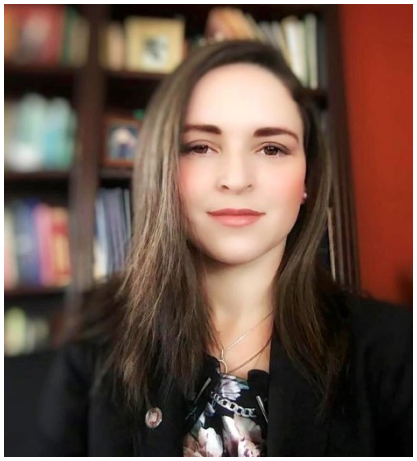

General Information

Costa Rica has a total **population** of 5 million inhabitants.

State territory: 51,450 km2

Extension of forest area: 2,690,000 ha, that corresponds to 52% forest cover.

Number of hectares under categories of forest reserves: 1,342,900 ha.

Number of hectares under conservation, management or sustainable use: 376,167 ha under payment for environmental services.

Number of hectares in rehabilitation or reforestation processes: At the time the annual deforestation rate is by 4%. The reforestation figures are equally within 4%.

Representation of the forest sector in GDP: Reforestations and mature stands and timber merchandizing contribute with 2% to the GDP, published by the Central Bank of Costa Rica.

Emission reduction goal: No information available.

Presence of ethnic communities in areas with forest cover, define types: YES, indigenous communities are living there.

Forest land and forest ownership schemes: private ownership coexists with public forest land, it is called "national patrimony of the state".

The data are from the "Inventario Nacional Forestal de Costa Rica 2014/15, results and Characteristics of the Forest Resources", Sistema de information de recursos forestalls de CR, https://www.sirefor.go.cr/

I. General information about the country. Socio-environmental profile.

Costa Rica is located in the Central America continent, forming part of Central America. It is bordered to the north by Nicaragua, to the south by Panama, to the east by the Caribbean Sea and to the west by the Pacific Ocean. It is in the middle of the tropical zone, 1000 km north from the equator.

It is a relatively small country. Its land area counts 51,450 square km and its territorial waters comprise 589,000 square km.

The land portion corresponds to 5,110,000 hectares, of which 1,342,900 hectares, 26.3%, is under some kind of protected area regime. In this sense, proportionally, the country has the largest protected area in the world.

Its population counts approximately five million inhabitants.

One of the most important characteristics of Costa Rica is its intercontinental and inter-oceanic position, and its mountainous axes which gives it great particularity in terms of a great climatological and ecological diversity. For these reasons it is known as one of the most biodiverse countries on the planet, hosting in a reduced territory approximately 5% of the known biodiversity in the world.

II. State of forests and forest assets. Forest cover, deforestation and reforestation rates.

Costa Rica has an important history in terms of forests. During its pre-Columbian period (before the arrival of Christopher Columbus in 1492) it had 98% of forests. During the colonial period under Spanish tutelage, only 10% was under crops, pastures and other uses. However, during the republican

period, there was a continuous process of loss on forest cover, especially in the 20th century. By the 70s of the 20th century the forest cover showed barely 40%, which partially coincided with its protected areas. Since 1979, due to several factors, a vigorous system of incentives for the promotion of reforestation of the country and protection of existing resources, the most important, the system of Payment for Environmental Services (PES), was promoted; as a result there is a gradual recovery of its forests, reaching the current forest cover of 52.4% of the national territory, becoming the first tropical country in the world to reverse the process of reforestation, since the recovery, since the 80's it was 12 percentage points. Currently the annual deforestation rate is 4% equal to the reforestation rate, so the situation remains stable.

III. Public policies and forestry legislation. Payment for environmental services and prohibition of forest land use change.

Costa Rica has had forestry legislation and policy since the nineteenth century; however, the most important forestry instruments began to be enacted in 1969 with the first Forestry Act. The current forestry law is Number 7575 of 1996. Important features of this legislation are, on the one hand, the establishment of a system of payment for environmental services to owners and possessors of forests, in order to conserve them, reforest them, or develop agroforestry systems. There are more than 376,167 hectares protected under the system of payment for environmental services. The payment to forest owners is financed by a tax on fossil fuels that all Costa Ricans pay when they buy gasoline and is administered by a state institution called FONAFIFO. (National Forestry Financing Fund) and consists of an annual payment in money for five renewable years to carry out the protection or reforestation. It also encourages the planting of trees under agroforestry systems.

In legal terms, there exist private forest ownership, but legally prohibited is for forest owners a changing of land use in order to maintain permanent forest cover. The State Forestry Administration authorizes forest management plans, under studies developed by forestry engineers, which must take into account the preservation of the resource. The private forest property coexists with the public forest property, called natural patrimony of the State, where the use of permits for scientific development, research, ecotourism and water extraction can only be authorized by authorized entities.

It is important to point out that indigenous populations and territories safeguard 16% of the country's broadleaved or humid forests. They are responsible for 14.8% of the wetlands and 5.5% of the

mangroves. The indigenous territories are autonomous and owned by the indigenous peoples and the use of resources in their territories must be authorized by these groups and territories.

IV. Main challenges and threats in the protection and sustainable use of forests.

From the climatological point of view, one of the greatest threats is climate change, which affects biodiversity and generates an increase in forest fires and desertification. Central America is one of the world most affected regions by climate change.

From the scientific point of view, Costa Rican forests suffer problems due to fragmentation, socially due to the pressure for resources from a growing population and from the economic point of view due to the use of substitutes for wood that makes forestry activity economically unprofitable.

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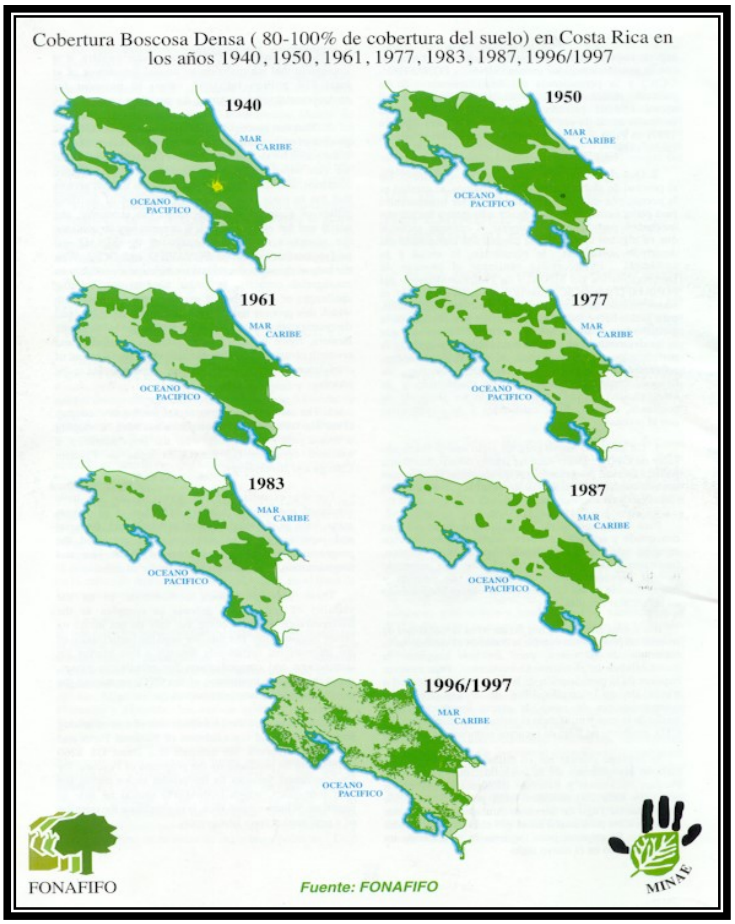

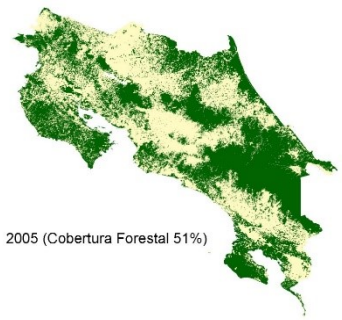

Economics and Environmental Forestry Legislation in Latin American Countries - Cuba

Author: Daimar Canovas Gonzalez
Translation from Spanish by Agustín Rosello H.

Foto Daimar Cánovas González

GENERAL INFORMATION	
Country name	Republic of Cuba
Total Population	As of December 31, 2019, the total population of the Cuban archipelago was 11,193,470 inhabitants, with a density of 101.9 inhabitants/km2.[1]
Extension in hectares	The total area of Cuba is 109,884.01 km2, consisting of the mainland (106,757.60 km2), and sand islands of (3,126.41 km2) in the adjacent keys,[2] . This results to an extension of 10,675,760 ha.
Number of hectares in forest cover	The forest area of the country amounts to 3,286,900 ha., which is equivalent to 31.7% of the total land area.[3] (2019)
Number of hectares under forest reserve categories (includes protected area categories)	The protected areas of national and local significance amount by now to 119. This makes a total of 30,071,300 ha., representing a 16.7% of the national territory. These protected areas concentrate forests for conservation purposes, established through the Forestry Law, Law 85/1998.
Number of hectares under conservation regime, forest management or sustainable use systems	83.6% of the forest area is made up of natural forests (2,746,900 ha.)
Number of hectares in processes of rehabilitation or reforestation	Forest development activities (understood as forest plantations, plus the area managed with natural regeneration) sum up to 23,832,400 ha.
Representativeness of the forest sector in GDP or contribution in 2020	The information offered jointly values agriculture, livestock and forestry, which in 2019 represented 3.2% of GDP.[4]
Annual rate of deforestation	The total area deforested in 2019 reached 211,900 ha., with a decrease of 0.6% compared to the previous year.[5]
Emission reduction target	The contribution target is to increase the area covered with forests by 165 thousand hectares in the period 2019 - 2030, reaching a coverage of 33% in the country, from 3,269,400 ha. to 3,434,400 ha.

1 National Office of Statistics and Information (ONEI), Panorama ambiental Cuba 2019, Centro de Gestión de la Información Económica, Ambiental y Social de la ONEI, Havana, 2020, p. 4.
2 Ibid.
3 Ibid., p. 23.
4 National Office of Statistics and Information (ONEI), Quarterly Gross Domestic Product. Series 2010-2019, ONEI, Havana, 2020, p. 11.
5 National Office of Statistics and Information (ONEI), Panorama ambiental Cuba 2019, Centro de Gestión de la Información Económica, Ambiental y Social de la ONEI, Havana, 2020, p. 22.

Presence of ethnic communities in areas with forest cover YES ( ) NO ( ) Specify type of communities: Afro-descendants, indigenous, rom, raizales, etc.	There are no ethnic communities inside the forest areas, like in the rest of the country. There are only local and peasant communities.
Forest land and forest ownership scheme	According to 2015 data, the entire forest area is considered as public property, although administration is shared between the Public Administration (80.2%), individuals (6.3%) and commercial entities (3.5%).[6]

Any analysis of the Cuban forestry sector must start from the forestry problem in the country. An example of this is the National Environmental Strategy 2011-2015, which includes a diagnosis of the main environmental problems of the country, among those are the effects on forest cover. Although in the country an increase in forest cover is manifested annually, as in 2019 it closed with a forest index of 31.7%, while 33% is projected for 2030, but there are different causes that cause effects to forests.

Among the problems identified are the structure and composition of species in natural forests, which is currently inadequate, as a result of the management and exploitation to which they have been subjected; there is limited compliance with key indicators in the progress of reforestation processes, and a "... inadequate management of certain species that were and are being used in reforestation, on sites or environments that are not adequate." What must be added to this are forest and rural fires and the uncontrolled extraction of resources from forests. The causes are of multifactorial origin and are associated, in 95.3% with human actions.

Since 1959, reforestation programs have been implemented: initially from a Reforestation Program and then as part of other national programs, plans and strategies, which also include actions not only for reforestation, but others aimed at sustainable management and the protection of forests. These instruments include the Forestry Program 2005-2015, the new National Environmental Strategy approved for the period 2016 – 2020; the National Plan for Biological Diversity and the National Programme for the Reforestation of Watersheds of National Interest. Similarly, more recently, the Social Economic Development Plan until 2030 and the State Plan for confronting Climate Change "Tarea Vida" were adopted, which do not lose sight of how strategic the forestry sector is for the country.

In the legislative order, it should be noted that in 1992 Decree-Law 136 was approved, regulations on forest, the Forestry Law, law 85 from 1998, was approved and a year later the

6 Organization of the Food and Agriculture United Nations (FAO), Assessment of Global Forest Resources – Cuba Report, FAO, Rome, 2020, pp.

Regulations of the Law were adopted, through Resolution No. 330/1999 of the Minister of Agriculture and Decree 268 "Contraventions of Forestry Regulations", adopted by the Executive Committee of the Council of Ministers, which were followed by other complementary rules, such as those regulated by the National Forest Development Fund (FONADEF). From the environmentalist conceptions arose Law 85, Forestry Law, of July 21, 1998, since its article 45 recognizes to every person the right "... the enjoyment of the forest and the duty to contribute to its care and conservation". This right is clearly located in parallel to the right to a healthy environment, and constitutes as a concretion of it, so it is possible to recognize in the head of any person, whether or not he is an inhabitant of the forest, a "right to the forest". Of course, this right on the forest does not imply that its content places powers that allow any form of forest use.

The right to forest was the driving force behind the implementation of national plans and programmes, as well as the implementation of legislation, which has enabled a sustained increase in the country's forest area. It is significant to note that at the end of the eighties of the twentieth century and until 2010, reforestation in the country acquired a massive popular character, leading to a great boost to planting activity. The fundamental action was concentrated on the planting of trees, lacking henceforth in a non-negligible percent of the areas the lacking attention and follow-up to what was planted; this generated low levels of survival and therefore loss of already planted areas, although in a general sense in the country the results in reforestation have been positive.

As of 2011, a process of updating the Cuban economic model begins, which has not yet concluded, and which even led to the promulgation of a new Constitution in 2019. It is a hope that the new public policies approved or in the process of being developed will cause modifications to environmental and forestry legislation, for the achievement of the full exercise of the right to a healthy environment, and the right on the forest, through the sustainable use of its resources.

Sierra del Rosario (Foto Gustavo Blanco V.)

Economy and Environmental Forestry Legislation in Latin American Countries – Dominican Republic

Author:
Marisol M. Castillo Collado
Translation from Spanish by Agustín Rosello H.

GENERAL INFORMATION	
Country name	Dominican Republic
Total Population	10.3 million inhabitants. Previously, FAO considered it at 2,507 m3/inhabitant/year of water for a population of 8.37 million.[1]
Extension in Km2	48 .448[2]
Number of hectares in forest cover	The forest area of the Dominican Republic represents 37.65% of the country's territory, with an area of 1,814,503 hectares, according to the 2021 National Forest Inventory[3]report. Terrestrial data from 2015 states that the Dominican Republic's forests covered 46% of the country's territory (2.1 million hectares). Most of these forests (1.6 million hectares), are secondary or degraded forests, and only a quarter of the forested area (500,000 hectares) classify as primary or mature forest.[4]
Number of hectares under forest reserve categories (includes protected area categories)	The Dominican Republic has a National Land Protection System that accounts for a total of 1,203,312 million hectares, which represents 25% of the national territory.
Number of hectares under conservation regime, forest management or sustainable use systems (specify if there are hectares under a certification scheme)	Forest area under logging permit 2011, 6.7 thousand ha [5] Area with Forest Management Plan 2000-2016, 69.6 thousand ha[6] Volume with logging permit 2011-2016, 147.0 thousand m3 (4)[7] Number of trees planted by PNQV 2011-2016, 62.7 million plants[8] Annual average of directly created jobs according to PNQV Plan 2011-2016, 4,588 jobs/year [9] Annual average cost of the PNQV 2011-2016, 6.5 million USD/year [10]
Number of hectares in processes of	67.9 thousand hectares of reforested area. 62.7 million trees planted [11]

1 Review of World Water Resources by Country. FAO. 2003. Water Reports 23
2 https://es.wikipedia.org/wiki/Rep%C3%BAblica_Dominicana
3 Map of forest cover of the Dominican Republic. Ministry of Environment and Natural Resources. Unpublished.
4 Forest Note: Opportunities for Employment, Tourism and Energy, World Bank. November 28, 2020.
5 Ministry of Environment and Natural Resources, Vice-Ministry of Forest Resources
6 Ditto 5
7 Ditto 5
8 Ministry of Environment and Natural Resources, Quisqueya Verde National Plan Office (PNQV)
9 Ditto 8
10 Ditto 8
11 Ministry of Environment, Quisqueya Verde National Plan Office, Reforestation Program.

rehabilitation or reforestation	
Representativeness of the forest sector in GDP or contribution in 2020	Agriculture, forestry and fisheries together represent a total of 6% of the country's GDP
Average annual deforestation rate as of 2018	227,000 hectares of forests were lost between 2005 and 2015 (188,000 hectares of secondary forests and 39,000 hectares of primary forests, this represents a gross annual deforestation rate of 1.24% Changes in land use and land cover in the period 2005 to 2015 accounted 1000 hectares.[12]
Emission reduction target	The Dominican Republic has designed a program to reduce emissions caused by deforestation and forest degradation, this REDD+ system seeks to reduce 5 million tCO_2 from 2020 to 2025.
Presence of ethnic communities in areas with forest cover IF ( ) NO (x)	NO

According to the National Fire Management Strategy, forest fires in the Dominican Republic are one of the scourges to which the country is exposed every year, since they consume hundreds of hectares of forests.

The extent and effects of the fires require an integrated effort not only from the Ministry of the Environment but from other public institutions, municipal authorities, non-governmental organizations, the private sector and civil society, in order to coordinate inter-institutional processes to strengthen actions for the management of the country's fire.

As for Forest Carbon, although there is no legal framework that expressly regulates this type of legal good and, specifically, we cannot associate the right of ownership of land with that of carbon ownership, we have legal instruments that recognize the services provided by ecosystems through natural resources as property of the state, of the collectivity or of "public domain". Existing laws and regulations are basic elements or starting points for the incorporation of REDD mechanisms or other similar figures that allow the reduction of emissions from deforestation and degradation.

In this regard, progress has been made in the preparation for the Program to Reduce Emissions from Deforestation and Forest Degradation of the Dominican Republic (REDD+ Strategy), which is in the process of being formulated and will be implemented at the national level.

12 Based on Obando, 2018 cited by MIMARENA & FCPF (2019) Sud-Austral & CRESER (2019).

According to the World Bank, the contribution of the forest sector to the national economy is relatively limited, but there is high potential for forest ecosystems to produce sustainably forest goods and ecosystem services that can contribute to reducing poverty, reducing climate vulnerability, and increasing national well-being, especially if potential synergies are taken into account between dynamic tourism and associated services sectors

Some weaknesses in the forestry field are found in the negative perception of forest producers about the operability and applicability of forest policies, uncontrolled illegal activities, such as the slash and burn of forests and the smuggling of coal, with a significant demand from Haiti that has generated an informal trade causing the degradation of forests in the provinces near the binational border; excessive financial control versus incentives, tendency to excessive preservation, which has caused a negative perception against harvest felling for use and inconsistency in the application of forest policy depending on the authorities on site.

The expansion of agricultural land and illegal cutting activities based on deforestation and forest degradation have produced aspects of negative impact in the economic sphere, some of them due to the lack of a policy of dissemination and promotion in terms of the benefits produced by the forest and the goods and services generated by those, the issue of property rights and land tenure, poverty and unemployment play an important role in the institutional part, where a correct strategy is important to safeguard these aspects through existing regulations.

Among the strengths of the Dominican forestry sector we have the organization of the sector dispersed in a single governing body; the right-to-cut policy, the establishment of a seed bank, high forestry aptitude in the soils of the country, for plantations, the favorable climate for the growth of precious timber species, diversity of ecosystems, availability of forestry technicians, start of small scale works of genetic improvement and sources of germplasm, as well as the rules and regulations approved and in use.

The Dominican legal system took a fundamental turn with the reform of the Constitution proclaimed in 2015. This substantive legal transformation brought with it an extensive series of innovations in the legal system of the Dominican Republic, establishing aspects that have not existed until now, in particular establishing reforestation, conservation and forest regeneration as a national priority.

In 2012, Law 1-12, National Development Strategy, provides as one of its objectives the need to manage forest resources and the promotion of reforestation, the strengthening of forest products and their appropriate dissemination among producers.

On December 11, 2018, the Dominican Republic's forestry sector law No. 57-18 was enacted, to regulate and release the sustainable management of forests, as well as the protection of forest ecosystems, maintain their biodiversity, their regeneration capacity, promoting conservation, and allowing the use, production, industrialization and commercialization of forest products.

Currently, the regulations of the sectorial forestry law are in the Legal Consultancy of the Executive Branch for analysis and issuance purposes.

We count on the Law No.44-18, on Payments for Environmental Services. This legal instrument makes it possible to execute and implement the financial and administrative mechanisms for compensation in which forests play a preponderant role.

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Ecuador: Relevant Aspects of the National Forestry Sector

Authors: Ma. Cristina Puente, Walter Palacios
Translation from Spanish by the authors

GENERAL INFORMATION	
Country name	**Ecuador**
Total population	17,643,060
Country area (hectares)	25,637,000 ha
Forest area (hectares)	12,631,198 ha of natural forest 123,720 ha of plantations; 2,361,488 ha shrubs and herbaceous vegetation (MAE 2018)
Surface as forests reserves (This includes protected areas) Hectares	Protected forests: 1,328,657 (54.54%) "Socio Bosque" Program 1 600 000 ha
Area of Conservation programs and sustainable management **Hectares within systems of conservation management and sustainable use**	2413 management programs: total of 53,000 ha. 57,466 ha certified: 17 chain of custody certificates, 2 controlled timber certificates and 4 Forest management certificates.
Area in process of rehabilitation or reforestation	25,054 ha in natural reforestation
Forestry sector a part of the NGP	2019: more than US$ 600,000,000 (3.2% of the NGP)
Annual deforestation rate	2014-2016 (2017 MAAE): Gross deforestation: 94,353ha. Net: 61,112ha. Natural recovery: 33,241ha 2016-2018: (2020 Sierra et al): Gross deforestation: 79,362ha. Net: 55,308ha. Natural recovery: 24,054ha
Emission reduction goals	9% in energy, agriculture, industry and waste sectors. 4% more in land use change and silviculture
Are there ethnic communities in forested areas? **(yes) or (no)**	Specific data by each ethnic community is not available, but there are Indian communities, Afro-Americans and "high mountain tribes" presence.
Property rights over forested land	Some 6,000,000 ha of forests are in territories of indigenous (47 % of the nation´s forests) (64% of those are in the Amazonian region (Bertzhy *et al.,* 2011). The majority of these lands are collective property. There is no information on the extension of private lands.

Ecuador is considered as one of the most biodiverse countries in the world. It extends in the eastern south pacific. It shares borders with Colombia and Peru. In economic terms the forestry sector produced US $2.931 million in the year 2018. This meant a 2.72 % of the National Gross Product. A good part of this income comes from the balsa wood exportation (https://criteriosdigital.com. Access: 12.2.2021) the national investment plan prioritizes the forestry sector. It considers that forestry is one of the areas with greater potential of growth and development for the country. If all the environmental goods and services are considered the forests provide another more 600 million USD a year. This means that the value generated by the forests were 3.2 % of the GNP in 2019. (https://ecuadorforestal.org. Access: 12.2.2021).

Ecuador´s constitution establishes it as an "estado constitucional de derechos y justicia" (Constitutional state of rights and justice). This implies a strong state obligation to guarantee and safeguard the individual, collective and nature´s rights. Ecuador is a pioneering country in the recognition of nature´s rights, which include the respect of its evolutive cycles and ecological processes. This responsibility means that rights such as previous consultation is of the outmost importance when interventions on indigenous, afro-descendants and "montubios" "high mountain tribes" lands are considered, and these represent 47 % of the forests of the country. In these lands, their traditions, customs and culture have to be respected.

The legal instrument that regulates forestry activities in Ecuador is the "Código Orgánico del Ambiente" (Environmental organic code) (2017) and its by-law (Reglamento (2019). These instruments continue the perspective of the former "Ley Forestal y de Conservación de Áreas Naturales y Vida Silvestre" the Law on Forestry protected areas and wildlife conservation). It establishes a forestry institutionalism and it is oriented to guarantee the multiple functionality of the natural forests. This is an ecosystemic approach that promotes the conservation management, sustainable use and promotion of the National Forest heritage (Código Orgánico del Ambiente, artículo 88), The conservation of this natural heritage is established as the national priority of public interest.

Ecuador´s natural heritage includes natural forests, land with forestry aptitude, including those that are part of the state's property, non-arboreal vegetation that may or may not be linked to forests: (mangroves, "paramos" - high altitudes grasslands- palm forests among others) protective forests forest with human intervention and secondary forests, ecological restoration lands. As a complementary form for conservation measures, is additional to the conservation measures, to enhance promotion and support of forest plantations, agroforestry productive systems, trees outside the forest, secondary forests, in agriculture lands that voluntarily are destined to forest production or ecological easements.

From its base as the constitutional model for forestry systems it implies it´s relation with a land planning model. The forestry regulations shall be included in the land planning and land use at the national and local level. The property rights within the forestry heritage are

conditioned to the compliance of the land use regulations and the sustainable use and marketing of the products. This includes the fulfillment of ecological easements.

The "Código Orgánico del Ambiente" states some basic precepts that include the integrity of the National territory and the obligation to protect it. This includes legal and administrative protection of its integrity if any illegal act happens in the forest areas, incentives and support for the conservation and increment of forest heritage, sustainable management as an instrument to guarantee the rational use of resources. It includes the formalization of the facto property, in a vision of just access and distribution of land rights. It also states that when technically socially and economically possible the priority should be given to natural forest recovery in the efforts of ecological restoration

The change of forest cover to other productive uses is forbidden within the forest heritage. The environmental authority has the power to order the suspension of actions that may diminish the forest heritage. The lands in which a natural forest is maintained cannot be intervened by the state in process of an agrarian reform (the exception is the expropriation process).

The institutional architecture differentiates the competences of the agricultural authority in relation to the regulation, planning, support, promotion and incentives to market oriented forest plantations and agroforestry productive systems. This is combined and coordinated with the environment authority functions, in zoning, forestry plans approval, development of plans and projects, registration, inventories and monitoring plantations towards harvesting authorizations, technical norms for the management of fire hazards, and general orientations related to the value chain.

A national forestry register has been created for the registration of natural persons, societies, properties, contracts and other actions concerning the forestry. The productive plantations specific register allows the evaluation of their future values drawn to present market values.

The sustainable management of forest is done through certain administrative authorizations and or agreements for the conservation or sustainable management of forests whose property belongs to the state. Operative plans are needed for each of the different activities to be done

in the forest. A forest regulation fee has been established and is linked to the administrative control of the fulfillment of the legal framework. This fee may be returned if a correct sustainable management could be proved.

Lastly it should be mentioned that there is a recognition of voluntary certification procedures, the overseeing and control of forest activities by the national authority. A multi-institutional regulation of processing and marketing of forest products. The prohibition of exportation of logs or trunks of lumber coming from natural forests - with the exception of wood exported for research purposes -, the support of forestry through technical assistance and the consideration of the value of the tree coverage independent of the site and property where it come from.

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Guatemala: An Approach to its Current Forest Situation and Land Tenure

Author: Alexander Sandoval Portillo, Guatemala
Translation from Spanish by the author

Volcanic landscape (Alexander Sandoval)

GENERAL INFORMATION

GUATEMALA has a **total population** of 16,347 million inhabitants.

State territory: 108,889 km² or 10,889,000 ha.

Extension of forest area: approximately 4,358,000 ha.

Hectares under categories of forest reserves (includes categories of protected areas): 52.7% of the total forest area is under the Guatemalan System of Protected Areas.

Hectares under conservation, management or sustainable use schemes, or certification regimes: Guatemala counts on a forest inventory and sustainable management which requests the communities to develop and establish agreements with timber industry to apply sustainable harvest operations.

Hectares in rehabilitation or reforestation processes: On national level 224,827 forest plants were brought into the field in 2020, which corresponds to a reforestation of 335.31 ha.

Reasons for deforestation: Agriculture and cattle breeding, road constructions, mining, oil-production, wild-fires, palm oil plantations, illegal and illegal clearing.

Representativeness of forest sector in GDP: 2.56%

Annual deforestation rate: The most affected departments in 2020 were Guatemala, Petén, Quiché, Jalapa, Huehuetenango. The loss was around 8000 ha.

Emission reduction goal: A reforestation of 721.006 ha is included in the implementation plan for CO_2 reduction.

Presence of ethnic communities in areas with forest coverage, define types: Yes, communities of indigenous and peasants. There are various groups. Inside the 14.9 million habitants of Guatemala are 6.5 million indigenous people of Maya, Xinca, Garifuna, also creoles and afro-descendants.

Forest land and forest ownership scheme: Principally the public. Issues of private property, access, admission and protection of the land are very critical. There exists no specific law that regulates tenancy.

Guatemala and its Forestry

Quauhtemallan, “Land of trees” from the náhuatl-to-spanish translation. After the arrival of the Spaniards in 1524, they began to call Guatemala the tropical and forest-agricultural country, nestled in the middle of the American continent and home of the Mayan Civilization. The territory is drenched by the Pacific and Atlantic oceans; it is also considered a mega-diverse nation and a country vulnerable to the effects of climate change. In the last 3 decades Guatemala has been strongly affected by tropical storms; the country is crossed by three tectonic plates and is subjected to constant volcanic eruptions and seismic action. A comprehensive risk-reduction management system of natural or provoked disasters is still under construction, although it complies the Hyogo and Sendai frameworks, the latter fostering resilience and governance in its thematic; but yet the most affected population lives in poverty or extreme poverty conditions, and the awareness about that is scarce.

The territorial area of Guatemala is 108,889 km², not including its maritime and insular space, and its territorial dispute with Belize.

Its political administration comprehends 22 departments, 340 municipalities, and more than 35,000 communities and/or villages, hamlets, neighborhoods or cantons. Its population is composed of 4 ethnical groups; Maya, Garífuna, Xinca and Mestizo or Ladina, even though since 2016 the creole or Afro-Descendant people is included; besides that, 26 languages are recognized, being 22 of them of Mayan origin. All this defines Guatemala as a multi-cultural, multi-ethnical and multilingual country.

According to the 2018 National Census, Guatemala has a population of 14.9 million inhabitants, of which 6.5 million identify themselves as indigenous of the Maya, Xinca, Garífuna and Creole or Afro-Descendant.

In Guatemala the customary rights are recognized, and the constitutional recognition of a multi-national state has been under debate; according to that right, the existence and role of more than 40 indigenous City Halls located in 9 municipalities is recognized constitutionally and backed by the Municipal Code and Convention 169 of the OIT (International Labor Organization), the officers of these City Halls are not elected by universal suffrage, but by deliberative decisions that seek agreement through dialogue, negotiations or consult; the customary rights that they observe are defined by popular decision, and among the solutions there are topics regarding land, water and forest management.

In the last two decades the indigenous population has been affected by under- ground mining, hydroelectric generation and lumbering mega-projects; outcomes from popular consultations have not been taken into account and there are ambiguities in the resolutions issued by the Constitutional Court; however, the end of the mining industry in Guatemala is expected by year 2022. The problem has turned strongly political, perhaps due to the way of conceiving and adapting the concept of Sustainable Development and actions related to corruption and direct impact on most of the indigenous populations. This situation has originated social conflicts during which invasion and human settlement in private lands have happened, including Human Rights violations, according to Guatemala´s Human Rights Ombudsman´s opinion. The indigenous people claim the ancestral right to the land, given the Spaniard colonization practices and land deprivations that have happened along the country´s history.

Topics like private property, access to land and land protection are critical, since there is not a law regarding the right to land tenure. Guatemala recognizes Communal Lands, however they are owned, possessed or tenured by indigenous or peasant communities as collective entities, with or without legal status; there are lands registered by the Government or the local City Hall, but actually they are managed under the Communal Right framework. In 2019 Guatemala´s Human Rights Ombudsman informed the United Nation´s Committee for Racial Discrimination Elimination that no advance has been made on adopting a law regarding de right to land by the indigenous populations, neither the constitutional mandate about respecting and ensuring the customary and traditional possession of ancestral indigenous lands is enforced. Trans-national problems, like illegal drug traffic or human migration can be added to this set of socioeconomic, political, cultural and environmental problems, among which Guatemala has become an origin,

destiny, come-back and transit country, due to its geographical proximity to the United States of America.

Regarding the forest situation and protection, Guatemala has an appropriate politic and a legislation, however the enforcement has been problematic, regardless of the advantage given by the private sector, that has performed a good governance through an active participation, which could be explained because of the significant amount of forest lands owned by it, or by the fiscal forest-related incentives that the Government gives to such sector. The institutions in charge of forest affairs in Guatemala are: Instituto Nacional de Bosques - INAB (National Forest Institute) an autonomous entity that was established in 1996 by decree No. 101-96, issued by the Congress of the Republic of Guatemala; the INAB has the mandate of reforesting and conserving the forests; additionally, INAB promotes forest development and contributes to the comprehensive rural development through forest sustainable management and restoration.

Natural forest in Petén (Heinrich Schmutzenhofer)

Other institutions also take part, like the Ministerio de Ambiente y Recursos Naturales - MARN (Natural Resources and Environment Ministry), the Ministerio de Agricultura, Ganadería y Alimentación - MAGA (Ministry of Agriculture, Livestock and Feeding) and the Consejo Nacional de Áreas Protegidas (CONAP) (National Council of Protected Areas), that was established in 1989 by decree No. 4-89 of the Congress of the Republic of Guatemala. The CONAP in charge of the Sistema Nacional de Áreas Protegidas (SIGAP) (National System of Protected Areas).

Guatemala has forest investment and emission reduction programs, both embedded in the REDD+ process. Also included in the REDD+ process is GuateCarbon project, under CONAP, that pretends to include 721,006 ha hectares of its land to implement CO2 reduction actions; half a million hectares of such land will be granted to well-known

community members of the Biósfera Maya (Mayan Biosphere), considered the biggest protected area of Central America.

Guatemala also has a stock of forest and sustainable lands oriented towards the development of sustainable lumbering ventures. It also issues forest exploitation permissions through the Sistema Electrónico de Gestión Forestal – SEGEFOR (Electronic Forest Management System), aimed to expedite requests presented to INAB.

There is also a national forest registry, the Registro Nacional Forestal and a program of forest incentives (Programa de Incentivos Forestales – PINPEP), dedicated to support small owners of forest-oriented or agricultural-oriented portions of land. INAB also promotes Guatemala´s forest-based products market.

After talking about institutionalism, it is necessary to mention the problems that Guatemalan forests are facing, being deforestation the major one. Deforestation is a problem affecting human beings, flora, and fauna; it can occur in a natural or provoked way and can happen anywhere around the world.

Year after year, during the dry season, the country suffers wildfires; besides that, the mining activity, immoderate logging, and oil palm planting have occasioned loss of biodiversity, mainly of forests. Regarding African palm oil production, it is said that Guatemala is becoming the second bigger producer in Latin America. Additionally, according to PRISMA Foundation, the structural causes of deforestation in Guatemala are: population growing, forest culture (lack of), education, poverty and land tenure and distribution. The referred Foundation also signals land use, shifts of land use and forestry as human activities that generate greenhouse gases. Additionally, PRISMA tags as problems the following: climate change, energy consumption, agriculture, land use, industry, transportation, and livestock.

According to FAO, “in Guatemala there are 34 forest ecosystems, 7 shrub ecosystems, 4 pasture ecosystems, 15 agricultural ecosystems, 3 kinds of water bodies and 4 kinds of other uses of the land.”. In the same way, (Jocol, 2020) points out that “the Guatemalan Forest Coverage System (Sistema de Cobertura Forestal de Guatemala - SIFGUA) reveals that the country has a 3,574,244 hectares extension of forests, equivalent to a 33% of its territory. FAO also signs that “of the total forest extension, a 52.7% is located within the Guatemalan Protected Areas System (Sistema Guatemalteco de Áreas Protegidas).

FAO also indicates that, according to SIFGUA, “the departments with the largest forest extension are Petén (where the Mayan Biosphere Reserve is located), with 1.6 million hectares, followed by Alta Verapaz, Izabal and Huehuetenango”. FAO also points out that “Nowadays, the National Forest Institute - INAB is working on the actualization of the Guatemala´s Forest Map (Mapa Forestal de Guatemala) through its Planning Division. FAO mentions that “During year 2020, 224,827 trees have been planted nationwide, which contributes to a total of 395.31 hectares reforested throughout the country.” FAO also mentions that, regarding deforestation, “the departments that have been more affected are Guatemala, Petén, Quiché, Jalapa and Huehuetenango, that lost some 8,000 hectares of vegetation”.

Deforestation affects Guatemala to such degree that CONAP realizes reforestation activities; for instance (Santizo, 2020) says that CONAP informed that during year 2020

some 300,000 hectares would be reforested. However, that fact has not been verified, since that information is up to January 2020, while from March 2020 many activities were cancelled due to the presidential directives in response to the Covid-19 pandemic. But following what Santizo says: "these plantations are made using native trees from each area, which will benefit the hydric replenish zones". Additionally, Santizo mentions that "reforestation is made also with the objective of educate, inform and raise awareness among habitants, local and regional stakeholders about proper forest management, as well as about deforestation reduction and recuperation of degraded areas".

Besides that, and worth considering, (Gálvez, López & Sandoval, 2012, page 102) point out that "Guatemala´s Forest Coverage Map, published in year 2012, estimated the forest coverage up to year 2010 in 3,722,595 hectares, equivalent to a 34.2% of the total national territory". These authors also point out that "The coverage for year 2006 was 3,866,383 hectares, a 35.5% of the total national territory" and that "This represents a net annual loss of 38,597 hectares, equivalent to an annual deforestation rate of 1.0% for period 2006-2010"; besides that, they indicate that this "corresponds to the difference between the gross annual loss of natural forests (132,138 hectares per year) and the gain produced by plantations and natural regeneration (93,541 hectares per year) (INAB, CONAP, UVG y URL, 2012)".

(Barrera, 2019), referring to forest coverage in Guatemala and quoting the facts issued by the Remote Perception and Geographical Information System Laboratory (Laboratorio del Sistema de Información Geográfica y Percepción Remota –SIG) "The Forest Coverage Map showed some important numbers for period 2010-2016" being them: 1) 680,556 hectares of forest lost over 5.5 years 2) The national forest coverage estimated for year 2016 is more than 3,5 million hectares, and 3) The general forest loss for period 2010-2016 in Guatemala is 0.5% per year; among other figures. However, we must add the fact that during the same period 579,925 ha hectares of forest were recuperated and are regarded as revived forest, while the net loss was 101,542 hectares.

Additionally, SIG indicates that 1,6 million hectares are in Petén, representing 15.1% of the national total and being the department with the largest forest extension. Besides that, SIG points out that 51% of the national forest coverage is included in the Guatemalan Protected Areas System (Sistema Guatemalteco de Áreas Protegidas – SIGAP). Regarding protected areas and their management, SIGAP records 349 protected areas, conforming 3,471,534.49 hectares, or terrestrial total. The percentage of the terrestrial surface of the country within the SIGAP is 30.94%.

We must state that Petén is the department of the country with the largest area and number of natural resources but does not have a large population and is divided in 14 municipalities. Regarding the indigenous and non-indigenous populations that benefit from the goods and services produced by Petén´s forest, according to INAB, 18,805 people benefit from them; 7,737 of them are indigenous. This could mean that the changes that have been taking place are beneficial regarding awareness raising and participation of the indigenous communities; but it is still to be determined if those indigenous people are being assisted in their native language.

It can be said, then, that the status of Guatemalan forests, according to INAB, based on the Forest Coverage Map published in 2016, is estimated in 3,574,244 hectares, equivalent to 33.02% of the total territory. Deforestation on a national basis is -0.5% and

for Petén, for example, is 15.09% of its total forest coverage, with a deforestation rate of -1.52% for year 2016. These given numbers could mean that INAB does not have updated numbers as of year 2021.

The preceding is a general overview from which some concerns can arise about the current situation in Guatemala regarding forest protection, the reality of the forests and the academic search for solutions not only aimed at mitigation, prevention, protection, and adaptation to climate change, but also giving legal certainty, increasing the number of forest experts and implementation of wildfire-fighting crews. Legal certainty and communication towards a good management and forest governance are fundamental to avoid *deforestation.*

Pit sawing in pine forest (Heinrich Schmutzenhofer)

Economy and Forestry Legislation in Panama - Experiences of Cerro Ancón

Author:
Ericka Edith Estrada Saavedra
Translation from Spanish by Agustín Rosello H.

View from Cerro Ancón. Photo: Ministerio de Ambiente Panamá

GENERAL INFORMATION	
Country name	Panamá
Total Population	4,278,500[1]
Extension in hectares	7,551,700 ha[2]
hectares in forest cover	4,925,789.72 ha[3]
Hectares under forest reserve categories (includes protected area categories)	2,078,111 ha within forest reserve categories and protected areas.[4]
Hectares under conservation regimes, forest management or sustainable use systems (specify if there are hectares under a certification scheme)	The Forest Stewardship Council (FSC) certifier reports a total of 31,159 hectares certified under 9 certificates as of February 2021 (FSC, 2021).[5]
Annual rate of deforestation	-56,369.49 hectares between 2012 and 2019, giving an annual deforestation rate of 8,052 hectares peryear. [6]
Emission reduction target	For the Land Use and Land Use Change and Forestry (LULUCF) sector, Panama commits to the restoration of 50,000 hectares nationally, which will contribute to the absorption of approximately 2.6 million tons of CO2eq by 2050.[7]
Presence of ethnic communities in areas with forest cover **YES (X)** **Specify type of communities:**	• Guna Yala County • Madugandí Region • County Wargandin • Emberá Region • Wounaan County • Comarca Gnobe-Bugle

1 *INEC, 2020*
2Ditto 1
3 *MiAMBIENTE, 2019*
4 Ditto 3
5 Forest Stewardship Council, 2021
6 Ditto 3
7 *Government of the Republic of Panama. 2020*

Afro-descendants, indigenous, raizales, etc.	● Collective Lands ● Afro-descendant communities.[8]
Forest land and forest ownership structure	Law No. 1 of 3 February 1994, "Establishing Forestry Legislation in the Republic of Panama and enacting other provisions", is the main legal framework for the protection, conservation, improvement, enhancement, education, management and rational use of the country's forest resources. This law regulates the use and harvesting of forest resources on state-owned and privately-owned land (Articles 23, 24, 26, 42).

Source: Ministry of Environment of Panama

Cerro Ancon is the highest point of Panama City, Capital District of the Republic of Panama. It rises imposingly at 199 metres above sea level, bearing the Panamanian flag on its summit. In a walking tour of approximately 30 minutes, visitors can enjoy the tropical forest and its extraordinary biodiversity. [9]As it is located in the middle of the urban area, it offers a beautiful view of the city, the bay and the Panama Canal from its height. Cerro Ancon was declared a protected area by Municipal Agreement No. 157, of July 31, 2001, and[10] is also "Patrimony of the Panamanian Nationality", declared as such by Executive Decree No. 104, of October 22, 2003.[11]

The hill itself tells the story of the forest's survival. Its northwest side still shows the erosion caused by its excessive exploitation, when it was used as a quarry during the construction of the Panama Canal. [12] Quarry Heights is a residential area located at the top of the hill. [13] It is home to some 20 houses and the Security Council. The neighbourhood association of the area, [14] is highly active and participatory. Each member has become a permanent observer, with view to the care and conservation of the forest. However, over the years there have been cases that threaten to destroy this forest.

In the following lines we will summarize certain events that occurred in Cerro Ancón. We will refer to land ownership, concessions, Panamanian forestry legislation, institutional

8 *MiAMBIENTE, 2017. Map of use and coverage 2012*
9 By its geographical position and as result of its geological history, Panama has species of flora and fauna unique in the world.
10 Official Gazette No 25777 of 24 April 2007.
11 Official Gazette No. 24,920 of 30 October 2003.
12 While under the jurisdiction of the United States of America, as part of the Panama Canal Zone, between 1907 and 1913, the hill was used to extract rock, which was used in the construction of the Miraflores locks. They used dynamite for extraction, thus altering the natural ecosystem.
13 Of course, the residential it owes its name to the quarry.
14 The Quarry Heights Residents Association, to whom I have had the privilege of advising and representing on several occasions.

framework, dispute resolution, among others. In particular, we identify and highlight opportunities based on experiences.

An ecotourism project was shaping up to be a successful business for the businessman who obtained the concession. The project, called “Parque Telemático Ecoturístico Amador-Cerro Ancón”, aspired to the "construction of a restaurant, cafeteria, viewpoint, building for the arrival and departure of the cable car, Poligona tower inside a water tank". However, word spread and the business did not prosper.

In 2009, the Third Chamber of the Supreme Court of Justice declared the illegality of the Administrative Act contained in contract No. 112-04, dated 19 March 2004, signed between the then Interoceanic Region[15] Authority and the company Inversiones Guararé Teleférico, S.A. The Court based its decision on Law 41 of 1 July 1998, Panama's General Environmental Law, article 66[16] of which attributed to the then National Environmental Authority, now the Ministry of the Environment, the granting of concessions for the administration and services of protected areas to private companies, subject to the completion of technical studies. As Cerro Ancón was a legally established protected area, the contract was affected as nullification. One of the arguments of the plaintiff was that the environmental impact study did not show the real extent of the effects that the project would have on the protected area. Regarding the Environmental Impact Study, Resolution DINEORA IA-085-2005, of 13 October 2005, was also declared null and void for being illegal by the Third Administrative Chamber of the Supreme Court of Justice of Panama on 14 March 2011.[17]

In 2011, I personally was embarking on one of my dreams in Germany. I would not have the good fortune to visit Cerro Ancón until 2013.[18] The story of the failed cable car is thought-provoking: what would have become of the mountain if a proper environmental impact assessment had been carried out? My thoughts immediately turn to the Zugspitze [19] in Germany and the cable car that takes us to the research centre. My travelling heart is moved by the memory of it. Back - in my mind's eye - in Panama, I imagine a research centre in the bunker that currently adorns - like a lump - the road to the top of Cerro Ancon. Inside the rooms along the tunnel, I visualise students and researchers.[20]

Panama has very rich forest resources. With the appropriate technical studies and management plans, it is possible to exploit the forest in a non-extractive way. An ecotourism

15 Currently this entity is called Unit Administrative of Reverted Assets -UABR-.
16 It currently corresponds to article 51 of the Single Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, which includes the reforms approved by Law 18 of 2003, Lety 44 of 2006, Law 65 of 2010, and Law 8 of 2015. G.O. 28,131-A, of October 4, 2016.
17 File 127-2006.
18 Being Chiricana, my favorite highest point is the Baru Volcano, at 3,474 meters above sea level.
19 The highest mountain in Germany, with 2,962 meters. This marks the border between Germany and Austria.
20 It is important to note that the Forest Incentives Act, mentioned below, includes the promotion of research and innovation.

project, such as the cable car, would generate economic opportunities in the midst of the[21] crisis. Construction of infrastructure, permanent jobs, tourist guides or operators, among others.

House No. 15 in Quarry Heights had not been maintained for more than 10 years. The old wooden residence was threatening to destroy the forest in several ways: as a source of insect pests, loss of flora and fauna due to sudden collapse, and its great potential to cause a forest fire[22] In addition, House No. 15 operated a clandestine carpentry workshop, which caused noise pollution. The owner, a millionaire businessman, lived outside the country. Despite attempts by neighbours to approach him, he was never interested in renovating his property. The only argument he used to support the neglect of the house was that he does whatever he wanted with his property.

In 2013, the residents' association approached me to find a solution to the situation, which was getting worse as time went by. Although we were protected by the General Environmental Law, the nature of Cerro Ancón as a protected area, and even includes the rules of Ciudad Jardín[23](Garden City), the administrative route did not offer an adequate panorama. The idea of obtaining fines for our counterpart was not effective, insofar as they did not intimidate him at all. The ideal legal instrument identified was a complaint to the police authority in the area. A somewhat innocent approach, for the average litigation lawyer, as the chances of success were uncertain. For me, it was the inter-agency support that would be decisive. The inspection reports of each and every one of the public bodies involved had to be included in the file, with a hearing for the opposing party. This was done. The process includes inspection reports from the Directorate of Municipal Works and Construction, the Office of the Panama Fire Brigade, and the National Civil Protection System. The process ended favourably. Two years later, the Corregidor de Policía [24] decreed the demolition of Quarry Heights House No. 15 [25] based on the threat it posed to wildlife and humans. The owner appealed the decision, but the Mayor's Office upheld the Corregidor's decision. Shortly thereafter, the owner issued instructions and initiated, without the need for enforcement, the demolition process, in an orderly fashion.

Once again, there is a victory for the associativity and proactivity of community actors.

Certainly, the Political Constitution of the Republic of Panama, in Article 48, guarantees private property. However, article 49 establishes that private property implies obligations for its owner due to the social function it fulfils.

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21 I insist, with an adequate environmental impact study, which includes a good management plan.
22 Report of the Fire Department of Panama accredits that there was electricity in House No. 15 of Quarry Heights.
23 Resolution No. 139-2000 of 8 August 2000, by which the Ministry of Housing approves special rules to maintain the character of a Garden City in the Interoceanic Region.
24 Currently Justice of the Peace.
25 Beef. 161-2016 of July 21, 2016, ordering the DEMOLITION of House No. 15 OF Quarry Heights.

In the defunct house No. 15, as I mentioned before, an illegal carpentry workshop was operating. The illegality is fundamentally because the zoning code that governs that property is R1 D1 - low density/low intensity residential zone. In addition, the noise levels emitted by the saw exceeded the limits of the Municipal Agreement in force, thus polluting the environment with noise. Now, taking the positive from the experience, we ask ourselves, what if the carpenter is looking for a workshop to operate legally in a commercial zone?

Panama is the leading Teak exporter in Central America. It is one of the three main exporters on the continent. According to figures from the Ministry of Environment, it exports more than 6,000 containers of teak annually. [26] While it is true that we are on the right track as foresters, what about the wood processing industry? We see great potential there. The manufacture and sale of houses, furniture, lamps, pallets, all with the use of wood, are businesses that would supply a growing domestic demand, while at the same time contributing to the local economy.

Law 69 of 30 October 2017 creates an incentive program for forest cover and conservation of natural forests. Its purpose is the protection, recovery and conservation of forest cover in compliance with the objectives of the Million Hectares Reforested Alliance and the Sustainable Development Goals 2030. The program benefits the processing of timber and non-timber forest products; forest research, development and innovation; sustainable forest management of natural forests; and the export of certified forest products, among others.

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26 Publication on the website of the Ministry of Environment dated September 10, 2020 https://www.miambiente.gob.pa/miambiente-anarap-y-comunidad-hebrea-sostienen-encuentro-en-pro-de-la-reactivacion-economica-del-sector-forestal/ last visit on February 16, 2021.

Forest Management, Policy and Ways to Protect Forests - Paraguay

Author:
Héctor Hernando Herebia
Translation from Spanish by Agustín Rosello H.

Foto Héctor Hernando Herebia

GENERAL INFORMATION	
Country name	Paraguay
Total Population (Millions of inhabitants)	7.2
Extension in Km²	406,752
Number of hectares in forest cover	16,756,898
Number of hectares under forest reserve categories (includes protected area categories)	2,446,769 hectares of Protected Areas[1]
Number of hectares under conservation regimes, forest management or sustainable use systems (specify if there are hectares under a certification scheme)	6,191,639 Of the 49 (forty-nine) Protected Wild Areas of the Public Subsystem that Paraguay reports through the National Registry of Protected Wild Areas - SINASIP, there are 71% of conservation units that do not have approved Management Plans, only 29% have developed the management tool. Although most of them have operational plans as planning instruments, the legislation clearly states that all protected wild areas must have a Management Plan for their better management.
Number of hectares in rehabilitation or reforestation processes	81,125
Representativeness of the forest sector in GDP or contribution in 2020	1%
Annual rate of deforestation	6,033,095 hectares in 2019 [2]
Emission reduction target	20% reductions in greenhouse gas emissions projected by 2030.
Presence of ethnic communities in areas with forest cover IF (X) NO ( ) Specify type of communities: Afro-descendants, indigenous, rom, raizales, etc.	YES Indigenous
Forest land and forest ownership structure	Certified forest area using an international forest management certification scheme

1 Ministry of Environment and Sustainable Development
2 National Forestry Institute

Forestry legislation

FOREST LAW No. 422/73 Declares of public interest the use and rational management of the forests and forested areas of the country, as well as the renewable natural resources included in the regulations of this law. Likewise, the protection, conservation, improvement and improvement of forest resources is declared of public interest and binding.

LAW No. 3464/08 Creation of the National Forestry Institute, hereinafter: INFONA, as a self-sufficient and decentralized state agency, with legal personality, administrative autonomy and subject to the provisions of this Law and its regulations and other rules relating to the forestry sector

LAW No. 2524/04 of Zero Deforestation "the prohibition in the Eastern region of the activities of transformation and conversion of areas with forest cover or forest area"

LAW N° 536/95 that promotes afforestation and reforestation. The state promotes afforestation and reforestation on priority forest soils on the basis of a forest management plan and with the incentives established in this law.

LAW N° 4014/2010 " Prevention and Control of Fire"

Forest Management, Policy and Ways to Protect Forests

The population of Paraguay as of 2019 is 7,152,703 inhabitants and its area covers 406,752 km².

Native forests have been exploited and most of the country's forest area is in private hands. According to data from the Forest Monitoring Satellite System of INFONA (National Forestry Institute) in 2015 Paraguay still had 16,756,898 hectares of forest cover.

The database covers since 2001 and recently completed the deforestation numbers for 2019. In this context, Paraguay lost 6,033,095 hectares of tree cover in that period, which equates to a 25% decrease in tree cover since 2000, and 866 Mt of CO, emissions.

With a total of 2,446,769 hectares of Protected Areas of the national territory, the Ministry of Environment and Sustainable Development (MADES), employs only 57 Park Rangers for the protection of conservation areas

According to MADES, specifically from the Directorate of Protected Wild Areas and its dependencies, it has been determined that 29% of protected wild areas of the public subsystem have Management Plans, while 59% have not developed such ones; 2% are in the draft stage; 2% in the process of review and 8% in the process of elaboration, which totals 71% of conservation units that have not managed to conclude the respective managements plans.

Mrs. President of INFONA also commented that since December 2004 with the zero deforestation law, an attempt was made to alleviate uncontrolled deforestation in the Eastern Region of the country, but that even so, after 14 years, more than 600,000 ha of native forest have been lost in it, affirming that the control systems have not been able to report on more than a few individual actions of detection and action regarding the

shipments of illegal forest products, with an immense annual forest loss in the Eastern Region.

Many peasant families find sustenance thanks to the forest resource of their farms, with the sale of wood and other forest products such as firewood and charcoal.

Essences are extracted from the leaves (*Eucalyptus globulus* and *E. Citriodora*), other products, such as the exudation or resin of *Pinus elliotti*, is not realized in our country. These examples, added to the social and environmental function of the forest, should occupy another level of priority for rural producers themselves, entrepreneurs in the sector, local and national governments.

At the national level, there are still reserves of productive forests that ensure the provision of seeds, and a structure that allows to start the practice of sustainable forest management in native forests.

In what is related to forests implanted with exotic species, there are good experiences in our country and through strong support of the techniques developed in neighboring countries.

Much has already been said and published about the forest situation of Paraguay, highlighting the loss of large areas under forest cover. The change of attitude will come with the valuation of the forest and its products, and above all the opening of the market for wood from plantations, intended for uses such as struts, boarding, support poles, fine furniture, poles for rural use, among other applications.

Forest nursery (Photo Héctor Hernando Herebia)

Wood processing will require industrial reconversion with the use of multiple circular saws or augers to process small diameters, drying and preservation, and a strong promotion for timber from plantations or reforestation.

Restrictive measures requiring producers to maintain forest reserves, with some exceptions, have had no effect, and proof of this is that most rural properties do not have a 25% reserve with productive forests.

To verify this statement, it is a matter of taking a picture of land use in any department of the Eastern Region, accentuating in the grain-producing area.

The management of native forests must have a surplus value for the owner, starting with the unrestricted respect of private property, by the constant threats of peasants, followed by the permanent production of goods and services, through management techniques that guarantee sustainability, and not maintaining as intangible reserves like the Protected Areas.

There is no longer any reason to extend plantations with fast-growing species, to reduce pressure on native forests, accompanied by strong promotion by institutions related to forestry.

Of the 33,959 ha of forests or forest land that registered change to other uses this month. In Paraguay, the average deforestation was 192 ha/day,

In the Gran Chaco, the district with the greatest change in coverage was Mariscal Estigarribia, in the Department of Boquerón, Paraguay with about 1,927 ha

The exploitation of the forest was mostly selective (extracting all those of greater timber value) and without applying forest management measures, and without considering the criteria of sustainability. This has been worsening, and in recent years, the demand for wood increased the pressure on productive forests, and as a result of this fact, it was even the extraction of logs of small diameter (less than 40 cm of DAP). In the Paraguayan Chaco, logging was characterized by the use of few forest species such as the “quebracho colorado”.

Although Paraguay approved Law No. 4014/2010 "On fire prevention and control", which establishes standards suitable for preventing and controlling rural, forest, vegetation and interface fires; and that prohibits the uncontrolled burning of pastures, forests, thickets, fallows, natural fields, sawdust or any other cereal, legumes or type of flammable organic material that could generate any of the fires defined in this Law, being the only form of burning authorized for the purposes of the afore mentioned Law the Prescribed Burning, compliance is very low, as well as penalties for non-compliance

The Paraguayan Indigenous Institute (INDI) as the institution in charge of policy for Indigenous Peoples is an autarchic entity, but this organization, despite having high institutional rank, is debated in the middle of large budgetary restrictions and limited institutional capacity to fulfill the purposes for which it was created. This institution acquires relevance in relation to an appropriate management of forest problems, considering that a very significant amount of forest is owned by indigenous communities. The MAG, through its Organic Charter, plays a preponderant role in the development of the country's agricultural sector.

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National Forestry Institute (INFONA)

Ministry of Environment and Sustainable Development

Economics and Environmental Forestry Legislation in Latin American Countries - Peru

Author: Lucia D. Ruiz Ostoic
Translation from Spanish by Agustín Rosello H.

Foto jcastrosan/Pixabay

GENERAL INFORMATION	
Country name	Republic of Peru
Total Population	32,626,000 people
Extension in hectares	1,285,215.9 km2 128,521,590 hectares
Number of hectares in forest cover	Peru's forest cover counts 72.8 million hectares. Tropical rainforest predominates due to the territorial preponderance of the Peruvian Amazon. This is why the updated information available is mainly on Amazonian forest.[i] As of 2019: 68,274,160 hectares of Amazon rainforest. As of 2018: 68,422,585 hectares [iiiii]
Number of hectares under forest reserve categories (includes protected area categories)	Approximately 19,475,397 hectares of the 22,645,810.51 hectares that constitute national, regional and private Natural Protected Areas are located in the Amazon region and are mainly under forest cover.[iv]
Number of hectares under systems of conservation regimes, forest management or sustainable use (specify if there are hectares under certification scheme)	46,084,829 hectares corresponding to: • 22,645,810.51 hectares correspond to national, regional and private Natural Protected Areas, with 86% of this area (19 475 397 hectares approximately) in the Amazonian area.[v] • 10,080,074.56 hectares under forest concession modality, 6,288,241.83 hectares under the system of timber forest concessions system, one million of which are under certification schemes.[vivii viii] • 10,546,258 hectares of titled Amazonian indigenous lands.[ix] • 2,812,686 hectares of Territorial Reserves for Indigenous Peoples in Isolation and Initial Contact (PIACI).[x] If we also consider the peasant communities with a presence in the coast, in the highlands and in the Amazon, there are 24.7 million hectares titled in their favor.[xi]
Number of hectares in rehabilitation or reforestation processes	Area reforested annually as of 2018: 4,344.65 hectares[xii] Potential area to be reforested by 2018: 9,432,132.35 hectares[xiii]

Representativeness of the forest sector in GDP or contribution in 2020	Contributes 0.17% of GDP[xiv]
Annual rate of deforestation (cite source)	Deforestation 2019: 148,426 hectares of Amazon rainforests[xv] As of 2018: 38,433.89 hectares lost in terms of vegetation cover in coastal and Andean ecosystems
Emission reduction target	Peru has committed to reduce its GHG emissions by 40% under its Nationally Determined Contributions. The land use, land use change and forestry sector (USCUSS) accounts for 50% of emissions by sector, according to the Third National Communication (2016) issued by Peru and Peru`s emission emissions reduction target for this aspect is 43.13 MtCO2 through 8 mitigation measures[xvi]
Presence of ethnic communities in areas with forest cover YES (X) NO ( ) Specify type of communities:	Amazonian indigenous populations Populations in isolation and initial contact (PIACI)
Forest land and forest ownership structure	The forest patrimony belongs to the state, and therefore ownership of forested land is not allowed. The forest patrimony (land and forest cover) is public. On the private side, rights over forested lands are mainly granted through forestry concessions, whether timber or non-timber; as well as a figure called "transfer in use" in the case of land titling for peasant communities (mostly high Andean) and indigenous communities (Amazonian populations).

Peru has almost 60% of its territory covered by forests, being the ninth country in terms of forest area globally, the fourth in terms of tropical forests and the second in terms of extension in the Amazon, with all that this implies in terms of environmental goods and services, as well as a recognised biodiversity that places the country among the 17 countries with the greatest megadiversity on the planet. However, Peru does not seem to recognise itself as a forested country, as it has an inadequate management of its forest heritage, with little political attention that channels reduced budgets to forest management and with an insignificant contribution of 0.17% to the country's economy, which also makes invisible other goods and ecosystem services that the forest provides.

Of the 128.5 million hectares of national surface, 72.8 million hectares correspond to forests of various categories and characteristics, and of these, 68.5 million to Amazonian forests, which are the ones that serve as home and sustenance of the immense cultural and biological diversity that characterises us. This vast natural capital is, however, under constant threat, which has generated, between 2001 and 2018, a deforestation of 2,284,889 hectares of forests, and in 2019 alone, a loss of coverage of 148,426 hectares was identified.

Land use change and loss of forest cover is the main source of greenhouse gas (GHG) emissions in Peru, with the land use, land use change and forestry sector (USCUSS) accounting for more than 50% of these emissions. The main causes are migratory agriculture, mining and illegal logging, as well as certain road infrastructure and the consequent migration associated with these works.

In addition to the national and global impacts that the loss of forest generates, we have those of a local and sub-national nature, related to the increased vulnerability of populations that see the forest as a source of food, medicine and raw materials, as is the case of indigenous or native populations. The indigenous Amazonian populations have recognised rights over 10,546,258 hectares of titled and ceded land[xvii] in the Amazon region.

Peru has information on 55 indigenous peoples in Peru, 4 from the Andes and 51 from the Amazon, the latter recognising 44 indigenous Amazonian languages grouped into 17 Amazonian linguistic families. In this scenario, the impacts of climate change and the informal and illegal activities [xviiixixxx] that have a negative impact on the forests also have a negative impact on the indigenous populations and their livelihoods; without considering that in our country we have Indigenous Populations in Isolation and Initial Contact which have been identified in various Amazonian areas of the country and have established Territorial Reserves with a total area of 2,812,686 hectares.

It is precisely the indigenous lands, the territorial reserves for populations in isolation and initial contact, as well as the natural protected areas, which together represent 32,834,341 hectares, that have been least affected by the deforestation processes that the country has undergone. Special mention should be made of forest concessions, the assignment of rights to private individuals, which in their various modalities total 10,080,074.56 hectares[xxi] of which 6,288,241.83 hectares are in force under the timber forest concession system, one million of which are under certification schemes.

The National Forestry and Wildlife Policy (PNFFS), approved by Supreme Decree No. 009-2013-MINAGRI, establishes as its general objective to contribute to the sustainable development of the country, through an adequate management of the Forest and Wildlife Heritage of the Nation, which ensures its sustainable use, conservation, protection and increase, for the provision of goods and services of forest ecosystems, other ecosystems of wild vegetation and wildlife, in harmony with the social, cultural, economic and environmental interest of the Nation. The policy axes proposed are the following: (1) institutionalism and governance, (2) sustainability, (3) competitiveness, (4) social inclusion and interculturality, (5) knowledge, science and technology.

Although this National Policy must be understood and analysed within the framework of the international commitments assumed by the country, such as the fulfilment of the Sustainable Development Goals, the conventions on biological diversity, desertification and combating climate change, as well as the New York Declaration on Forests, at the national level it also interacts with various public policies.

The PNFFS has a first and necessary approximation and integral look with the national agrarian policy (Supreme Decree 002-2016-MINAGRI) and the national environmental policy (Supreme Decree 012-2009-MINAM).

In Peru, the forestry sector is part of the agrarian sector and therefore the National Agrarian Policy develops a Policy Axis 2 that addresses Forestry and Wildlife Development, in the same way that the National Environmental Policy in its Policy Axis 1 of Conservation and sustainable use of natural resources and biological diversity, has a line of work on Forests. However, this is not the only reason why it is necessary to develop this comprehensive approach, as we must consider that small-scale migratory agriculture is the main source of deforestation, as well as land use, land use change and forestry (USCUSS) is the source of more than 50% of greenhouse gas emissions in the country. It is this situation that led the country to design a National Strategy on Forests and Climate Change (Supreme Decree 007-2016-MINAM) and to consider the USCUSS sector as one of the main sectors to be considered in the Nationally Determined Contributions to reduce GHGs.

Other policies, strategies and commitments to be considered are the National Biodiversity Strategy (Supreme Decree 009-2014-MINAM) and the Master Plan for Natural Protected Areas (Supreme Decree 016-2009-MINAM) in order to consider the integrated view of conservation and sustainability, as well as the National Competitiveness and Productivity Policy (Supreme Decree 345-2018-EF), the Trade Promotion Agreements signed by Peru and the Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES (Decree Law 21080), so that productive and trade aspects are involved.

Even though there is a PNFFS and the opportunity to visualize it in a broader context, it is necessary to point out that this instrument has opportunities for improvement. This instrument is currently in the process of being updated and among the aspects to be considered are prioritizing the plurality of environmental goods and services provided by the forest and not focusing mainly on timber aspects, establishing specific and measurable criteria that can be set out in a plan or roadmap and thus subsequently monitored, resolutely promoting a strategy of ecosystem restoration and reforestation for productive and commercial purposes, as well as going more deeply into aspects related to wildlife and making visible the necessary fight against illegal and informal activities that generate degradation and deforestation.

Article 66 of the 1993 Political Constitution of Peru declares that renewable and non-renewable natural resources are the patrimony of the Nation, and therefore the State is sovereign in their use. It is this statement which, in the normative development related to forests, excludes ownership over them, granting exploitation rights through legal figures such

as forest concessions, whether timber or non-timber; or granting indigenous communities the cession in use of those lands with the capacity for major forest use.

The legal framework for regulating, promoting and supervising forestry and wildlife activities in Peru is provided by the Forestry and Wildlife Law (Law 29763) and its regulations, which specify rules, definitions, procedures, responsibilities, obligations and rights within the framework of the aforementioned law. This law is the product of a reform process in which almost two years of work were invested (2009 - 2011), with the broad participation of representatives of various actors from the public and private sectors, civil society and peasant and indigenous communities; it is the first law in Peru that went through a process of prior consultation even before the Law on Prior Consultation was approved.

This new regulatory framework is based on the premise of integrated territorial management based on forest planning and zoning, administrative simplification as an incentive to put aside informal and illegal activities in the sector and promote the transition to legality, include small producers in the productive management of the forest, as well as recognise and respect the rights of indigenous peoples. A regulation that allows for an integrated management of the forest heritage with a territorial perspective and focused on the service of citizens.

It is proposed that the Forest and Wild Heritage of the Nation is constituted by: (a) forest ecosystems and other ecosystems of wild vegetation, (b) Forest and wildlife resources maintained at their source, (c) Forest biological diversity and wildlife, including their associated genetic resources, (d) Forests planted on State lands, (e) Forest ecosystem services and other wild vegetation ecosystems, (f) lands of greater forest use capacity and lands of greater capacity for protection, with or without forests, and (g) landscapes of forest ecosystems and other wild vegetation ecosystems as long as they are economically exploited.[xxii]

It is on this basis that the management of forest ecosystems, wildlife, forest plantations and agroforestry systems is currently being developed, and with its particularities, forest and wildlife management in native communities and peasant communities. Although the aim is to promote productive diversification and competitiveness, there are aspects that have not yet been developed, such as those related to the promotion of forestry plantations in our country.

Leading processes such as those mentioned above requires a solid institutional framework, especially in a country like Peru, where forest heritage management functions are dispersed among national and sub-national authorities. This is still a process of building and strengthening forestry institutions, even five years after its entry into effect.

It is this multiplicity of interacting public actors that made it necessary to propose the creation of a National System of Forest and Wildlife Management (SINAFOR) that brings together the various national and sub-national authorities involved in the management of forest and wildlife ecosystems and has a single leadership: that[xxiii] of the Forestry and Wildlife Service (SERFOR).

SERFOR is the governing body of SINAFOR and is the technical regulatory authority at the national level, responsible for issuing regulations and establishing procedures to be

implemented by the Regional Forestry Authorities in their areas of competence, since forest management in Peru is decentralised. With regard to the supervision of commitments acquired by the holders of sustainable forest use rights, the Supervisory Body for Forest and Wildlife Resources (OSINFOR) is in charge.

Each advance in the consolidation of forest and wildlife management, as well as of the necessary forestry institutions, brings Peru closer to achieving its goals of conservation and sustainable use of its natural capital in general and of its forest and wildlife heritage in particular.

Foto blackmedia on Pixabay

Notes:

i National Map of Vegetation Cover (2015) https://www.minam.gob.pe/patrimonio-natural/wp-content/uploads/sites/6/2013/10/MAPA-NACIONAL-DE-COBERTURA-VEGETAL-FINAL.compressed.pdf

ii http://www.bosques.gob.pe/notasdeprensa/deforestacion-se-reduce-en-diez-regiones-con-bosques-amazonicos

iii https://sinia.minam.gob.pe/informacion/tematicas

iv https://www.sernanp.gob.pe/ques-es-un-anp

v https://www.sernanp.gob.pe/ques-es-un-anp

vi Forest concessions can be timber or non-timber. Non-timber can be conservation, ecotourism, wildlife chestnut. https://www.osinfor.gob.pe/concesiones-forestales/

vii https://www.serfor.gob.pe/portal/noticias/concesiones-forestales/presentan-diagnostico-de-concesiones-forestales-en-peru-para-promover-inversiones-sostenibles

viii https://pe.fsc.org/es-pe/noticias/id/72

ix https://www.territorioindigenaygobernanza.com/web/peru/

x https://www.territorioindigenaygobernanza.com/web/peru/

xi The Instituto del Bien Común is a non-governmental organization that, In addition to support degree of indigenous peoples in Peru, systematizes information related to peasant and native communities of Peru. https://ibcperu.org/servicios/siccam-informacion-sobre-comunidades-campesinas/

xii https://sinia.minam.gob.pe/informacion/tematicas

xiii The Ministry of the Environment leads the National Environmental Information System (SINIA)

https://sinia.minam.gob.pe/informacion/tematicas

xiv Videnza Consultores is associated with the Universidad del Pacífico and led by former Minister of Agriculture Milton Von Hesse

https://gestion.pe/blog/evidencia-para-la-gestion/2020/02/el-sector-forestal-un-motor-apagado-de-la-economia-peruana.html/

xv The National Forest Conservation Program, attached to the Ministry of the Environment, is responsible for monitoring deforestation at the national level.

http://www.bosques.gob.pe/notasdeprensa/deforestacion-se-reduce-en-diez-regiones-con-bosques-amazonicos

xvi Temporary Multisectoral Working Group to generate technical information to guide the implementation of Nationally Determined Contributions (GTM-NDC)

xvii While national legislation does not recognize the right of ownership in respect of land of forest suitability, Indigenous peoples are entitled in respect of land that is considered to be unsuitable and land of forest suitability is "ceded for use" to them on an indeterminate basis.

xviii https://bdpi.cultura.gob.pe/pueblos-indigenas

xix https://www.filac.org/wp/comunicacion/actualidad-indigena/peru-alberga-48-lenguas-originarias-de-las-cuales-21-estan-en-peligro-de-extincion/

The 44 Amazonian languages are: Achuar, Amahuaca, Arabela, Ashaninka, Awajún, Bora, Capanahua, Cashinahua, Chamicuro, Ese Eja, Harakbut, Iñapari, Iquitu, Isconahua, Kakataibo, Kakinte (Caquinte), Kandozi-Chapra, Kukama-Kukamiria, Madija (Culina), Maijuna, Matsigenka, Matses, Muniche, Murui-Muinani, Nanti, Nomatsigenga, Ocaina, Omagua, Resígaro, Secoya, Sharanahua, Shawi, Shipibo-Konibo, Shiwilu, Taushiro, Tikuna (Ticuna), Urarina, Wampis, Yagua, Yaminahua, Yanesha, Yine, Yora, (Nahua).

xx https://www.filac.org/wp/comunicacion/actualidad-indigena/peru-alberga-48-lenguas-originarias-de-las-cuales-21-estan-en-peligro-de-extincion/

The 17 Amazonian language families are: Arawa, Arawak, Bora, Cahuapana, Harakbut, Huitoto, Jíbaro, Kandozi, Muniche, Pano, Peba-yagua, Shimaco, Tacana, Tikuna (Ticuna), Tucano, Tupí-guaraní and Záparo

xxi In Peru, national and regional Protected Natural Areas, as well as Private Conservation Areas, represent approximately 17% of the national territory, totaling 22,645,810,51 Hectares of which approximately 86%, or 19 475 397 hectares, are in the Amazon environment.

xxii Forest resources are considered: (a) Natural forests, (b) Forest plantations, (c) Lands whose greatest capacity for use is for forestry and for protection, with or without forest cover, y (d) Other wild components of the flora emerging terrestrial and aquatic, including their genetic diversity. On the other hand, wildlife resources are considered to be non-domesticated, native or exotic animal species, including their genetic diversity, which live freely in the national territory, as well as specimens of domesticated species that, due to abandonment or other causes, are assimilated in their habits to wildlife, except species other than amphibians

that are born in marine and constant waters, which are governed by their own laws. Finally, they are considered services of forest ecosystems, of other ecosystems of wild vegetation and forest fauna to those derived from the ecological and evolutionary functions of these eco-systems and from the flows of matter, energy and information from forest heritage and wildlife. This is the nation that produces benefits and increases well-being for people and society.

xxiii The members of SINAFOR are, among others: (a) The Ministry of Agriculture and Irrigation (MINAGRI), (b) The Ministry of the Environment (MINAM), (c) The Ministry of Production, (d) The Ministry of Culture, (and) The Ministry of Foreign Trade and Tourism (MINCETUR), (f) The Ministry of Economy and Finance (MEF), (g) The Ministry of the Interior (MININTER), (h) The Ministry of Foreign Affairs (MRE), (i) The Forest and Wildlife Resources Supervisory Agency (OSINFOR), (j) The National Center for Strategic Planning (CEPLAN), (k) Regional Governments, (l) Local Governments, (m) The National Service of Natural Areas Protected by the State (SERNANP), (n) The National Commission for Development and Life without Drugs (DEVIDA), (o) The General Directorate of Captaincies and Coast Guard of the Peruvian Navy (DICAPI), (p) The Joint Command of the Armed Forces (CCFFAA), and, (q) The National Forest and Wildlife Service (SERFOR), which acts as the governing body of SINAFOR.

Economics and Environmental Forestry Legislation in Latin American Countries - Uruguay

Authors:
María Marta Albicette, Gloria Sanclemente, Roberto Scoz
Translation from Spanish by Agustín Rosello H.



GENERAL INFORMATION[1]	
Country name	Uruguay
Total Population	3.2 million inhabitants[2]
Extension in hectares	17,621,000
Number of hectares in forest cover	2,031,000 (60% planted and 40% native forest)
Number of hectares under forest reserves categories. (Includes protected area categories.) Area (1000 ha)	38.89 thousend
Number of hectares under conservation regimes, forest management or sustainable use systems (specify if there are hectares under a certification scheme)	90% of the area forested under FSC or PEFC system: One million hectares.
Number of hectares in forest production	1,200,000
Representativeness of the forestry sector in GDP 2020	3.6%
Annual rate of deforestation	1.83 in the period 2010-2015 (including both areas with logging authorization (management plans) and area losses due to illegal logging.
Emission reduction target	Reduce CO2 emissions intensity per unit of GDP by 24% by 2025[3]
Presence of ethnic communities in areas with forest cover IF ( ) NO (X)	NO
Forest land and forest ownership structure	Private Property: 1,906.46 hectares Public Property: 113,540 ha

1 Global Forest Resources Assessment, Uruguay Report, FAO, Rome 2020.
2 Population and Housing Census. INE. 2011.
3 EASTERN REPUBLIC OF URUGUAY First Nationally Determined Contribution to the Paris Agreement https://www.gub.uy/ministerio-vivienda-ordenamiento-territorial/sites/ministerio-vivienda-ordenamiento-territorial-medio-ambiente/files/2020-07/Uruguay_Primera_Contribucion_Determinada_a_nivel_Nacional.pdf

Uruguay is a small country (172,000 km2), with an interesting of environmental diversity, integrating extensive natural grasslands with native forests, palm groves, wetlands, mobile dunes and a chain of bays, coastal lagoons, rocky points and sandy beaches along the coast. Only 3% of the total land area is occupied by towns or urban centres and roadinfrastructure. The prairie is the dominant biome and comprises more than 70% of the national territory and integrates one of the richest areas of grasses or "pastures" in the world.[4]

Land tenure is marked by 97% private ownership. The value of land has increased considerably, mainly due to the growth of the agricultural, livestock and forestry sectors.[5]

In the last thirty years the forestry sector in Uruguay has had a great development, boostedin the 90's by the second Forestry Law No. 15.939, and its regulatory [6] decrees. The planting of pine and eucalyptus tree species and the protection of native forests were encouraged. From 1990 to 2010, the country planted nearly 690,000 hectares, quadrupling the total area planted in the last period.

Uruguay currently has two million hectares of forests, 60% of which are plantations and 40% native forest. The plantations are carried out on land declared as priority forestry land, which in total amounts to 4 million hectares, so there is land available to continue the plantations. Native forests are protected and in fact Uruguay is one of the few countries in America that has not only not reduced its native forest area but has increased it from 608,000 to 800,000 hectares.[7]

Forestry is considered a pillar of sustainable development, with 90% of the plantations being certified by the most demanding international seals. This ensures care for the environment and the highest safety measures for workers and communities located in the vicinity of the plantations.[8]

There are more than 1,760 companies linked to the forestry complex, of which 93% are micro and small enterprises with less than 20 employees, generating 1.5% of the country's total employment. There are about 17,000 workers in the sector in its different productive phases.

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4 Fifth National Communication Uruguay 2019. to the Conference of the Parties to the UNFCCC of the United Nations on Climate Change https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/63801597_Uruguay-NC5-1-20191231%20URUGUAY%20CN5%20ESP.pdf

5 Ditto 3

6 Forestry Law number 15.939 of 1987. https://www.impo.com.uy/bases/ laws/15939-1987/17

7 EFE news https://www.efe.com/efe/america/sociedad/uruguay-y-su-forestacion-el-pilar-del-desarrollo-sustentable-en-pais/20000013-4086565

8 Figures of the forest complex. SERAGRO web. https://seragro.com.uy/portada/las-cifras-del-complejo-forestal/#:~:text=%E2%80%9CLlevamos%20una%20gesti%C3%B3n%20forestal%20sustentable%E2%80%9D.&text=%E2%80%9CEl%2090%25%20de%20los%20bosques,el%20entorno%20de%20las%20plantaciones%E2%80%9D.

Uruguay has consolidated its forestry production in recent years as one of the world's leading exporters of short-fibre pulp, and today it faces the challenge of continuing to develop this industry and move towards an efficient and sustainable model. It generates some US$ 2.2 billion in exports annually, which represents 3.6% of the Gross Domestic Product (GDP) and in the last 10 years has involved US$ 4.5 billion in foreign direct investment (FDI).[9]

The forestry industry was boosted by the installation of the first pulp mill in 2007, with two mills and a third under construction. It is likely that, from its entry into operation, pulp exports will increase by 75%, both in volume and value, with the sector becoming the first export sector (same as 2018).[10]

In the current COVID-19 pandemic, the outlook for the year 2021 is uncertain. On the one hand, the duration of sanitary measures that affect the economy and trade, and on the other hand, the future situation in China and Europe, which are key for the Uruguayan forestry chain.[11] The main challenge is to continue development and growth, always linked to diversifying industrial transformations.[12]

According to the National Forest Registry of the Forestry Directorate of the MGAP, during 30 years of management of native forest, the surface area has increased; more than 4,300 management plans have been registered, which provides information and background for some 580,000 hectares; after implementing management plans with permits (transit guides) by the General Forestry Directorate, the timber is commercialized.

The Environmental Policy related to the native forest was established in the first forestry law, which defined a framework for the in-situ conservation of the biodiversity existing in the native forest ecosystem. It protects the "forest" in its totality except for the case of the Palm groves and the Palm Tree that are individually protected since Law N° 9872 of 1939 and Law N°13723 of 1987.

In December 1987, the current Forestry Act No. 15.939 was passed, declaring "the defence, improvement, expansion and creation of forest resources, the development of forestry industries and, in general, of the forestry economy" to be of "national interest". This Act and its regulatory decrees contain the provisions regulating forests, parks and forest lands within the national territory, and establish that the General Forestry Directorate of the Ministry of Livestock, Agriculture and Fisheries will be the body responsible for the implementation of forestry policy (Legislative Power, 1987).

The concept of forest is developed in Article 4, as plant associations in which trees of any size predominate, whether exploited or not, and which are in a position to produce timber or other forest products or to exert any influence on soil conservation, the hydrological regime

9 Ditto 4
10 https://www.elpais.com.uy/suplementos-especiales/forestacion-sector-productivo-crece-techo.html
11 OPYPA Yearbook. 2020. Ministry of Livestock, Agriculture and Fisheries. https://www.gub.uy/ministerio-ganaderia-agricultura-pesca/comunicacion/publicaciones/anuario-opypa-2020
12 Press release El País. https://rurales.elpais.com.uy/agricultura/alfredo-fossali-la-fortaleza-del-sector-forestal-uruguayo-es-su-politica-de-estado

or climate, or which provide shelter or other benefits of national interest. Later, Regulatory Decree No. 452/988 established that in addition to the characteristics described above, they should have a minimum area of 2,500 square metres.

Regulatory Decree No. 330/993 established that the felling and extraction of forest products from the indigenous forest must be carried out with prior authorization from the DGF. Finally, the current Instructions (DGF-MGAP, n.d.) consider as a forested area any area with a density of more than 200 trees per hectare and a canopy cover of 50%.

The forestry law establishes that, following technical procedures defined by the DGF, forests will be classified according to their purposes:

a) Protective forests - natural - artificial: those whose main purpose is to conserve soil, water and other renewable natural resources.
b) Yield forests: those whose main purpose is yield.
c) General forests when they do not have the characteristics of the previous ones.
d) Quality timber yield forest Decree No. 38/08

The qualification of the forest is carried out by the General Forestry Directorate, at the request of the individual or on its own initiative, and then they are entered in the National Forest Register of the Forestry Directorate. According to the law, forest protection is based on the prohibition of the destruction of protective forests and of "any operation that does not conform to the plan mentioned in Article 49, and which, intentionally or otherwise, threatens the development or permanence of the forest". Their elimination may only be carried out with

prior authorization and with the precautions to be established by the Forestry Directorate in each case.

Conservation, which includes the sustainable management of the forest, is established by Article 24, which prohibits felling and any operation that threatens the survival of the indigenous forest, with the exception of the following cases: i) When the product of the exploitation is intended for domestic use and fencing of the rural establishment to which it belongs. ii) When there is authorization from the Forestry Directorate based on a technical report detailing both the causes justifying the felling and the exploitation plans to be carried out in each case.

The protection of forests in terms of health and vitality is provided for in Article 28 of Law No. 15.939 of 28/12/1987 "When diseases appear in a forest or parasites develop that threaten its conservation or that of neighbouring forests, those who are aware of this must immediately notify the General Forestry Directorate. The owner of the forest shall comply with the directives issued by the Directorate General of Forestry".

The Forestry Policy also establishes the existence of tax incentives to encourage the registration of forests with the DGF (MGAP, 1989). Article 3 of Decree 247/989 establishes tax benefits for establishments with an area occupied by native forests, which was one of the first measures taken to protect them. These tax exemptions include all those taxes that are generally levied on agricultural and livestock farms, their owners as such or their income. In order to enjoy them, the forest must be qualified and registered by the Forestry Division in the National Forest Register.

It is important to mention that the management of Uruguay's forests is complemented by other legal and regulatory provisions, including the National Constitution of 1996, whose article 47 states "...the protection of the environment is of general interest. Persons shall refrain from any act that causes serious depredation, destruction or contamination of the environment". The Environmental Impact Assessment Law of 1994 establishes a national regime of environmental impact assessment for the identification and evaluation - in advance - of the environmental consequences of relevant projects not yet executed. The purpose of this regime is to eliminate, mitigate or compensate the negative environmental impacts of activities or projects (including forestry plantations of more than 100 hectares). Thus, it makes the approval of these initiatives subject to obtaining a set of authorizations, the most important of which is the Prior Environmental Authorization (AAP).

With Law 17.234 of the year 2000, the creation and management of a National System of Natural Protected Areas is given, the creation and management of a National System of Natural Protected Areas is declared of general interest, as an instrument for the application of national policies and plans for environmental protection, and the specific objectives are established as follows: (i) to protect biological diversity, ecosystems, natural habitats - especially those essential for the survival of endangered species; (ii) to avoid the deterioration of watersheds and to ensure the quality and quantity of water; and (iii) to develop forms and methods of exploitation and sustainable use of biological diversity and natural habitats, ensuring their potential for the benefit of future generations. It is important to highlight that

in the national system of protected areas (SNAP) developed by the Ministry of Housing, Land Management and Environment (MVOTMA), approximately 35,000 hectares belong to the forest ecosystem.

Likewise, Law No. 17.283 of 2000, on Environmental Protection, declares of general interest, in accordance with the provisions of article 47 of the Constitution, among others, the protection of the environment, air, water, soil and landscape quality; the conservation of biological diversity; the prevention, elimination, mitigation and compensation of negative environmental impacts and the formulation, implementation and application of the National Environmental and Sustainable Development Policy. Based on this law, Uruguay has a legal framework that allows for the harmonization of national policies and the main instruments of environmental management and administration.

Later in 2016, the National Biodiversity Strategy was adopted, which contains the national policy for the conservation and sustainable use of biological diversity, being the basic instrument for the management of ecosystems, species and genetic resources, as well as the goods and services derived from them. The strategy contains specific aspects that refer to forest ecosystems and their relevance to the conservation of the country's biological diversity.

In the same year, Uruguay signed the Paris Agreement (Law No. 19.439)[13]. As mentioned in the summary table on the objective of reducing emissions in this framework, it is worth noting that this was an important milestone for the revaluation of native forests. As a specific goal, Uruguay commits itself to maintain the current surface of these forests by 2025 and at the same time increase it by 5%, trying to revert its degradation processes. The country is currently in the process of developing its long-term strategy for low-emission development.[14]

Just one year later, the country is initiating actions to implement the first phase of its REDD+ program under the Forest Carbon Partnership Facility (PCPF); a process that began in [15]2013. Among its objectives are to reduce emissions from deforestation or degradation, increase the carbon stock of native forests and ensure its sustainable management. It is important to highlight that this program's challenge is not only to address quantitative aspects but also to work on a process of raising awareness about the role of our forests as a national contribution to climate change mitigation.

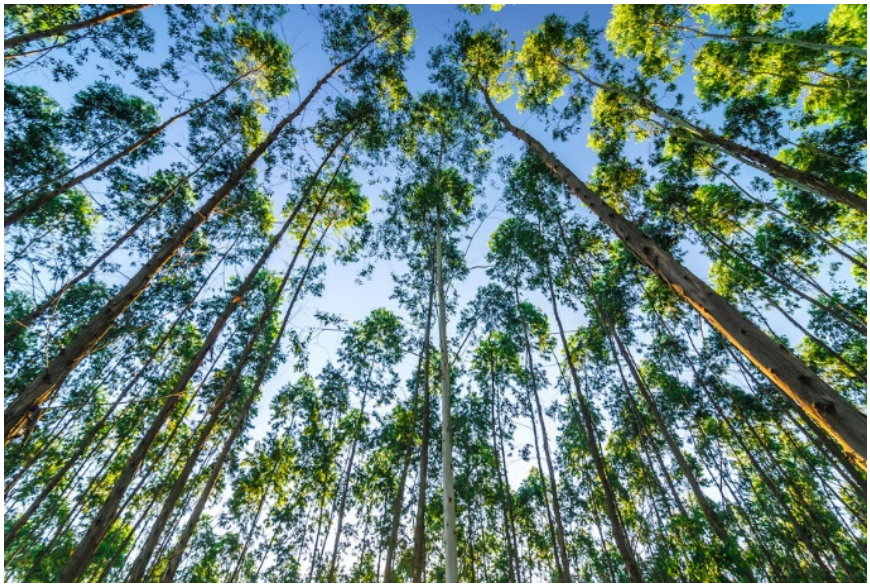
The Forestry Policy also establishes the existence of tax incentives to encourage the registration of forests with the DGF (MGAP, 1989). Article 3 of Decree 247/989 establishes tax benefits for establishments with an area occupied by native forests, which was one of the first measures taken to protect them. These tax exemptions include all those taxes that are generally levied on agricultural and livestock farms, their owners as such or their income. In

13 https://legislativo.parlamento.gub.uy/temporales/Ley194397219428.htm
14 https://www.gub.uy/ministerio-ambiente/politicas-y-gestion/estrategia-largo-plazo-uruguay-para-desarrollo-bajo-emisiones-resiliente-clima
15 https://www.forestcarbonpartnership.org/country/uruguay

order to enjoy them, the forest must be qualified and registered by the Forestry Division in the National Forest Register.

Since 2018 a National Native Forest Strategy is in force, which serves as strategic guidance to the General Forestry Directorate (DGF) in order to fulfil its functions within the legal framework of Uruguay, and to other institutions according to their competences. [16]

At the institutional level, the Forestry Law establishes that the DGF of the Ministry of Livestock, Agriculture and Fisheries will be the executing body of the forestry policy, which includes the control of native forest management. It is responsible for the achievement of Sustainable Forest Management through the defense, improvement, expansion and creation of forest resources and, in general, of the forest economy. The National Directorate of Environment in the Ministry of Housing, Land Management and Environment aims to achieve environmental protection by promoting sustainable development, improving the quality of life of the population and the conservation and environmentally responsible use of ecosystems, coordinating the environmental management of public entities and coordinating with the various social actors. Both Directorates meet and cooperate on the issue of native forests. The DGF has a National Forest Inventory with a network of plots distributed throughout the national territory. The information obtained is strategic to promote sustainable forest management of forest resources and to support policy development and strategic planning. Perhaps it remains to strengthen the process of raising awareness of the value and opportunities that a correct management of our forests offers us. And here it is essential to consider all its forms: natural and implanted. The global society as a whole will express through the corresponding channels the priorities or the weight that each type of forest formation has, since it cannot be omitted that each one in its territory has a contribution, an effect on the environment, the economy and, in short, on society.



16 National Native Forest Strategy https://www.gub.uy/ministerio-ganaderia-agricultura-pesca/comunicacion/publicaciones/estrategia-nacional-bosque-nativo

Economics and Environmental Forestry Legislation in Latin American Countries - Venezuela

Author: Osvaldo Encinas B.
Translation from Spanish by the author

Bosque dominado por *Mora excelsa.* (Foto J. R. Lozada).

GENERAL INFORMATION	
Country name	Bolivarian Republic of Venezuela
Total population	31 million people, 85% in urban areas
Extension in hectares	916,445 km^2 91.6 million hectares
Number of hectares in forest cover	The forest cover in Venezuela comprises 44.91 million ha. Forest plantations 557,000 ha, mostly Caribbean Pine. The largest area of forests (83%) is in the Guayana region: Edo. Bolívar (37%), Amazonas (37%) and Delta Amacuro (7%).
Number of hectares under categories of forest reserves (includes categories of protected areas)	All forest areas in Venezuela are under the figure of Areas Under the Special Administration Regime (ABRAES), to protect the environment and the great environmental problem. Under the figure of ABRAES they differentiate: Forests dedicated to the conservation of biodiversity (24.3 million ha), but with the change of the figure from the El Caura Forest Reserve to a National Park in the year 2.017, there are now 29 million ha. Forests destined to the sustainable management of forest resources (58 areas for 16.3 million ha), but with the change in the figure of El Caura they are now 11.8 million ha.
Number of hectares under conservation, management or sustainable use systems (specify if there are under certification scheme)	29 million ha under the figure of Conservation of Nature, ABRAE. By 2010, the forest area with forest management plans was 2.8 million ha; To date, in 2021, the concessions to forest companies that were responsible for forest management were eliminated, only a few lots remain where some positive results of the forest management tried many years ago can be seen. There is a rational forest management of forest plantations with Caribbean pine. There are no natural forests under certification. A company that processes Caribbean pine had the FSC certification of some 60,000 ha, but it is not in force to date. Only one company has a current Chain of Custody certificate.
Number of hectares in rehabilitation or reforestation processes	There are no updated data. There are reforestation programs in urban environments and some areas devoid of vegetation. .
Representativeness of the forestry sector in GDP or	There are no statistics in this regard. The last estimate, year 2015, was that it contributed less than 0.04% of GDP

contribution in 2020	
Emission reduction goal	Venezuela produces around 0.24 Gton Co_2 eq / year, it expects to reduce 538.2 Kton CO_2 eq / year in the coming years.
Presence of ethnic communities in areas with forest cover YES (X) NO () Specify type of communities	Numerous native peoples inhabit the forested areas in the Bolivar and Amazonas states with ethnic groups: Arawaks, Caribs, Pemones, Kariña, Yanomani peoples
Forest land and forest ownership scheme	The forest resource is the patrimony and property of the nation and recognizes privately owned forest lands. The state cedes the use and utilization of forest lands to individuals, under various forms, including the loan.

The beginning of the 21st century finds Venezuela still with a world-renowned mega-diversity[1]; it ranks among the ten countries with the greatest biodiversity in the world and sixth in America. It has around 650 types of vegetation that are home to about 15 thousand species of higher plants (forests, mangroves and others). Its geographical characteristics make it possible to differentiate plains, Amazon, Caribbean, Andean and Atlantic ecosystems, with a diversity of environments. In Venezuela, all areas covered with vegetation are protected under the figure of Areas Under Special Administration Regime (ABRAES), to protect the environment and the great environmental problem.

It is often said that the Orinoco River differentiates two large formations with mostly dry forests to the north and humid forests to the south. The forests in the north of the Orinoco River hosts numerous forest formations in lowlands that in the period 1950 -1960 gave rise to the declaration of Forest Reserves (Caparo, Tocuyo River, San Camilo, Ticoporo, Turén), currently practically non-existent due to agricultural expansion; currently there is a reservoir of about 7,000 ha in the old Caparo Forest Reserve, Barinas state, under the figure of Comodato to the University of Los Andes, constantly threatened with invasions. The R. F. de Caparo initially had 174,484 ha.

The declaration of Forest Reserve had the objective of ensuring the continuous supply of raw materials for the national timber industry (SIC), an aspect that changed with the new Forest Law (2.013), which, in addition to wood and use of the forest heritage of the country considers the generation of goods and environmental benefits.

Thus, to the north of the Orinoco, almost all the lowland forests disappeared, due to agricultural expansion. The peasants now go to the foothills and mid-mountain forests, which

1 VITALIS. Diario El Globo (04/12/2.000)

in many cases are protected by the figures of national park and protective zone, to carry out their activities that involve deforestation. They also go to Venezuelan Guiana, where agriculture and livestock are the main cause of deforestation, followed by mining[2].

In this way, the forests, including the former Forest Reserves and Forest Lots, south of the Orinoco River, become the next space where the forests begin to be exploited with the expansion scheme of the agricultural frontier practiced in the western plains.

Still at the beginning of the century it was considered that a good part of the Guiana forests showed a relatively pristine state and were under the protection of legal figures[3]. However, currently in the short period of time that has elapsed (20 years), severe changes are observed as a consequence of civil constructions and the execution of large-scale projects, logging concessions (currently eliminated) and mining in areas of native forests and above all the activities changes that cause conflicts in the use of land, which is not completely regulated by the corresponding authorities, changes that in the opinion of many researchers and policy makers are sheltered by increasing levels of corruption and institutional weakness and by the absence of the practice of a rule of law[4]. During the period 2000-2010, Venezuela was one of the 10 countries with the greatest loss of forest cover (0.29 Mha); 1.9 million hectares of forests have been lost between 2001 and 2018.

From a strictly forestry point of view, in recent years the forestry concessions to companies that were responsible for managing the forest have been eliminated and in June 2010 the National Forestry Company was created for the management of the - extinct in name - Forest Reserves of Guarapiche, Imataca and south of Bolívar State, since to the north of the Orinoco there are no more forests that merit management. This company aims to manage forests under the principle of multiple uses and with the assistance of organized communities or communal councils. The results of the company's proposals are not yet known.

In any case, to the south of the Orinoco, threats to the forest persist in fact and by law as a consequence of the creation of the Orinoco Mining Arc on February 24, 2016, as a National Strategic Development Zone, which affects the forests of the area of influence, because it will fragment the ecosystems of the area, mostly forests, it will cause a significant loss of species of both flora and fauna. Continuous forests that remain standing will run the risk of progressively degrading given the severe conditions that deforested areas will have, which lead to local droughts, a greater effect of the wind that will favor the continuous fall and death of trees that are exposed[5]"

Recently, December 2020, the Special Military Economic Zone for Forest Development has been created, in order to focus the forestry sector specialization in the security zone, take

2 Dr. Jose R. Lozada. Comunicación personal

3 Global Forest Watch. 2002. Situación de los bosques en Venezuela: la región de Guyana como caso de estudio.

4 Consejo de Derechos Humanos, ONU 2020

5 Consecuencias ambientales del Proyecto Arco Minero. Miembros del IZET-UCV". https://www.derechos.org.ve/actualidad/ucv-consecuencias-ambientales-del-proyecto-arco-minero. 18 octubre 2016.

advantage of forest resources and develop the activity of industrial transformation of natural timber resources and their commercialization, for which additionally the Military Company for the Sustainable Use of Forest Products Natural Resources was created.

"Forest management south of the Orinoco has practically stopped, due to the violence that occurs in the mining areas; the government has tried to consolidate strategic alliances to carry out operations in some forest management units, but there have been kidnappings of personnel and equipment, and even some injuries among forestry personnel. For these reasons, forestry activities in the last 5 years have been sporadic; there is no foreseeable improvement in the situation in the short term, because that would imply a change in the state model and solve the problem of the irregular armed groups that control those territories[6]."

In any case, some positive results can be seen from the management and study of the forests south of the Orinoco. Several areas of the forests constitute intact forest landscapes (IFLs), particularly in the Amazon, which are characterized by maintaining complete biological diversity, essential for the livelihood of forest dwellers and provide environmental services not yet disturbed by humans[7]. The harvested forests maintain high levels of coverage, floristic diversity, carbon storage. It seems convenient to modify the minimum cuttable diameters and adjust them to the abundance of each species[8]. Some of the schemes tested for forest regeneration have shown to be useful (See attached photograph).

Regarding the forest plantations in the eastern part of the country, it should be noted that sporadic fires have occurred in the Caribbean pine plantations, now managed by the company MAVETUR, a strategic alliance between Venezuela and Turkey, reducing the planted area, but the work of plantation is continuous: in the year 2,020, more than 9 thousand ha were planted with Caribbean pine. In general, they are Caribbean pine wood produced by three large companies that have sawmills, drying and preservation plants and some small sawmills, which are being demanded by the national market, with surpluses for export.

In the west of the country, there remain a few thousand hectares with plantations of fast-growing forest species: in the states of Barinas and Portuguesa; there are still plantations of teak and melina (*Tectona grandis* and *Gmelina arborea*) that are "managed" by the locals. In the states of Cojedes and Portuguesa, two paper mill companies have plantations with *Eucalyptus* clones; However, the pressures and current situation have caused the Smurfit plantations to be partially abandoned, the DEFORSA company that supplies the PAVECA company is still active. Plantations are recently being carried out in the southern zone of Lake Maracaibo, with excellent and rapid growth.

To date, of the more than 400 sawmills that existed in Venezuela in the last century, only slightly less than 25 remain in operation, mainly processing Caribbean pine, teak and melina and very few trees from the natural forest. The plywood industry is paralyzed by a shortage

6 Dr. Jose R. Lozada. Comunicación personal
7 Dr. Lionel Hernández: Foro sobre Reservas Forestales al Sur del Orinoco. Marzo 2021.
8 Dr. José R. Lozada: Foro sobre Reservas Forestales al Sur del Orinoco. Marzo 2021.

of suitable trees and the two chipboard and fiberboard plants that are still working are using Caribbean pine wood.

Mahogany (*Swietenia macrophylla*) planted on the edge of a road by the enrichment strip system, with about 40 cm DBH and 20 years old (Photo J. R. Lozada).

List of Authors

Argentina
Alejandro Orlando Vera
RELADEFA

Bolivia
Wilson Rocha
Coordinador Nacional de Proyectos
FAO Bolivia
RELADEFA

Bolivia
Julisse Mendoza Eyzaguirre
Abogada
ADEFABO BOLIVIA
RELADEFA

Bolivia
Claudia Katerina Aramayo García
Abogada, Evaluación RRFF de Bolivia
RELADEFA

Brasil
Paulo de Tarso de Lara Pires
RELADEFA

Brasil
Edson Luis Peters
Abogado
RELADEFA

Brasil
Alessandro Panasolo
Abogado
RELADEFA

Brasil
Camila F. Balbinot
Abogada
RELADEFA

Brasil
Janaina Hurst
RELADEFA

Chile
Carmen Paz Medina Parra
Abogada de Fiscalía de la Corporación Nacional Forestal de Chile (CONAF)
CONAF - Corporación Nacional Forestal de Chile
RELADEFA

Colombia
Gloria Sanclemente Zea
Coordinadora Jurídica de la Corporación ECOVERSA
ECOVERSA
Representante de RELADEFA ante IUFRO
RELADEFA

Colombia
Juan David Vargas Alonso
Biólogo, Especialista en Derecho del Medio Ambiente
Investigador/Consultor Corporación ECOVERSA
RELADEFA

Costa Rica
María Fernanda Corrales Solis
Consultores Agro-Ambientales de Costa Rica
RELADEFA

Costa Rica
Carlos Alberto Bolaños Cespedes
Consultores Agro-Ambientales de Costa Rica
RELADEFA

Cuba
Daimar Cánovas González
Director e Investigador Titular
Instituto de Ecología y Sistemática, Universidad Pinar del Río
RELADEFA

Dominicana, República
Marisol M. Castillo Collado
Coordinadora Sectorial del Ministerio de Economía, Planificación y Desarrollo (MEPyD)
Ministerio de Medio Ambiente y Recursos Naturales
RELADEFA

Ecuador
María Cristina Puente Salinas
Socia
Sociedad Ecuatoriana de Derecho Forestal y Ambiental
RELADEFA

Ecuador
Walter Armando Palacios
Socio
Sociedad Ecuatoriana de Derecho Forestal y Ambiental
RELADEFA

Guatemala
Alexander Sandoval Portillo
Coordinador General
RELADEFA

Panamá
Ericka Edith Estrada Saavedra
Abogada, árbitra, conciliadora, Directora del Centro de Solución de Conflictos – CESCON
CESCON
RELADEFA

Paraguay
Héctor Hernando Herebia
Abogado en Fernando de la Mora, Paraguay
RELADEFA

Peru
Lucia Delfina Ruiz Ostoic
Board member of Architecture for REDD+ Transactions (ART) http://www.artredd.org
Former minister of environment (Republic of Perú)
RELADEFA

Uruguay
Maria Marta Albicette
Ingeniera Agrónoma. Magister en Desarrollo Rural Sustentable (Ing. Agr., Mag.)
Docente Grado II de la Facultad de Agronomía, Universidad de la República, Uruguay
Facultad de Agronomía, UDELAR, Uruguay
RELADEFA

Uruguay
Gloria Sanclemente Zea
Coordinadora Jurídica de la Corporación ECOVERSA
ECOVERSA
Representante de RELADEFA ante IUFRO
RELADEFA

Uruguay
Robert Scoz
Director Programa Nacional de Investigación Forestal
Instituto Nacional de Investigación Agropecuaria (INIA)
RELADEFA

Venezuela
Osvaldo Encinas Blando
Miembro del Consejo Internacional de IUFRO
Universidad de los Andes, Mérida, Venezuela
RELADEFA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