

Facilitating Financing for Sustainable Forest Management in Small Islands Developing States and Low Forest Cover Countries

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Country Case Study: Uruguay

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ABBREVIATIONS AND ACRONYMS

ACF	Association of Forestry Contractors
ADIMAU	Asociación de Industriales de la Madera del Uruguay
ADIPA	Asociación de la Industria Papelera
AECI	Spanish International Cooperation Agency (Agencia Española de Cooperación Internacional)
AFAP	Administradoras Privadas de Fondos de Ahorro Provisional
AFE	Administración de Ferrocarriles del Estado
AGCEI	Asociación de Grandes Consumidores de Energía Industrial
AIA	Association of Agricultural Engineers / Asociación de Ingenieros Agrónomos del Uruguay
ANCAP	Administración Nacional de Combustibles, Alcohol y Portland
ANONG	Asociación Nacional de ONG's
ANP	Administración Nacional de Puertos
APAP	Áreas Protegidas de Acción Privada
ARU	Asociación Rural del Uruguay
ASECFUR	Asociación de Empresas Contratistas Forestales del Uruguay
BCU	Banco Central del Uruguay
BEVSA	corporate electronic stock exchange (Bolsa Electrónica de Valores)
BHU	Banco Hipotecario del Uruguay
BOP	Balance of Payments
BPS	Social Security Bank / Banco de Previsión Social
BROU	national state-owned bank / Banco de la República Oriental del Uruguay
BSE	Banco de Seguros del Estado
BVM	stock exchange market (Bolsa de Valores de Montevideo)
CDB	Convención de las Naciones Unidas sobre Diversidad Biológica
CDM	Clean Development Mechanism
CEDEFOR	Consejo de Desarrollo Forestal Sostenible del MERCOSUR
CER	Certified Emission Reduction
CIFOR	Centro Internacional para la Investigación Forestal
CINTERFOR	Centro Interamericano de Investigación y Documentación Sobre Formación Profesional (OIT)
CIPROMA	Cámara de Industrias Procesadoras de la Madera
CIR	Estate Municipal Tax
CIR	Contribución Inmobiliaria Rural
CIU	Cámara de Industrias del Uruguay
CJPB	Caja de Jubilaciones y Pensiones Bancarias
CJPN	Caja de Jubilaciones y Pensiones Notariales
CJPPU	Caja de Jubilaciones y Pensiones de Profesionales Universitarios
CMNUCC	Convención Marco sobre el Cambio Climático
CMNULCD	Convención Marco de Lucha contra la Desertificación
CNBPF	Código Nacional de Buenas Prácticas Forestales
CND	Corporación Nacional para el Desarrollo
CNT	Confederación Nacional de Trabajadores
CNTyPI	Centro Nacional de Tecnología y Productividad Industrial (MIEM)
COMAP	Ministerial Commission
DGF	Directorate of Forestry / Dirección General Forestal (MGAP)
DIEA	Dirección de Investigaciones Económicas Agropecuarias (MGAP)
DINAMA	National Directorate for the Environment / Dirección Nacional de Medio Ambiente (MVOTMA)
DINAMIGE	Dirección Nacional de Minería y Geología (MIEM)
DINARA	Dirección General de Recursos Naturales Renovables (MGAP)
DINAVI	Dirección Nacional de Vivienda (MVOTMA)
DINOT	Dirección Nacional de Ordenamiento Territorial (MVOTMA)
DNB	Dirección Nacional de Bomberos (MI)
DNE	Dirección Nacional de Energía (MIEM)
DNETN	National Energy and Nuclear Technology Directorate

DNI	National Directorate for Industry / Dirección Nacional de Industrias (MIEM)
DNT	Dirección Nacional de Trabajo (MTSS)
DNV	Dirección Nacional de Vialidad (MTOP)
EU	European Union
FAO	Food and Agriculture Organization / Organización de Naciones Unidas para la Alimentación y la Agricultura
FB	Forestry Banking
FIB	Foro Intergubernamental de Bosques
FOB	free on board
FRU	Federación Rural del Uruguay
FPL	Lands of Forestry Priority
FSC	Consejo de Manejo Forestal
GAV	gross added value
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
IBRD	International Bank for Reconstruction and Development
IDB	Inter-American Development Bank
IMABA	Tax on Banking Assets
IMESI	Specific Internal Tax
INC	Instituto Nacional de Colonización
INE	Instituto Nacional de Estadísticas
INIA	Instituto Nacional de Investigación Agropecuaria
ISO	International Organization for Standardization
JUNAE	Junta Nacional de Empleo (MTSS)
LATU	Laboratorio Tecnológico del Uruguay
LFCC	Low Forest Cover Country
MDL	Mecanismo de Desarrollo Limpio
MDN	Ministerio de Defensa Nacional
MEF	Ministry of Economy and Finance / Ministerio de Economía y Finanzas
MERCOSUR	Mercado Común del Sur
MEVIR	Movimiento de Erradicación de la Vivienda Insalubre Rural
MFS	Manejo Forestal Sustentable (en inglés <i>SFM</i>)
MGAP	Ministry of Livestock, Agriculture and Fishery / Ministerio de Ganadería, Agricultura y Pesca
MI	Ministerio del Interior
MIE	Ministry of Industry and Energy
MIEM	Ministry of Industry, Energy and Mining / Ministerio de Industria, Energía y Minería
MRREE	Ministry of Foreign Affairs
MT&D	Ministerio de Turismo y Deporte
MTOP	Ministerio de Transporte y Obras Públicas
MTSS	Ministry of Labour and Social Security / Ministerio de Trabajo y Seguridad Social
MVOTMA	Ministry of Housing, Territorial Management and Environment / Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente
NC	National Communication
NFDS	National Forestry Development Strategy
NSPA	National System of Protected Areas (DINAMA/MVOTMA)
OIT	Organización Internacional del Trabajo
ONG	Organización No Gubernamental
OPP	Budget and Planning Office / Oficina de Planeamiento y Presupuesto
OPyPA	Oficina de Política y Programación Agropecuarias (MGAP)
OSE	Obras Sanitarias del Estado
PBI	Producto Bruto Interno
PEA	Población Económicamente Activa
PET	potential evapotranspiration
PFN	Programa Forestal Nacional
SFM	Sustainable Forest Management

PIB	Panel Intergubernamental del Bosque
SIDS	Small Island Developing States
PIT	Plenario Intersindical de Trabajadores
PPR	Proyecto de Producción Responsable
s/d	Sin datos
SEMM	Servicio de Emergencia Médica
SGS	Société Générale de Surveillance
SNAP	Sistema Nacional de Áreas Protegidas (DINAMA/MVOTMA)
SOIMA	Sindicato de Obreros de la Industria de la Madera y Afines
SPF	Forest Producers Society / Sociedad de Productores Forestales
SRP	short-rotation plantation
UCC	Climate Change Unit
UCM	Unidad Coronaria Móvil de Montevideo
UCUDAL	Universidad Católica Dámaso Antonio Larrañaga
UDE	Universidad de la Empresa
UDELAR	Universidad de la República
UICN	Unión Internacional para la Conservación de la Naturaleza
UNDP	United Nations Development Programme
UNFF	United Nations Forum on Forests
UNIT	Instituto Uruguayo de Normas Técnicas
URSEA	Unidad Reguladora de Servicios de Energía y Agua
USD	United States dollar
UTE	Usinas y Trasmisiones Eléctricas
UTU	Universidad de Trabajo de Uruguay
VAT	Value Added Tax
VCU	Voluntary Carbon Units

1. OBJECTIVES

The Secretariat of the United Nations Forum on Forests (UNFF) launched a project to identify the challenges that hinder financing of sustainable forest management (SFM) in Small Island Developing States (SIDS) and Low Forest Cover Countries (LFCCs).

Recent studies have identified difficulties in financing SFM. In the case of Uruguay, the latest reference document on this topic was a result of the Technical Cooperation Project GCP/INT/953/NET5, dated August 2006, developed by Alberto Fossati and Eduardo van Hoff under the coordination of Food and Agriculture Organization (FAO). The title of the document is “Strategies And Mechanisms For The Conservation And Sustainable Use Of Forests”.⁶

The present project initiated by the Secretariat of the UNFF called for the development of seven national case studies. Uruguay was one of the countries selected.

⁵ “Proyecto de Cooperación Técnica GCP/INT/953/NET”

⁶ “Estrategias y mecanismos para la conservación y el uso sostenible de los bosques”

2. METHODOLOGY

Indufor Oy (Finland), the international consultant hired to conduct the work, contacted Consur (Uruguay) to provide technical support for this assignment.

The methodology comprises the collection and analysis of information, interviews with experts (see Annex 1), and the execution of a workshop (see Annex 2), in which representatives of local sectoral authorities and representatives of private stakeholders engaged in forestry participated in an exchange of opinions on the topic of financing for sustainable forestry.

Firstly this case study introduces Uruguayan socio-economic context and basic forest data. Agroindustry and forest sector share of agroindustries are analysed executive summary in more detail. Basic facts are followed by an analysis of institutions involved in sustainable forest management and an analysis of past and current policies guiding forest sector development. Efficiency of these policies in generating financing for SFM and in forest sector is also analyzed. This is followed by a presentation of forest production, forest industries and forest sector foreign trade development during the last decade. Also certification as a tool for SFM and synergies with other sectors, as well as potential of carbon markets and are discussed in detail. The last chapters of this study analyze in detail the capital flows and need for financing for SFM.

3. EXECUTIVE SUMMARY

Uruguay is a small country where forests currently cover 1.7 million ha (9 per cent of the territory), and the majority of lands, including forest lands, are under private ownership. Only 10 per cent of the total 3.5 million population is considered rural. The country's economy is highly dependent on the agricultural sector. Forests are traditionally used for fuel wood collection and hunting. However, within two decades, Uruguay has managed to develop its forest sector from a marginal business into one of the major pillars of Uruguay's foreign trade.

The Uruguayan forest sector is well organized, and various public and private stakeholders communicate and cooperate well with each other. Since the late 1980s, Uruguayan governments have implemented consistent forest policies that aim to diversify the production base of agroindustries by providing incentives for afforestation activities and SFM. Land use planning has clearly designated lands devoted to forestry. In addition, afforestation activities have been directly subsidized, and tax exemptions have been provided. Policies supporting SFM have been coordinated with environmental and agricultural policies, and more recently, forests have been integrated into Uruguay's energy policies. Forest policies have already supported afforestation and forest management for industrial purposes; however, environmental services provided by forests and SFM, especially in the context of climate change mitigation, have only recently been recognized as an additional value and are yet to be fully investigated and utilized in generating financing for SFM. To ensure SFM and improve access to European markets, the majority of planted forests are certified; in addition, the National Code for Good Forestry Practices in Cultivated Forests has been developed.

The regulations that foster investments in general as well as those that specifically aim at promoting investment in forestry and in the management of native woodland have led to a forestry boom in Uruguay in the course of the last 20 years. As a result, the area covered by native forests went from less than 3 per cent of the national territory in 1990 to over 4 per cent of the national territory. Likewise, the artificial forests that used to occupy barely over 1 per cent of the national territory now cover more than 5.5 per cent. Combined together, the native forests and the planted forests, which used to occupy 4 per cent of the national territory, now occupy 9 per cent. However, the financial crisis in early 2000 triggered a change in the ownership structure of forest plantations, as private small owners gave up forestry activities and sold their plantations to forest industry investors.

Planted forest resources are now feeding a growing forest industry. In 2000, the forest product exports managed to equal the imports, and ever since, the value of annual exports has exceeded the value of annual imports. It was not until 2006 that the trade balance started to show clearly positive signs, with a positive balance reaching over USD 100 million. In 2007, with forest product exports exceeding a total value of USD 350 million annually, the positive trade balance was close to the 200 million dollar mark, and in 2008, the trade balance more than tripled its previous value. Similarly, forestry employment has been increasing: in forest management, employment increased from 4,000 in 2004 to 12,000 in 2008.

In its National Communication (NC) for the UNFCCC, Uruguay has communicated its main sources of emissions, which are methane and nitrous oxide from grasslands. In addition, the NCs show transportation as the most significant source of carbon dioxide, while forests are responsible for over 70 per cent of CO₂ absorption. Uruguay is one of the very few countries in the world whose forests act as carbon sinks (however, this statement does not hold true for other GHGs). Artificial forests have played an instrumental role in addressing the issue of greenhouse gases (GHGs). In recent years, several forestry and forest-industrial companies have received certified carbon fixation for their plantations, including one (Caja Bancaria) that has already traded certified bonds on the voluntary markets. On the other hand, only one project was formally presented before MVOTMA's Office of Climate Change requesting authorization to claim certified bonds under the framework of the Kyoto Protocol. Unfortunately, to this day there is no clearly defined national policy for that. Clearly, the absence of specific guidance limits the producers' chances of

obtaining financial resources via carbon certificates/bonds, which are clearly a part of SFM. Consequently, the country is not receiving external resources that should be available to the forestry sector to help finance SFM. Moreover, such a mechanism would improve the management of the native forests. It would permit their expansion and promote biodiversity, owing to the enhanced profitability obtained from the trading of certificates.

Currently, the majority of funding for SFM comes from private sources: the total investment by the private sector in plantations and forestry management (accrued as of 2008) adds up to USD 800 million, not considering land value. The non-refundable and refundable public investments add up to USD 158 million, which is less than 20 per cent of the private investments in forests (excluding the land from calculations). Major gaps for financing in the public sector are development of tools for SFM and forest cover monitoring. In addition, the pace of forest sector development has caused pressure on increased investment in research activities in forest ecology and management, for example. On the private sector side, the potential of new innovative financing mechanisms, including PES, would need further investigation, and the infrastructure should be developed and improved to support SFM and forest industry development.

Within two decades, Uruguay has managed to develop its forest sector from a marginal business into one of the major pillars of Uruguay's foreign trade. A favourable political environment of strong political will and continuity and coherence of policies and legislation supporting investments in SFM and forest industries, combined with favourable climatic and demographic conditions, has enabled this development. Uruguay has shown that the public sector may provide incentives for SFM, but to make SFM successful, good cooperation between sectors and public and private actors is needed, and decision makers must have a long-term perspective, due to the long-term nature of forest activities.

However, to further diversify the financing base of SFM and to create a buffer against economic turbulence also affecting forest investments, other sources of financing could be applied to industry-oriented forestry as well. Both natural and artificial forests may provide environmental services, which should be fully valued, and national and international organizations should develop incentives and mechanisms applicable to various ecological and socio-economical contexts.

4. BASIC COUNTRY INFORMATION

4.1. Forests

Published information from the last two National Farming Censuses (1990 and 2000) indicates that the wooded area surveyed on farms devoted to agricultural production is about 16 million hectares (15.8 million ha and 16.4 million ha for 1990 and 2000 respectively).

The characteristics of the soil and climate provide adequate conditions for a range of production activities in most of the country. The authors of this report will elaborate on three of those activities -livestock, agriculture and forestry.

Jointly considered, the categories of native forests and artificial forests rank forests second in terms of territory occupation, stretching across 1.7 million hectares (more than 9 per cent of the national territory).

The forestry records of the last twenty years show that both types of forests have expanded; according to the national registers, native forests have grown from 500,000 to 750,000 hectares, while the land used for cultivated forests has increased exponentially, from less than 200,000 hectares to almost 1 million hectares.

It is worth mentioning that the aforementioned areas correspond to the so-called “tierras afectadas a la forestación” (land devoted to forestry but not necessarily under forest cover —see footnote 28 for further explanation), and not “tierras efectivas” (forested area). In the case of forest plantations the land devoted to forestry is 20 to 25 per cent higher than the forested area. While the land devoted to forestry or allegedly designated to forestry is 1,7 million hectares, the area directly covered by forests is 1,2 to 1,3 million hectares.

Table 1 Use of land

<i>Use of land</i>	<i>1990</i>	<i>2000</i>	<i>2007</i>
	<i>thousands of hectares</i>		
Livestock Land (Meat, Milk and Wool)	14 224	14 283	13 369
Agricultural Land (grains, oilseeds, sugarcane)	608	598	1 066
Cultivated Forest Land	186	661	970
Native Forest Land	497	590	752
Fruit and Vegetable Land	85	76	51
Unproductive Land	204	212	212
Total Forest Land (thousands of hectares)	683	1 251	1 722
National Total (thousands of hectares)	15 804	16 420	16 420

Source: DIEA-MGAP. 1990 and 2000 Farming Census, and 2007 Statistics Yearbook.

4.2. Population

The Uruguayan population has increased by just under 15 per cent in the last 25 years, and as of today, the population has reached 3.5 million. The annual growth rate of the population is less than 3 per cent. The rural population is less than 10 per cent of the total. According to the last National Census, there were 266,000 rural inhabitants out of a total of 3.2 million inhabitants.

4.3. Population engaged in forest-related activities

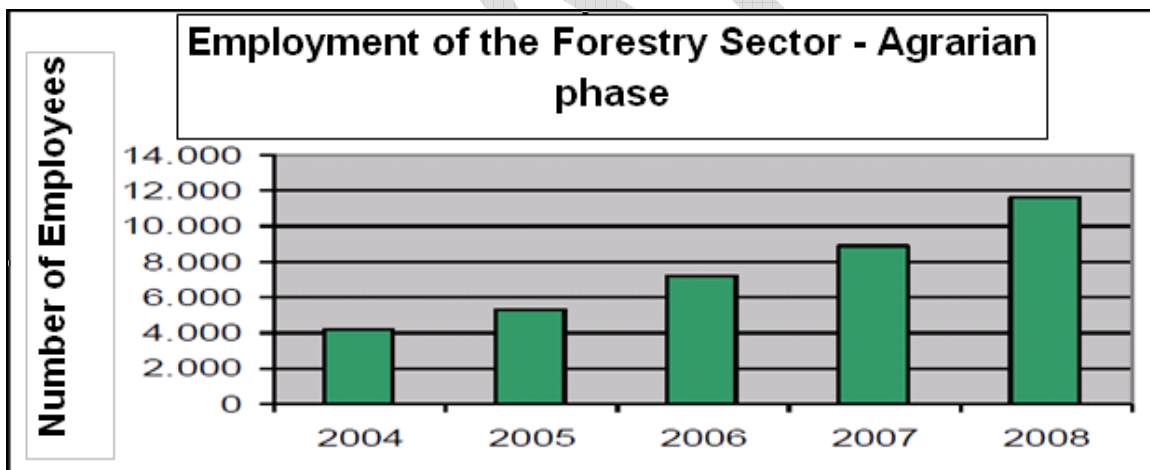
The best estimates of the population more directly engaged in forestry come from the Social Security Bank⁷ (BPS), where all formal workers are registered according to their work activity. The official BPS data show that in the last five years, the employment rates in the forestry sector have tripled, following the forestry expansion process. Significant plantations of cultivated forests have continued to thrive at a steady pace, activities related to plantation management (tree pruning and thinnings) have intensified, and harvesting has increased, particularly harvesting of the short-rotation plantations (SRPs) for the production of wood pulp.

Forestry appears as the activity with the greatest increase as a source of direct employment in the 2004-2008 period, its payrolls going from 4,000 to almost 12,000 workers (an increase of 189 per cent). In comparison, farming activities taken as a whole provided formal employment to more than 101,000 workers in 2008, whereas only 80,000 workers had been declared in 2004 (reflecting an increase of 25 per cent).

It should be mentioned that most of the labour force has settled in rural areas. Furthermore, as many of the jobs require workers to live onsite (foremen and labourers), many rural workers also take their family along. Hence, it is quite likely that the livelihood of 5 to 10 per cent of the Uruguayan rural population may depend on forestry directly.

These figures do not include the people employed by the manufacturing sector and related services (primarily transport and logistics), fields of employment that account for most of the urban jobs.

Figure 1 Employment of forest sector workers involved in forest management activities



Source: OPYPA, based on data provided by BPS

4.4 Gross domestic product

After five consecutive years of uninterrupted growth, Uruguay's current gross domestic product (GDP) is over USD 30 billion - an unprecedented record in the country's history (since official statistics have been kept).

After recovering from the economic downturn that started in the late 1990s and hit its nadir in 2003 (and following the region's financial and political crises that erupted in 1998), the GDP soared from USD 12 billion to USD 32 billion (an increase of 166 per cent). This growth is due to changes in

⁷ Banco de Previsión Social

international markets for products of agricultural origin and the large increase in foreign direct investment in the country which together enable a great expansion of production destined to various overseas markets.

Considering the total population, the latest annual reports show an annual per-capita GDP of over USD 9,000.

Table 2 Total agricultural and agri-industrial gross domestic product by year

	2001	2002	2003	2004	2005	2006	2007	2008*
1. In current USD millions								
1.1 Values								
Total GDP	278 353	289 233	339 792	392 850	425 018	482 016	569 261	674 278
Agri-industrial GDP(1)	24 782	31 647	48 153	60 554	56 178	62 565	71 630	92 311
Farming GDP	15 092	21 052	31 881	42 155	36 237	40 247	46 902	61 387
GDP of farming-related industries (2)	9 689	10 595	16 272	18 398	19 941	22 318	24 728	30 925
1.2 Percentages (with respect to the total GDP)								
Total GDP								
Agri-industrial GDP(1)	8.9	10.9	14.2	15.4	13.2	13	12.6	13.7
Farming GDP	5.4	7.3	9.4	10.7	8.5	8.3	8.2	9.1
GDP of farming-related industries (2)	3.5	3.7	4.8	4.7	4.7	4.6	4.3	4.6
2. In current USD millions								
Total GDP	20 893	13 603	12 040	13 688	17 367	20 032	24 261	32 208
Agri-industrial GDP(1)	1 860	1 489	1 707	2 111	2 297	2 602	3 055	4 409
Farming GDP	1 133	990	1 130	1 469	1 481	1 673	1 999	2 932
GDP of farming-related industries (2)	728	499	578	642	817	929	1 056	1 477
3. In constant USD millions(3)								
Total GDP	404 967	373 655	376 664	395 513	425 018	444 774	478 495	521 073
Agri-industrial GDP(1)	36 054	40 884	53 379	60 964	56 178	57 731	60 209	71 337
Farming GDP	21 957	27 197	35 341	42 441	36 237	37 137	39 424	47 439
GDP of farming-related industries (2)	14 096	13 687	18 038	18 523	19 941	20 593	20 785	23 898

Source: Developed by MGAP- DIEA based on data provided by the Central Bank (BCU)⁸ and the National Statistics Institute (INE)⁹

(*) Preliminary Information

(1) Corresponds to the sum of the farming-related GDP and the GDP of some selected industries

(2) Includes the food industry, as well as activities such as scouring of fleece and production of tops, wood and timber (except furniture) and tannery

(3) Based on constant prices (2005)

4.5 Foreign trade

From 2005 to 2009, Uruguayan exports increased from USD 2.9 billion to USD 6 billion (up 103 per cent). On the other hand, imports grew from USD 3.1 billion to USD 8.9 billion, resulting in a growing deficit in the trade balance, which rose from USD 184 million to USD 3 billion.

This situation, which has a negative impact on the current account, is partially offset in the capital account of the balance of payments (BOP), where there seems to be a favourable trend in the inflow of investment. Investments have significantly increased in the last few years (2005-2008), with registries exceeding USD 2.9 billion in 2005, rising to USD 6.6 billion in 2008.

⁸ BCU: Banco Central del Uruguay

⁹ INE: Instituto Nacional de Estadísticas

4.6. Investment

Investment annual rates fluctuated between 16.5 per cent and 20.6 per cent of the GDP in the years 2005-2009, with a significant share of private investments ranging from 13.2 per cent to 16.2 per cent of the national GDP.

Table 3 **Fixed capital formation**

<i>Fixed capital formation</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
Annual percent growth rate on investment	151.9	17.4	8.9	18.7	- 4.0
Total investment as % of the GDP	16.5	18.6	18.9	20.6	19.3
Public investment as % of GDP	3.4	3.9	4.1	4.5	5.2
Private investment as % of GDP	13.2	14.7	14.7	16.2	14.0
Total investment in million USD	2 866.0	3 726.0	4 585.0	6 635.0	6 086.0

Source: BCU.

5. FOREST INFORMATION

5.1 Institutions

The organizations making up the Uruguayan institutional landscape include labour unions, alumni associations, corporate organizations (Forest Products Society, Industrial Chamber of Wood Processing, Wood and similar Industry Association(s), Forestry Service Companies Association, Pulp and Paper Industry Association), university and research institutions (UDELAR, INIA, LATU), and private universities (UCUDAL, UDE).

Public and private technical working groups operate both at the level of Mercosur and nationally. These include the Wood Board¹⁰ and the National Forum on Wood and Furniture (which operate under the auspices of the Ministry of Industry, Energy and Mining (MIEM)), as well as environmental and social NGOs relevant to the sector.

All the above-mentioned organizations were involved to a certain extent in the discussion and implementation of the forest policies concerning production and increase of productivity. These organizations were also involved in the discussion of the environmental and social policies related to forestry.

The regulatory agency in charge of forest policies is the MGAP. The Directorate of Forestry (DGF) (under MGAP) implements forest policy, as mandated by the current legal framework.

Two State agencies are involved cross-sectorally in forestry. The first is the MIEM. MIEM acts primarily through its National Directorate for Industry¹¹ (DNI) and its National Energy and Nuclear Technology Directorate¹² (DNETN). The former directorate is in charge of policies related to wood manufacturing for purposes other than energy production, while the latter is responsible for energy production. The second State agency involved inter-sectorally in forestry is the Ministry of Housing, Territorial Management and Environment¹³ (MVOTMA). The MVOTMA acts through its National Directorate for the Environment¹⁴ (DINAMA) and its Climate Change Unit¹⁵ (UCC). DINAMA issues the environmental authorization for forestry plantations that meet the production conditions promoted by DGF within the National System of Protected Areas¹⁶ (SNAP), which includes considerable areas of native forests, including land assigned for forest activities as a priority. The UCC is the national authority responsible for enforcing the Kyoto Protocol commitments.

The three above-mentioned Ministries (MGAP, MIEM and MVOTMA) are in charge of the core aspects of public policies that affect the development of the forest sector. That is, they are responsible for all the issues related to production, industry, energy and the environment. These ministries complement and coordinate work with four other agencies of a similar hierarchy. These are (a) the Ministry of Economy and Finance (MEF¹⁷), which is responsible for the main fiscal and trade issues; (b) the Ministry of Foreign Affairs (MRREE¹⁸), which is in charge of international trade and relations; (c) the Ministry of Labour and Social Security (MTSS¹⁹), which is responsible for

¹⁰ Mesa de la Madera

¹¹ Dirección Nacional de Industrias -DNI

¹² Dirección Nacional de Energía y Tecnología Nuclear - DNETN

¹³ Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente

¹⁴ Dirección Nacional de Medio Ambiente - DINAMA

¹⁵ Unidad de Cambio Climático – UCC

¹⁶ Sistema Nacional de Áreas Protegidas - SNAP

¹⁷ Ministerio de Economía y Finanzas – MEF

¹⁸ Ministerio de Relaciones Exteriores – MRREE

¹⁹ Ministerio de Trabajo y Seguridad Social - MTSS

labour issues; and (d) the Budget and Planning Office²⁰ (OPP), which is in charge of the National Budget.

5.2. Public policies

Explicit public policies have guided the development of the forest industry in Uruguay. In the changing political environment governments have maintained the support towards the development of afforestation among their priorities promulgating various norms that have improved the framework promoting productive, industrial and commercial investments. A major driver for these policies has been a will to diversify country's economy and exports which rely heavily on agricultural products. Public intervention is based on a set of incentives (such as, inter alia, direct subsidies, fiscal exemptions and promotional lines of credit and refunds on export taxes) to promote investment in the primary sector. The strategic objective is to develop the forested area required for the sustainable development of a competitive supply chain in the forest industry, with the global market as a target.

The highest authority in this matter (MGAP-DGF) has endeavoured to act in accordance with the Forestry Principles and Chapter 11 of Agenda 21: "The forestry resources and territories must be managed in a sustainable way to satisfy the social, economic, ecological, cultural and spiritual needs of the present and future generations."

Pursuant to that, the country adopted complementary public policies on other related matters, such as those dealing with additional environmental, territorial, industrial and labour issues, among other things. The development of tools for SFM in Uruguay is evidence of this.

Other examples illustrate some of the actions taken. Uruguay has its National Code for Good Forestry Practices for Cultivated Forests. The country also implements Prior Environmental Authorization, which must be requested before investments are authorized for plantations and manufacturing. Uruguay's Certification and Labelling of Forest Products meets the most stringent global standards applicable to a range of issues. As a final example, the criteria and indicators used in the monitoring of the sector-related policies that involve economic, social and environmental issues is in keeping with the commitments agreed to as a signatory party to the Montreal Process.

While the Forest Act (No. 15.939, dated 28 December 1987)²¹ is the main legal tool for the development of forestry, other legal norms (see annex 3) must also be considered to understand the country's legal framework. International treaties signed by the country must also be taken into account because they may constrain or direct the policies adopted in the sector.

Uruguay has signed several international agreements concerning environmental protection specifically related to forestry. Immediately following is a timeline of some of those conventions:

1994: Uruguay subscribed to the United Nations Climate Change Convention Framework (UNCCCFF) at the Environment and Development Conference held by the United Nations. The National Directorate for the Environment (under the Ministry of Housing, Territorial Management and Environment) was appointed for this task.

1995: Uruguay was part of the Montreal Process for the Development of Criteria and Indicators for the Sustainable Management of Boreal and Temperate Forests. The Directorate of Forestry (under MGAP) was the responsible agency in this matter.

²⁰ Oficina de Planeamiento y Presupuesto – OPP

²¹ Ley Forestal No.15.939, de 28 de diciembre de 1987

1997: Uruguay signed the Kyoto Protocol, which entered into force on 16 February 2005. The protocol sets the guidelines for the application of the Clean Development Mechanism (CDM) as a financing mechanism for forestry projects that promote sustainable development. The UCC (under MVOTMA) was the national authority in charge of this.

1999: As a member state of the United Nations Convention on Biological Diversity, Uruguay proposed a National Strategy for the Conservation and Use of Sustainable Biological Diversity, financed by the Global Environmental Facility and implemented by the United Nations Development Programme (UNDP), with DINAMA (under MVOTMA) as the national representative.

5.2.1. Forest policy

In its first article, the Forestry Act (15.939) declares forestry as an activity of national interest, and in its second article, it entrusts the drafting and execution of the national forestry policy to DGF under the umbrella of MGAP.

The purpose of the law is to foster production and to curtail the logging of native forests by creating incentives for plantations on soils with low agriculture and livestock potential. Incentive tools vary depending on the case, ranging from subsidies to tax exemptions; indirectly they contribute to the protection of the natural resources (mainly soil) and to mitigating climate change. Although the law does not prevent production-oriented forest plantations from providing environmental services, those services are not specifically addressed as a goal when promoting planted forests.

The Fourth Article establishes that “Forests are the vegetation which predominates in woodland of any size, whether it has been exploited or not, the vegetation being able to produce wood or other forestry products or being able to impact the conservation of the soil, hydrology or the climate, or which can provide warmth or other benefits of natural interest.”

The core economic components of the policy established in this law aim at further developing the existing artificial forests, creating new planted forests and protecting the country's native forests. The components include tax exemptions, subsidy mechanisms and specific credit lines for forestry.

The most relevant decrees that complement the Act are Decrees Nos. 425/88 and 26/93. These represent the policy's key tools for territorial planning, as they define the lands where forestry should be prioritized, for either production or protection of forests.

These norms identify the soils that are not suitable for other farming activities but are fit for forestry. They are aimed at developing forests for the production of the raw material needed to supply manufacturing needs.

This forestry-centred perspective is complemented by a holistic view that takes into account other social, economic and environmental components in the framework of the Policy on Territorial Management and the Environment²², thereby providing the current framework for the forest policy.

Finally, Decrees Nos. 23/90, 22/93, 24/93, 330/93 and 131/00 regulate the admissible exceptions in the use of Native Forest, in accordance with the provisions set forth in Article No. 23 of the Forestry Act. Thus, the use of native wood is limited exclusively to the internal consumption of the farm where the plants are located. That measure is expected to reduce consumption, allowing for the regeneration of the native forest.

Many new norms have been passed in recent years (2005 to 2009) as attempts to adjust the framework of the policies in force since 1997. These include (but are not limited to) the following:

²² Política de Ordenamiento Territorial y Medio Ambiente

- Law No. 17.905/05 abolished the subsidies for forest plantations.
- Decree No. 349/05 regulates the Previous Environmental Authorization of every planted forest more than or equal to 100 hectares.
- Decrees No. 191/06 and 220/06 modify the Lands of Forestry Priority (FPL).²³
- Decree No. 191/06 defines the concept of Priority Species for Forestry, which is based on the species' adequacy and technical suitability in the production of woody and non-woody material, the use of which may be considered of national interest.
- Decree No. 191 sets forth that the term "Artificial Protecting Forest" shall be used to define plantations intended to serve agricultural production.
- Law No. 18.083/07 prioritizes the income tax exemption only for Forest Protectors and those forests producing so-called "quality wood", and it establishes the possibility to curtail taxes for the development of such forests.
- Law No. 18.245/07 maintains the exemption of the Estate Municipal Tax (CIR)²⁴ for Forest Protectors and the Performance Forests aimed at producing quality wood.

The above account shows the adjustments and modifications introduced in the public policies since 2005, many of which are aimed at improving SFM. The most notable ones will be discussed below.

Elimination of direct subsidies on forest cultivation: Although this measure has not led to a significant reduction in the rate of plantations, it has slowed down the pace at which private companies submitted their declarations of plantations to the MGAP. The measure was adopted after a debate with the stakeholders, with the understanding that the activity no longer needed this kind of support.

Change in the Forest Priority Lands²⁵: As a result of technological and scientific advances involving modern techniques such as direct seeding, the criteria for determining the agricultural adequacy of land (as well as its adequacy for forestry purposes) have changed. Hence, some lands that had been considered inadequate for agriculture in the past were eliminated from the list of land suitable for forestry, while other lands have been added to the list but are subject to approval by the Soil Directorate of the MGAP. The demand for priority and non-priority lands destined for forestry plantations has remained steady, and it is a source of difficulties for the producers because of the time it takes the authorities to make their decisions. It is also a source of potential conflicts of interest for the administration, which needs to distance itself from vested interests impinging on its decisions. The MGAP and the MVOTMA have shared authority in this matter. The problem arises because of the different criteria applied by the two agencies when assessing the sites that are applying for authorization for the plantation of cultivated forests.

Elimination of tax refunds on roundwood exports: This was implemented to eliminate any factors that would make exporting roundwood preferable to selling it to the domestic market for producers. It was an attempt to favour the national industries. Despite this measure, there are still significant exports of round sawmill wood, and even roundwood for pulp (although it is true that the quantities have clearly dropped since 2007, when the Botnia plant started operating). The national manufacturers cannot afford the international prices of roundwood offered by the international buyers (for knot-free logs with specific diameters), considering the products currently produced. To date, the refund tax on exports of some items is still applied, including to plywood panels and MDF (4 per cents/FOB)²⁶ exports, and pressure treated wood and chips (2 per cent s/FOB) exports, but

²³ These are lands that, owing to their poor production potential for purposes other than forestry, are deemed by the regulatory agency to be especially suitable for forestry, i.e., "Lands of Forestry Priority". The law allows owners of such lands to apply for certain incentives (subsidies, tax exemptions).

²⁴ Contribución Inmobiliaria Rural

²⁵ The term "tierras afectadas" (or "FPLs with effective plantations") refers to the part of the forest-priority lands where forest plantations have been effectively established. However, only part of such a plantation's surface area ends up with trees; the rest is land surrounding the forest, firewalls, floodable lowlands, etc.). Hence, of the country's gross 3.3 million hectares of FPL, 800,000 hectares are covered by plantations, and approximately 560,000 hectares have planted trees.

²⁶ I.e., 4 per cent over the product export price per unit.

it is not applied, for instance, to non-processed round logs. In any case, there are still cases of exports of unprocessed quality wood logs for sawmill industries abroad.

Maintaining tax exemptions to planters who present a plan for the production of quality wood: This tends to promote the production of large-diameter wood for industry using mechanical manufacturing methods. It is still too early to determine whether there is a tendency toward the actual increase of the execution of these projects, but there has been a great increase in the application for such projects to the DGF, especially in the southern and eastern part of the country. In 2008-2009, more than 60 per cent of the projects presented to the DGF involved “good quality wood”.

The introduction of forest plantations on traditional farms: This is promoted by the MGAP “Cattle Plan”²⁷, partially funded by IDB. The plan offers non-refundable resources to farmers that exploit farmland smaller than 1,250 hectares, who are willing to diversify their production by incorporating cultivated forests. The compensation offered is relatively low (paying for the equivalent of up to 50 per cent of the anticipated forestry costs, but not to exceed a cap of USD 3,600 per farmer). That amount would permit most farmers in that category to plant about 20 hectares of cultivated forests (1.5 per cent of each traditional farm). The response of the farmers to the initial call has not been enthusiastic; there were only 50 to 60 farmers who expressed interest. Other mechanisms are being considered, alongside the evaluation of possible changes to enhance the use of this instrument nationwide. So far, this instrument has failed to impact forestry in Uruguay.

Policies related to manufacturing: With regard to policies related to manufacturing, it is important to mention the application of the Act for the Promotion of Investment²⁸ to many projects related to forestry, the Free Zone Act²⁹ and the creation of two Tax-Free Zones for the installation of pulp mills (one of those mills – Botnia/UPM has been operating since 2007). As previously mentioned, the promotion of various investment projects linked to the lumber industries and logistics and wood transport services has been declared in the Investments Act in recent years, enabling those sectors to access tax exemptions.

5.2.2. Environmental policy

Law No. 16.112, passed on 23 May 1990, created the Ministry of Housing, Territorial Management and Environment (MVOTMA). The Ministry is in charge of (a) the drafting, execution, supervision and evaluation of measures aimed at protecting the environment and (b) the implementation of the appropriate national policies.

Law No. 15.466 (3 January 1994) declares the nation’s interest in the protection of the environment against any type of degradation, destruction or pollution, as well as the prevention of negative or deleterious impact on the environment. In case of violations to the above, it establishes the rehabilitation of the environment damaged by human activity.

Decree No. 349/05, statutory of Act No. 16.112, specifically establishes that forest plantations of 100 hectares or more require a Previous Environmental Authorization before they can be granted a permit by MVOTMA. Concerning the authorization of facilities, the manufacturing component of the forestry chain abides by the same norms as the rest of the industry.

The authorization for the Agrarian Phase is given in accordance with the National Code of Good Forestry Practices; however, there are other criteria that are applied on an individual basis, which are not clearly established by MVOTMA.

5.2.3. National Code of Good Forestry Practices

²⁷ Plan Ganadero

²⁸ Ley de Promoción de Inversiones No. 16.906

²⁹ Ley de Zonas Francas

The DGF of the MGAP, together with the MVOTMA, the MTSS³⁰, the School of Agriculture, the Association of Agricultural Engineers (AIA), the National Institute for Agricultural Research (INIA)³¹, the Forest Producers Society (SPF)³² and the Association of Forestry Contractors (ACF)³³, has developed the National Code of Good Forestry Practices for Cultivated Forests in Uruguay. Experts from academia, researchers, workers, independent experts, forestry firms, and environmental and social NGOs were also engaged in the drafting of this Code.

The National Code of Good Forestry Practices for Cultivated Forests consists of a set of provisions, procedures, concepts and standardized working guidelines applicable to the plantation phase of forestry. They are intended as recommendations to ensure that these forests are managed in a sustainable manner, abiding by a minimal set of recommendations on practices not regulated by law. As soon as those principles or recommendations are covered by a law or regulation, they become binding and their application becomes mandatory.

The recommended practices will be appropriate if they are socially accepted, economically viable and environmentally balanced. The Code establishes recommended practices in forest implantation, harvest and protection so that forest operators may be aware of sustainable forestry issues such as type of soil, quality and quantity of water resources, plants and animals, genetic resources and landscape. The Code also raises awareness of issues of occupational health and safety.

This is the reference currently considered by DGF (under MGAP) to authorize forest plantations. However, this is not the only aspect considered by MVOTMA, the other agency with authority in the permit process. Such overlap makes it difficult for the private sector, because while one of the actors (MGAP) applies clear rules, the other (MVOTMA) applies ill-defined or unpredictable criteria.

5.2.4 Policy instruments *vis à vis* financing of the sector and SFM

The current legal framework is based on Forestry Law No. 19539 (28 December 1987), which provides a suitable environment for forestry development.

Unanimously approved by Parliament, the above law aims to preserve native forests and expand the forested area, thereby encouraging the creation of a new agri-industry for exports. The expansion of forest plantations is based on land management policies that define the sites (soils) where the activity is to be promoted.

Several important instruments promote industrial forestry activities in Uruguay. These include plantation subsidies (effective until 2007), special tax exemptions for owners of well-managed native woodland (CIR: Municipal Estate Tax) and promotional credits, funded by public banking (BROU), which are complemented by the general mechanisms of promotion of investment under the umbrella of the Act on the Promotion of Investment No. 16906 (1998). This provision establishes non-discriminatory treatment of foreign or domestic investments and approval without the need for previous authorizations or registrations. It also guarantees the free transfer of capital and repatriation of profits in freely convertible currency. The general incentives for investment include exemption on a number of taxes, such as the Revenue Tax, the Net Worth Tax, the Value Added Tax (VAT),³⁴ the Specific Internal Tax (IMESI)³⁵ on imports and the VAT on local purchases of input and machinery directly used in the production cycle.

³⁰ Ministerio de Trabajo y Seguridad Social: Ministry of Employment and Social Security

³¹ Instituto Nacional de Investigación Agrícola

³² Sociedad de Productores Forestales

³³ Asociación de Contratistas Forestales

³⁴ VAT and IMESI are two different taxes. VAT is a consumption tax which is added to some products and it is ultimately passed along to the consumer. Businesses pay this tax when they buy products or services and they are able to recover VAT (input tax) once they sell them. IMESI is an internal tax that is applied to a narrow range of products, such as gasoline. It is usually imposed on the producer or wholesaler rather than on the retail seller. It can be said that IMESI is like a loss for companies as they cannot recover what they have paid.

The regulations that foster investments in general as well as those that specifically aim at promoting investment in forestry and in the management of native woodland have led to a forestry boom in Uruguay in the course of the last 20 years. As a result, the area covered by native forests went from less than 3 per cent of the national territory in 1990 to over 4 per cent of the national territory. Likewise, the artificial forests that used to occupy barely over 1 per cent of the national territory now cover more than 5.5 per cent. Combined together, the native forests and the harvested forests, which used to occupy 4 per cent of the national territory, now occupy 9 per cent. Consequently, the wooded area currently stretches over 9 per cent of the country's farmland.

One of the most powerful instruments in the forestry policy (implemented since 1997) was the direct subsidy granted only once to projects approved by the DGF-MGAP. The Forestry Fund created for this purpose under Law No. 15.939 anticipated the use of public resources to provide a one-time-only subsidy that represented up to 50 per cent of the forecasted costs of forestry, as determined by the DGF every year.³⁵

Although this instrument is no longer in force, it was one of the key financial mechanisms for the promotion of forestry in Uruguay and was instrumental in encouraging local investors to develop the early stages of the forest industry. Once a project defined as "Performance Forestry" was evaluated and approved by the technical staff of MGAP, it was immediately entitled to the legal benefits set forth by law. The applicant could claim the subsidy to the DGF after completing the first and up to the fourth year of the plantation of the forest. Applicants had to start by declaring the plantation and registering it at that same office (DGF), and they had to prove a 75 per cent or greater survival rate of the trees initially planted.

By the end of 2009, almost USD 65 million had been paid in subsidies, and around USD 30 million are still to be paid. With these figures confirmed, the fiscal contribution for future years would be around 140 to 150 USD per forested hectare under this mechanism (adding approximately 600 thousand hectares).

The subsidies mechanism played a key role in the initial process of financing low scale forestry investments made by national producers and companies. They supported the banking credits, and even assisted investors in their payments due (especially for loans granted by the state-owned bank (BROU)).

Law No. 15.939 provided for exemptions of national taxes, such as Income Tax and Net Worth Tax exemptions, and for exemptions of the municipal Rural Estate Tax both for land declared as natural forests and for productive forests on soils classified as "forestry priority". In addition, it ensures the extension of this exemption for 12 additional years, covering new taxes levied in the future.

³⁵ IMESI: Impuesto Específico Interno

³⁶ Plantation costs estimated by DGF every year.

Table 4 Subsidies paid

<i>Paid subsidies</i>	<i>Thousand USD</i>
1990	164
1991	351
1992	1 295
1993	2 384
1994	3 244
1995	4 964
1996	3 928
1997	4 248
1998	3 333
1999	5 296
2000	1 522
2001	4 81
2002	2 989
2003	1 219
2004	1 489
2005	4 724
2006	3 279
2007	3 543
2008	7 638
2009	2 947
2010 Partial	931
Subtotal Paid up until April 2010	64 299
Subsidies to be paid	31 154
Total subsidies	94 453

Source: DGF

Furthermore, it provided reinvestment advantages and attracted savings from other sectors for forest-industrial projects declared of National Interest as an additional element of the Promotion of Investment. In fact, it provided the tools to invest more than 30 per cent of income taxes in forestry projects from other sectors such as industrial or commercial ones, establishing similar benefits for the purchasers of Uruguayan external debt bonds. It also provided for tax exemptions for imports of capital goods for the wood industry or for forestry, but if and only if they involved projects approved by the DGF.

All these exemptions were viewed as a key stimulus to making forestry an attractive option over other farming productions. In addition, the fact that the law defined them reflects the country's commitment to promoting the forestry sector.

Considering that 800,000 hectares have been dedicated to forestry since the Law was passed, and considering that the Municipal State Tax (CIR) amounted to around two United States dollars per year per hectare, these exemptions represent a loss in the collection of USD 6 million by the municipal governments.

CIR exemptions to the forest plantations meant a USD 13 million indirect investment as of 2008.

Moreover, net worth tax exemptions reached approximately USD 24 million in the same period, based on an accrued investment of USD 2.4 billion (only for plantations and industry; land is excluded).

There are no estimates of the cost of income tax exemptions. However, for the purpose of illustration, the 2008 figure can be estimated using as a reference the roundwood exported, the free-on-board price paid per roundwood, and the number of roundwood logs harvested annually. The median IMEBA³⁷ rate (levied on the sale of agricultural products) is then applied to the

³⁷ Impuesto a la Enajenación de Bienes Agropecuarios

resulting value. According to these estimates, this benefit has cost USD 2 million per year, and its application would run short of USD 10 million in 20 years.

Added to the subsidies and the tax exemptions mentioned above, the national state-owned bank (BROU)³⁸ granted loans for long-term forestation, applying preferential rates and grace periods of up to 12 years for the repayment of capital and interest. Other credit lines of this same bank financed the purchase of equipment, working capital for the commercial phase, and the pre-financing of exports. BROU was clearly positioned as the main local bank to finance this sector.

Some private banks also offered credit lines for the leasing of equipment locally. Although not necessarily from their branches in Uruguay, these banks also financed larger investments. Specific information concerning this is not available, but an indirect indication that points to possible participation of private banking in the financing of equipment (mainly harvesting and logistics) is the investment that forestry-related firms made into the framework of the Investment Law. In the last three years (2007-2009) of significant wood extraction to date, the claims for fiscal benefits for the purchase of machinery and equipment rose to USD 20 million; much of that amount was funded by the financial system operating in the country.

The state bank (BROU) loans were the most relevant instruments financing plantations, and BROU always demanded real collateral for loans. Uruguayan law does not recognize the “Surface Rights” that would acknowledge ownership of the land separate from that of the forest. However, the maximum period of time for the forestry leasing contracts was recently extended to 30 years (the cap applied for the rest of the uses of land is only 15 years). That makes leasing a better option for the cycles required in the forestry business. This facilitates access to credit for forestry and the drafting of contracts between forestry firms and individual landowners. Another instrument that contributed to facilitating access to credit was the possibility of using the forest itself as collateral.³⁹

Small investors (rural producers and investors outside the sector) mainly used the lines of credit BROU made available. These investors viewed forestry, with its corresponding fiscal incentives, as a good business opportunity. BROU credited USD 44 million and financed approximately 120,000 hectares; i.e., almost 15 per cent of the total amount planted.

Between 1992 and 1998, BROU financed projects at an average pace of 15,000 hectares annually. In 1999, there was a sudden fall in applications for loans, mainly attributed to a combination of factors: a very serious drought, the uncertainty due to the forthcoming presidential elections and a significant devaluation in Brazil which severely hit the Uruguayan economy. The sluggish credit activity continued in 2000, through to the financial collapse in 2002, the year of the most severe banking crisis. Forestry credit lines have never quite recovered since then.

Prior to 1995, up to 80 per cent of the “real declared value” of the projects could be financed initially, and up to 100 per cent of the “presumptive costs” per hectare planted could be financed later, as determined by DGF. Credit lines were in United States dollars, for 10- to 12-year terms, plus a 10-year grace period and capitalization of interest. In return, the lenders demanded that collateral would include the mortgage on the land, the forest itself as collateral and 60 per cent of the corresponding subsidy. The subsidy was in national currency, and in the last years, it generated arrears and required compulsory insurance from the National Insurance Bank against all risks (fire, hurricanes, storms and tornados), with the waiver of rights in favour of the BROU.

The profile of the user of this credit line usually shows that the investors came from other sectors. 87 per cent of the projects consisted of less than 500 hectares, and more than 96 per cent of the loans were used to plant eucalyptus, especially favouring projects for the production of cellulose from *Eucalyptus globulus* (59 per cent) and to a lesser extent for sawmills. The overall production of *Eucalyptus grandis* accounts for only 31 per cent of the area planted using loans.

³⁸ Banco de la República Oriental del Uruguay

³⁹ The bank will typically request the forest production as collateral, together with a mortgage on the land and waiver of 60% of the subsidy that would be kept by the bank.

It should be noted that most loans were granted through bank branches in the north and west of the country, and only one seventh of loans was used to fund plantations in the east. The public bank's credit line was implemented in a project that Uruguay designed and carried out with budget resources of its own and from a World Bank loan (IBRD)⁴⁰ in the 1990s. IBRD financing reached USD 27 million.

Below in table 5 is the record of the funds provided to the forestry sector (primary) by BROU.

Table 5 **BROU's banking financing**

Year	Surface hectares		Proportion (%)	Amount in USD million
	BROU	Total *		
Before	-	62 906	-	-
1992	6 800	25 705	26	2.3
1993	15 600	41 992	37	5.6
1994	16 800	44 330	36	5.6
1995	15 000	58 568	26	5.8
1996	14 300	58 964	24	5.4
1997	15 900	73 243	22	6.1
1998	16 900	84 803	20	6.4
1999	8 900	72 958	12	3.4
2000	7 400	57 931	13	2.8
2001	4 800	51 242	9	1.4
2002	-	26 932	0	-
2003	-	11 467	0	-
2004	-	30 000	0	-
2005	-	40 000	0	-
Period:	121 400	678 135	18	44.8
Total:	740 041 ha		16	

Source: BROU - Eng'r Casamayou

Note* = Surface total DGF - MGAP

By 2006, of the 490 clients that had received an approximate amount of USD 44 million, only 161 remained registered as debtors at BROU, with a debt of USD 17 million. This debt repayment is explained by the anticipated debt cancellations of owners who sold their forests to big companies, combined with those farmers who had difficulties in paying after the 2002 crisis, and who cancelled their debt through bonds.

By the end of 2009, the portfolio had been reduced to 49 clients, who maintained a balance due of USD 4 million (10 per cent of the original investments).

Once the financial crisis that started in early 2000 had passed, the BROU resumed the forestry credit, while implementing important modifications. BROU opened a new line of credit called "Forestry Product⁴¹ 645/1", which targeted medium and large forestry companies. It has financed up to 300 hectares annually, the actual amount being defined on a yearly basis. The loan may cover up to 80 per cent of the "Investment Plan" presented (not to include the purchase of farmland). The caps range from 150 to 400 USD per hectare, depending on the species planted and the density planned, to be paid back in up to a 10-year term, with a grace period for capital of up to eight years.

The financing rate varies; charges may reach around 8 per cent annually, based on a 5.75 per cent annual reference rate plus a risk and liquidity premium and the Tax on Banking Assets (IMABA)⁴². Interest is paid semi-annually, providing no option for capitalization. The estate is mortgaged for an amount equivalent to the loan, with the forest used as collateral for the loan.

⁴⁰ International Bank for Reconstruction and Development

⁴¹ Producto Forestal

⁴² Impuesto a los Activos Bancarios

Despite the relaunching of the line for this sector, the structural change of its organization resulted in almost no operation.

5.2.5. The Promotion of Investment Act

Beyond its subsequent amendments, this law is the main tool for investors, as it provides tax benefits to those investors who envisage establishing operations in the national territory. The projects are assessed by the relevant public agency (in the framework of the Ministerial Commission (COMAP), a commission that brings together the various ministries in charge of production activities as well as the Ministry of Economy and Finance).

In recent years there have been several industrial investments promoted under the Act for the Promotion of Investment. Below is a list of some of the most important investments related to the forestry industry and information on their size.

- EUFORES (2003): USD 7 million investment and seven jobs in Montevideo
- CHIPPER (2004): USD 2.6 million investment and 30 employees in Montevideo. This firm was created as a strategic alliance between a trading company "Grupo Forestal S.A." and a group of producers "Foresur G.I.E" for the production of wood chips (500,000 m³ per year), focusing on the production of wood pulp for the Japanese market.
- URUPANEL (2004 and 2007): USD 56 million investment and 215 jobs in Tacuarembó in 2004, plus USD 20 million and 69 jobs in 2007 for the commissioning of their new manufacturing plant for the production of MDF and plywood panels
- IBERAMER (2004): USD 765,000 investment and 31 jobs in Canelones; commissioning of a wood processing plant for lumber moulding and panelling for exports
- LOS PIQUES (2004 and 2008): USD 40 million investment and 190 jobs in Tacuarembó in 2004; investment of USD 84 million, creating 145 new jobs in the expansion of the plant in Tacuarembó (which will likely triple its production), the construction of a power plant fed with lumber waste, which generates 80,000 MWs per year (information from 2004). Part of the power is used for self-consumption, and the rest is sold to the national utilities company (UTE⁴³). This firm plans to install three more plants for the manufacturing of plywood in Rivera and one more plant for the production of electricity (10MW/h) (USD 125 million in 2010).
- IPUSA (2006 and 2007): USD 1.4 million investment in 2006 and USD 939,000 in 2007; five jobs in Canelones
- NEVOPARL (2007): USD 7 million investment and 36 jobs in Montevideo for the commissioning of a wood chip (*Eucalyptus globulus*) plant to produce and export wood chips
- AGROMONT (2008): USD 1.4 million investment in Montevideo
- URUFOR (2008): USD 25.8 million investment in a sawmill and wood-dryer, plus USD 17 million in co-generation of energy

Complementing the "Law for the Promotion of Investment" is the Law on Tax Free Zones, which grants the same type of tax benefits to large investments. These include the pulp mill Botnia already operating in Fray Bentos (in the District of Río Negro), and another plant planned in Conchillas (in the District of Colonia).⁴⁴

5.2.6. The evolution of the forestry sector indicators

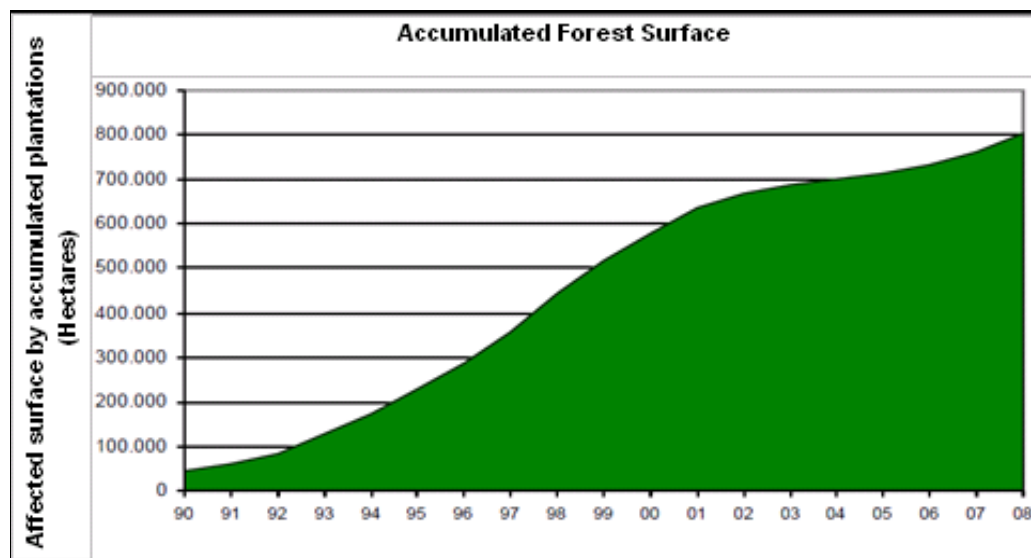
Forest plantation indicators

⁴³ Usinas

⁴⁴ Colonia is a SW Department located opposite to Buenos Aires

The plantation of forests (artificial forests) can be divided into two distinct categories: plantations traditionally planted for various non-industrial purposes (shelter for livestock, wind barriers for fruit-horticulture, recreational landscaping, wood energy) that retain these purposes, and the plantations that were developed under the Forestry Law, beginning in the late 1980s. The latter, also called “project plantations”, cover over 800,000 hectares (official figures from 2008), and they can be broken down by species as follows: *E. globules*, 33 per cent; *E. Grandis*, 24 per cent; *P. taeda*, 20 per cent, *P. Elliottii*, 8 per cent; other Eucalyptus, 12 per cent; and other species, 3 per cent.

Figure 2 Accumulated forest surface

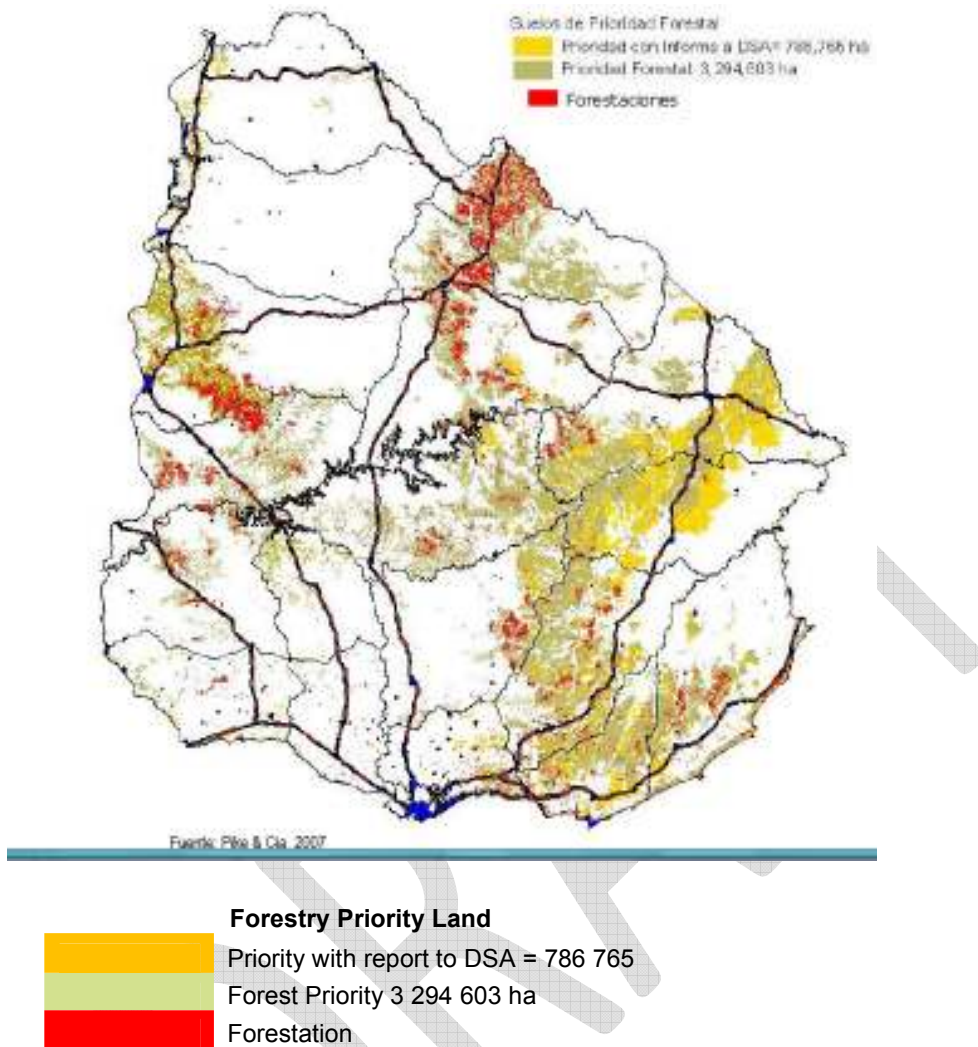


Source: DGF

Location of forest plantations

Although there are original forested pockets in specific Departments, the forest industry that started in early 1988 gradually spread across all national territory, occupying at most less than 10 per cent of the department's surface area. This means that none of departments has experienced any substantial changes in the diversity of their productivity and/or environment. Just a portion of departments (12 out of the total 19) account for more than 90 per cent of the forest plantations operated with an industrial purpose. On the other hand, the native forest alone accounts for surfaces smaller than 10,000 hectares in 3 of the 19 departments. There is thus an overall distribution of the forest mass that (with the exception of the country capital, Montevideo) fluctuates from 10,000 to 250,000 hectares per department.

Figure 3 Map of Forestry Priority Land⁴⁵



⁴⁵ Forestry-priority land is the category of land (as defined by DGF) where the plantation of forests is promoted because of the land's inadequacy for other purposes. These lands are the target of the forestry-promotion policies implemented by the state. They do not include native forest areas.

Table 6 Total forest surface divided by Department (1) Year 2007

Department	Pine	Eucalyptus			Natural Forest (2)	Others (3)	Total
		Grandis	Globulus	Other			
in hectares							
Total	274 568	217 548	368 388	90 160	752 158	18 836	1 721 658
Tacuarembó	48 391	16 134	59 313	8 197	121 885	381	254 301
Rivera	128 781	52 522	481	6 068	63 129	0	250 981
Paysandu	31 928	42 144	25 432	10 423	66 296	474	176 697
Río Negro	13 216	52 777	25 450	9 668	43 748	0	144 859
Lavalleja	318	1 508	64 881	5 963	59 008	1 342	133 020
Cerro Largo	5 023	15 673	23 928	7 090	63 215	0	114 929
Rocha	12 021	1 559	33 372	3 989	38 842	4 909	94 692
Maldonado	7 810	1 995	28 750	2 519	27 320	2 556	70 950
Florida	55	1 048	40 766	4 875	20 513	0	67 257
Durazno	6 247	13 583	21 464	5 811	19 840	0	66 945
Soriano	2 554	6 721	17 569	2 138	34 838	1 133	64 953
Treinta y Tres	0	465	8 659	4 511	47 429	0	61 064
Salto	40	490	0	4 297	51 617	0	56 444
Artigas	141	922	0	1 842	44 530	0	47 435
Canelones	14 407	5 413	7 051	4 289	7 426	4 006	42 592
Colonia	1 779	3 054	7 849	2 890	17 514	495	33 581
San José	1 839	1 241	2 862	2 899	16 066	2 710	27 617
Flores	0	299	559	1 707	7 943	0	10 508
Montevideo	18	0	2	984	999	830	2 833

Source: MGAP- Dirección General Forestal

(1) The registered surface results from adding the areas reported based on the 2004 Landsat images and the areas registered in DGF as of 2007.

(2) Not considering the area covered by scattered palm tree groves, which occupies approx. 70 000 hectares

(3) Includes coastal forests, Parks and Salicaceae plantations.

Wood extraction and uses

The extraction of lumber in logs from 2000 to 2010 has shown a steady increase from 3 million m³ in 2001 to almost 9.5 million m³ in 2008. In general, all the uses of wood have increased, matching the increase in the produce of artificial forest plantations that are yielding logs as a result of thinning and harvesting. Nevertheless, the usage of wood for fuel has lessened in relative terms, decreasing from more than 45 per cent of the final destination of the roundwood extraction to only 23 per cent.

In the case of logging and wood based panels, the loss of their relative share is not so remarkable (from 18 to 12 per cent overall), given that quantities for such applications almost doubled from 550,000 m³ per year to 1,150,000 m³ per year between 2001 and 2008.

Table 7 Extraction of total wood⁴⁶ (conifer and non-conifer) per year ()

Product	2001	2002	2003	2004	2005	2006	2007	2008
	<i>in thousands of cubic meters</i>							
Total wood as roundwood logs (1)	2 984	3 439	3 739	5 084	5 702	6 365	7 173	9 440
Wood Fuel (2)	1 387	1 607	1 607	1 760	1 973	2 111	2 062	2 210
Industrial roundwood	1 597	1 832	2 132	3 324	3 729	4 254	5 111	7 230
Sawmill logs and wood panels	547	591	485	536	580	734	1 168	1 150
Pulp wood (thick and chopped)	960	1 151	1 637	2 770	3 128	3 497	3 929	6 080
Other industrial roundwood	90	90	10	18	21	23	14	0
Roundwood (subtotal non-conifer)	2 722	3 135	3 562	4 871	5 481	6 011	6 654	8 933
Wood fuel (2)	1 387	1 607	1 607	1 760	1 973	2 111	2 062	2 210
Industrial roundwood	1 335	1 528	1 955	3 111	3 508	3 900	4 592	6 723
Sawmill logs and wood panels	339	341	314	347	383	404	745	742
Pulp wood (thick and chopped)	906	1 097	1 631	2 746	3 104	3 473	3 833	5 981
Other industrial roundwood	90	90	10	18	21	23	14	0
Roundwood (subtotal conifer)	263	304	177	213	221	354	519	507
Industrial roundwood	263	304	177	213	221	354	519	507
Sawmill logs and wood panels	209	250	171	189	197	330	423	408
Pulp wood (thick and chopped)	54	54	6	24	24	24	96	99
Other industrial roundwood	0	0	0					

Source: MGAP- Dirección General Forestal

1) Includes conifer and non-conifer

(2) Includes wood for charcoal production

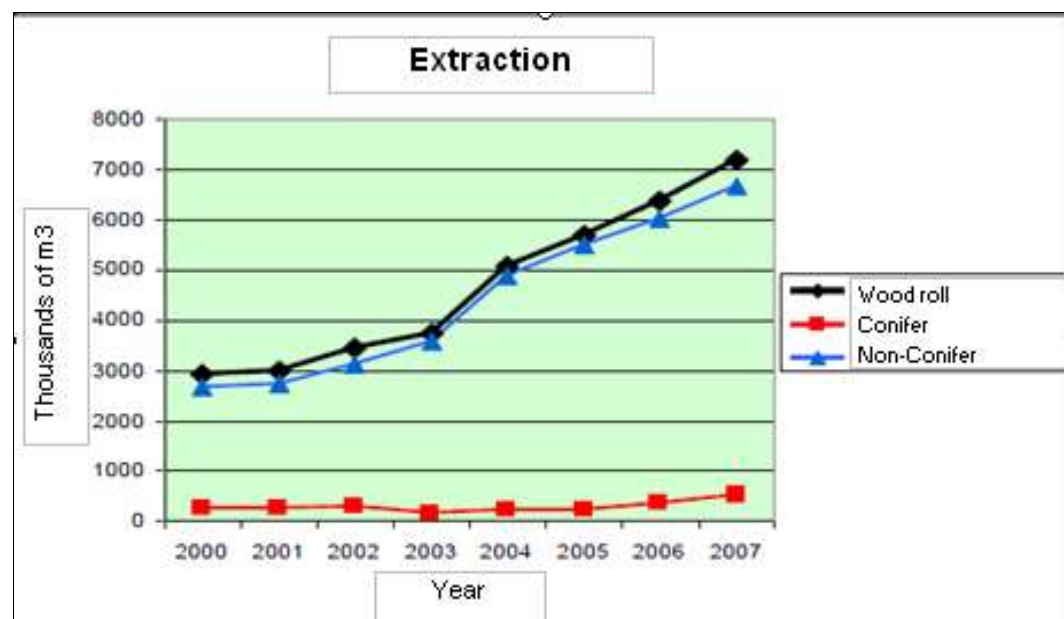
The sawmill logs for wood pulp account for the increasing quantity and percentage of total application of extraction, ranging from less than 1 million m3 per year in 2001 to more than 6 million m3 per year in 2008, an increase from 32 per cent to 64 per cent of the extraction. This is clearly due to the initiation of activities at the Botnia plant (see Chapter 4.2.6.4. in this document).

With the extraction of nearly 4 million m3 used for pulp in 2007, the industry recorded production of more than 30,000 tons of wood pulp and almost 100,000 tons of cardboard and paper. In 2008, the extraction for supplying industrial production grew by more than 50 per cent. The almost 9 million m3 extracted in 2008 (95 per cent of the total) was non-conifer.

It is worth mentioning that in addition to the above figures, which correspond to the extraction of wood from the plantations, we must add 20,000 tons per year of wood extracted from Native Forests, used exclusively as fuel.

⁴⁶ From plantations and other sources

Figure 4 Wood extraction



Source: Production Cabinet

As a result of the progress made in the planting phase, with the successful afforestation of more than 800,000 hectares of trees for industrial purposes in 2008, the industrial activity has been significantly increasing in the last few years. Wood extraction for industrial purposes has maintained a steady increase since the 1990s, but it has clearly intensified in the current decade, with some investments worth mentioning. Two plywood panel plants were installed in Uruguay: Urupanel (2005) and Weyerhaeuser (2006). The Botnia wood pulp production plant began to operate in 2007, and was subsequently (2009) acquired by UPM. The Bank Union Pension Fund⁴⁷, FYMNSA and Urufor installed 3 new sawmills between 2008 and 2009 and expanded their capacity for drying wood. In 2009 was the inauguration of an MDF panel plant (Urupanel). As a final example, Bioener, Fenirol, Los Piques and Azucarlito companies built four biomass power plants (due to its importance, biomass energy will be described in a later chapter).

Value of harvested wood

The value of the actual extraction of wood and its structure can be estimated based on the final destination of the wood, according to the details presented in the following table:

⁴⁷ Caja Bancaria

Table 8 Value of extracted wood and value of the products generated from forest harvesting (2008)

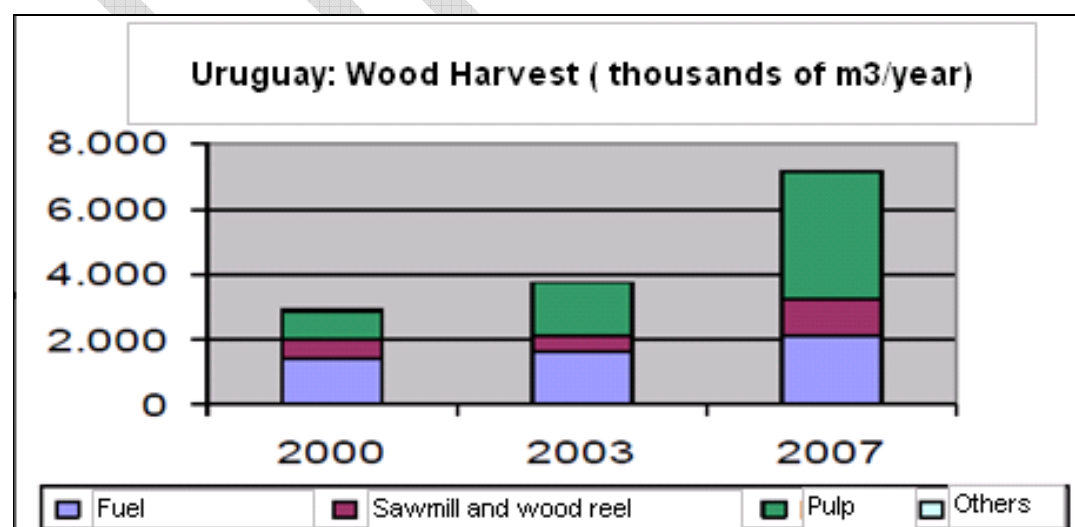
Wood use (2008)	Quantity (m ³ extracted)	Price factory and/ or port (USD/m ³)	Wood value (million USD)	Product value (million USD)	Product value (% of the total)
Energy	2 200 000	25	55	55	4
Exports of roundwood logs and chips	2 600 000	75	195	195	15
Cellulose paste industry	3 300 000	50	165	735	55
Sawn wood and panel wood industry	1 400 000	90	126	350	26
Total of the extracted wood by usage	9 500 000		541	1 335	100
Total exports of forestry products				960	72
Exports / extraction				72%	

Source: Estimated by the authors of this study based on data from the DGF, BCU and SPF

N.B.: In the absence of direct data, values were derived from available data. To assign a value to the exports of roundwood logs and chips, we took the prices available from the Official Statistics (FOB values). For the value of roundwood logs for the sawn wood and panelling industries, we took the values of logs exported to the international market. To estimate the value of the roundwood logs produced for the national pulp mill industry and for energy, we used information from local private operators.

Other industrial projects are being evaluated and are to be implemented in the short to medium term. One such project that stands out is a second global-scale pulp mill plant (appropriate permits have already been issued), the construction of which is planned to begin in 2010 or 2011. Other new plants that are still to be confirmed will continue to change the final destination of the extracted wood (except for roundwood logs and chips and the wood produced for industrial and energy purposes), and they are likely to impact the exports profile in the sector.

Figure 5 Wood harvest in Uruguay



Source: SPF in base of DGF / MGAP

Forestry trade balance

Historically, the country has had a deficit of forestry products and a negative trade balance. In the early 1990s, imports of forestry products were twice as many as the exports: USD 26 million versus USD 13 million annually.

In 2000, the exports managed to equal the imports, and ever since, annual exports have exceeded annual imports with a steadily increasing gap (expressed in current dollars). It was not until 2006 that the trade balance started to show clearly positive signs, with a positive balance reaching over USD 100 million. In 2007, with exports exceeding USD 350 million annually, the positive trade balance was close to the 200 million dollar mark, and in 2008, the trade balance more than tripled its previous value.

Considering the export of forest products as a ratio of the country's total exports, we can see that in 2007 the forest products were the export trade item ranked fifth, accounting for more than 10 per cent of the total income generated. In 2008, 22 per cent of the total exports were attributed to a range of forest products, ranking third among the agricultural exports items, surpassing (by a small amount) the revenues from the exports of meat products and grains.

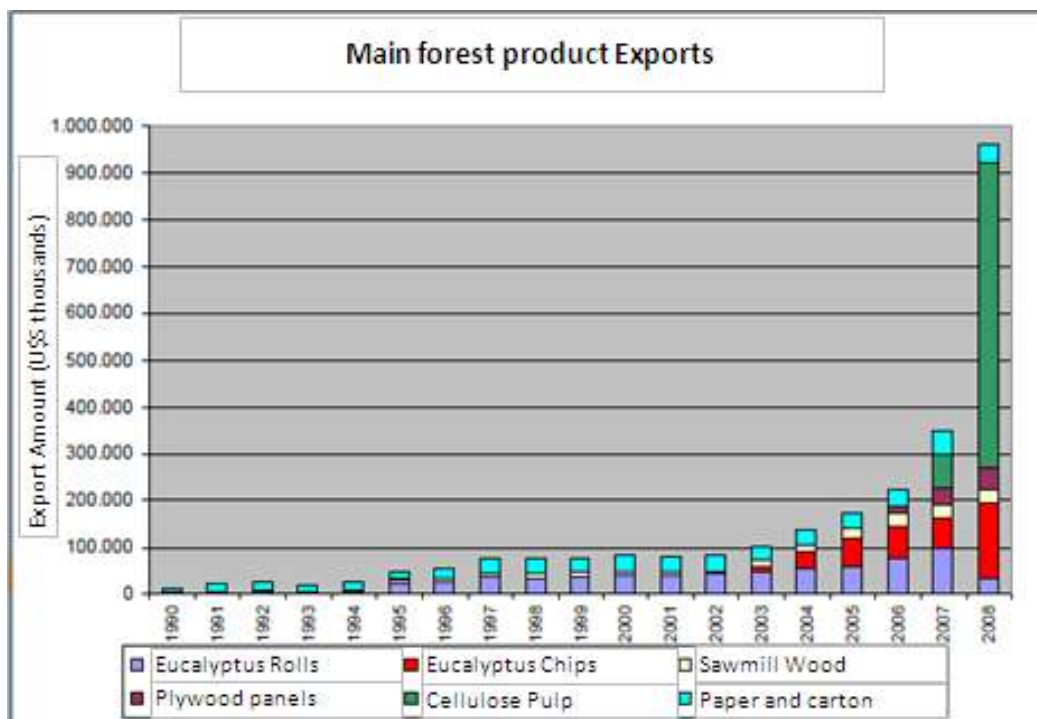
From 2003 to 2008, exports of all forest products showed an upward trend. Paper and cardboard products ranged around USD 40 million to USD 50 million of exports annually, while sawn wood increased its export value from USD 10 million to USD 30 million. Both products dropped from 2008 to 2009, showing a reduction of 21 per cent and 19 per cent respectively, as a result of the global financial crisis that began towards the end of the previous year. The crisis affected the global economy as a whole, and in particular the durable goods markets, the destination of a significant share of the sawmill wood products industry.

On the other hand, during the 2003-2007 period, roundwood logs exports doubled, from USD 50 million to a little less than USD 100 million. In 2008, these figures plunged to slightly over 34 million dollars. This was the result of an increasing volume of roundwood logs now shipped to the new paper mill (Botnia; now UPM), with the ensuing increase of added value.

To clearly understand this figure, some official statistics must be adjusted, subtracting the logging exports destined to the Tax Free Zone (including Botnia/ UPM), and then adding the export products that leave the Tax Free Zones as manufactured products.

This explains the USD 960 million reported as exports, obtained from dividing the USD 460 million declared by the official figures (which include the paper and cardboard products that leave the national territory as exports, but not the wood pulp that leaves the Botnia Tax Free Zone as such, having been entered as logging export). By subtracting the value of the above-mentioned logging exports to the Tax Free Zone in Fray Bentos (USD 140 million), we obtain the export value of the wood pulp exported from Botnia mentioned above (USD 460 million reported as total official exports – USD 140 million as logging exports to the Tax Free Zone + USD 640 million from the exports of wood pulp from the Tax Free Zone = USD 960 million overall).

Figure 6 Main forest product exports

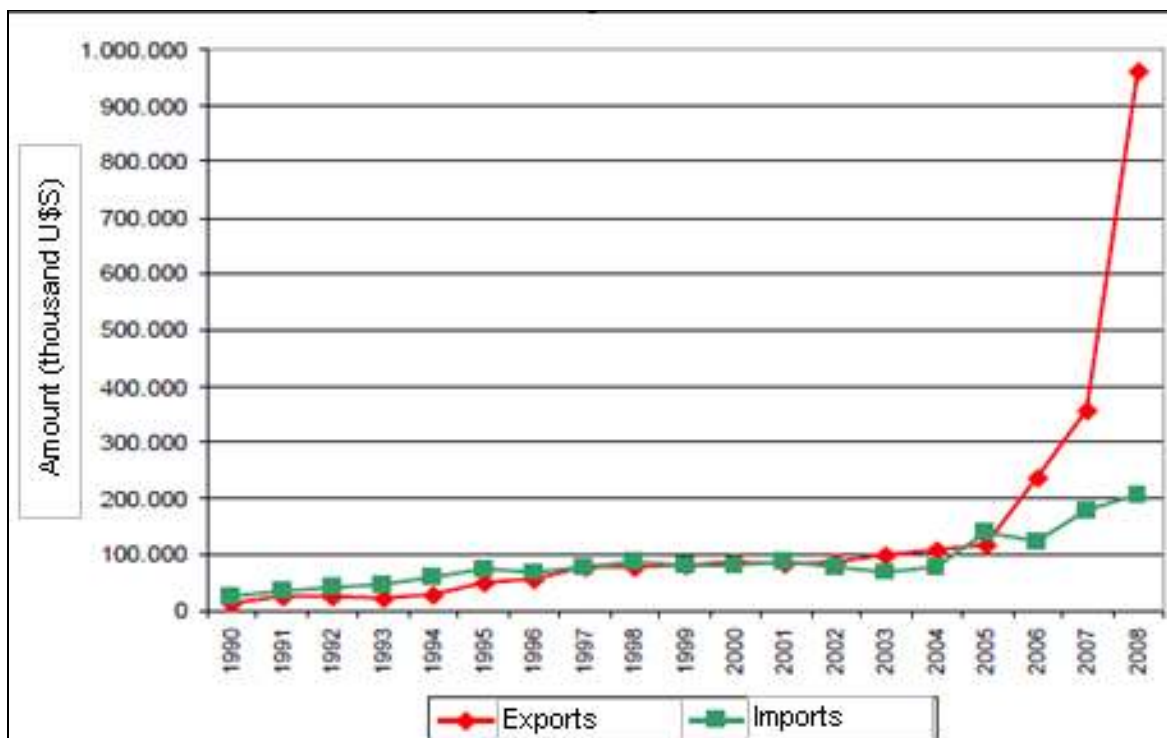


Source: SPF

The production of wood chips for exports began in 2002. Initially, for a worth of around USD 10 million, this sector maintained its growth tendency (only showing a downward denting in the curve in 2007). It hit the 150-million dollar mark in 2008 (having risen from 2007 to 2008 by almost 150 per cent). In 2008, the wood chip exports exceeded the exports volume of logging for the first time, becoming the second export product after wood pulp. In 2009, wood chips maintained their second place ranking in total amount of exports, but with a 55 per cent decrease versus the previous year; i.e., slightly over USD 71 million annually.

A particularly important issue concerns the exports of plywood panels and wood pulp. There are two plywood panel factories: one initiated production in late 2005 (Urupanel), and the second towards the end of 2006 (Weyerhaeuser). In spite of the difficulties experienced in 2007 by the construction industry in the United States, (the main export destination for both plants), in 2008 these two factories managed to export over USD 47 million of their products to alternative markets. However, the 2009 global financial crisis had a significant negative effect on the export performance of wood panel producers, with a 34 per cent plummeting of the volume exported, as measured in current United States dollars.

Figure 7 Exports/imports chart

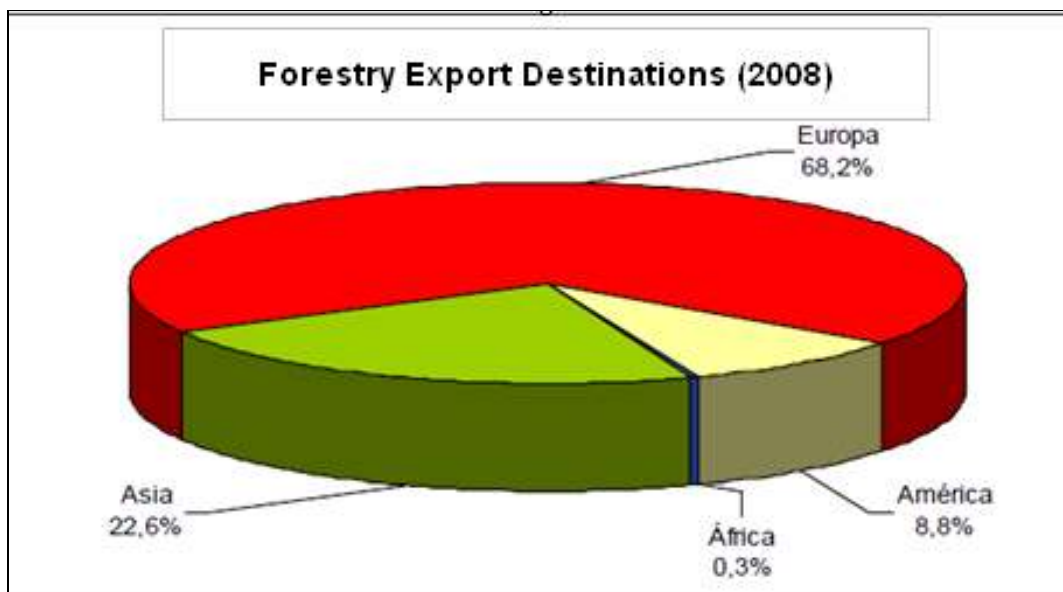


Source: Sociedad de Productores Forestales (SPF)

As for export destinations, the information gathered and made available by the National Customs Directorate indicates that the 2004 destinations of national forestry products were as follows: Europe, 43 per cent; countries in the Americas, 41 per cent; Asia, 10 per cent; and Africa, the remaining 6 per cent. In 2008, however, there was a significant increase in the exports volume to Europe (68 per cent of the total) and the volume has doubled to the Asian countries (22.6 per cent). Conversely, there was a reduction of exports to the American continent⁴⁸ (only 8.8 per cent) and Africa (0.3 per cent).

⁴⁸ All the Americas: North, Central and South

Figure 8 Forestry products export destinations (2008)



Source: SPF with data provided by the National Customs Directorate (DNA)⁴⁹

Relative importance of forestry in the national economy

The above operations translate (in macroeconomic terms) in a sense that the gross production value (GPV) of the primary forestry sector rose from USD 38 million in 1990 to USD 180 million in 2000, reaching USD 278 million (7 times greater than originally in 1990) in 2007. The gross added value (GAV) increased during the same period from USD 32 million to USD 150 million, reaching USD 216 million in 2007 (5.6 times greater than in 1990). This data shows that more than 9 per cent of the GDP of the agricultural sector corresponds to the forestry industry (primary phase in the chain), equivalent to 1 per cent of the national GDP.

Table 9 Share of forestry in farming activities

	Gross production value (GPV)		Intermediate consumption		Gross added value (GAV)	
	<i>Thousands of USD</i>	%	<i>Thousands of USD</i>	%	<i>Thousands of USD</i>	%
Agricultural sector						
1990	1 219	100.0	382	100	837	100.0
2000	1 732	100.0	521	100	1 211	100.0
2007	3 583	100.0	1 300	100	2 283	100.0
Forestry sector						
1990	38	3.1	6	1.5	32	3.8
2000	180	10.4	29	5.6	150	12.4
2007	278	7.7	62	4.8	216	9.5

Source: Production Cabinet with data provided by the National Central Bank (BCU)

⁴⁹ Dirección Nacional de Aduanas

In terms of the importance of wood in industry, before the opening of the Botnia plant (late 2007), the sector overall accounted for 9 per cent of the national GDP. After 2007, with the Botnia plant running, the subsequent commissioning of the wood panel plants, and the recent expansions of industrial sawmills, the relevance of the industrial forestry sector (as a whole) was consolidated, reaching around 10 per cent of the national GDP.

It is worth pointing out that agriculture accounts for 70 per cent of national exports (almost 8 per cent coming from forestry). Only 5 per cent of imports come from agriculture (with slightly over 1 per cent related to forestry).

Having no oil resources of its own, the country is highly dependent on foreign fuel, with oil being its main import. The country's fuel imports soared from USD 600 million in 2004 to USD 1.6 billion in 2008, taking up from 18 to 20 per cent of the value of imports.

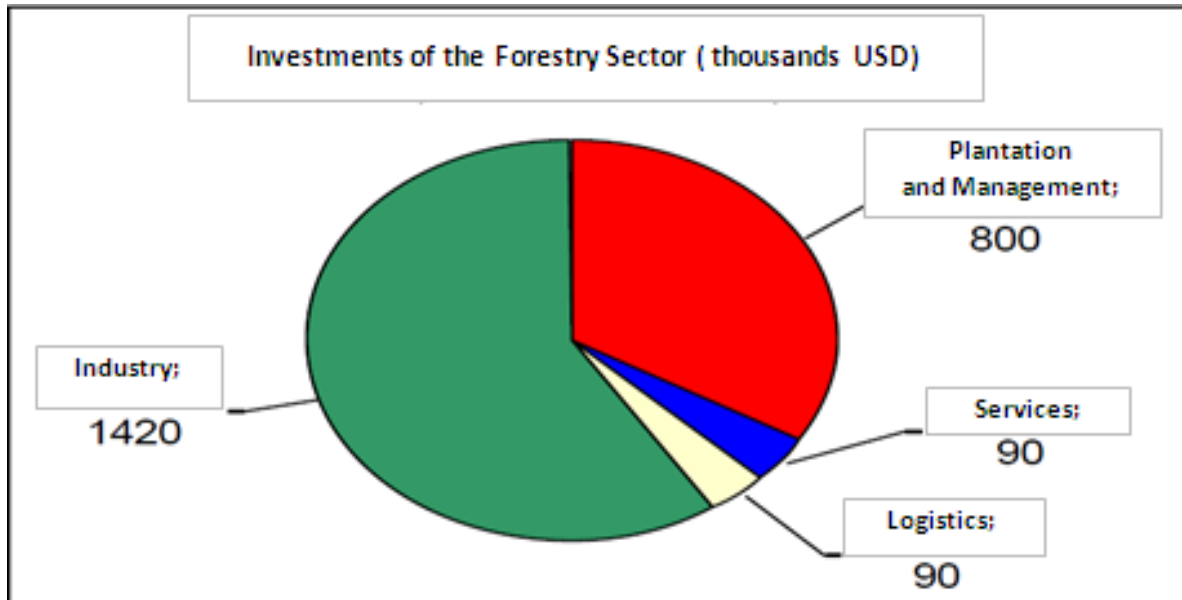
The relevance of this reference to oil imports becomes apparent when we analyse the national energy matrix and the role of forestry in that framework. From that perspective, some of the by-products derived from forestry can be seen as an opportunity, enhancing the country's sources of renewable energy, while giving value to the waste left behind by this activity. Examples of this are waste from forestry by-products from thinnings and the industrial processing of wood from managed forests – log wood and sawdust that the pulp and MDF industries cannot use.) Importantly, the valorization of this waste, which used to be considered to be purely a loss by the forest owners, is now viewed as an incentive for sustainable forestry management.

The number of jobs directly created by forestry has already been mentioned. Forestry contributes 11,000 jobs in the primary sector, which, added to at least 2,000 people in manufacturing, yields an estimate of around 15,000 people who directly depend on the primary and manufacturing activities of the forestry chain. This does not even take into account the indirect jobs from service providers, such as transport or logistics. As a whole, it is safe to say that forestry contributes to the livelihood of up to 1 per cent of the country's active population.

Although the country's forestry sector is relatively young, investments have steadily gained importance in relative terms. They went from levels lower than USD 50 million in the late 1990s to more than USD 550 million in 2003, then reaching a maximum of USD 2.4 billion (strongly influenced by the installation of the Botnia plant).

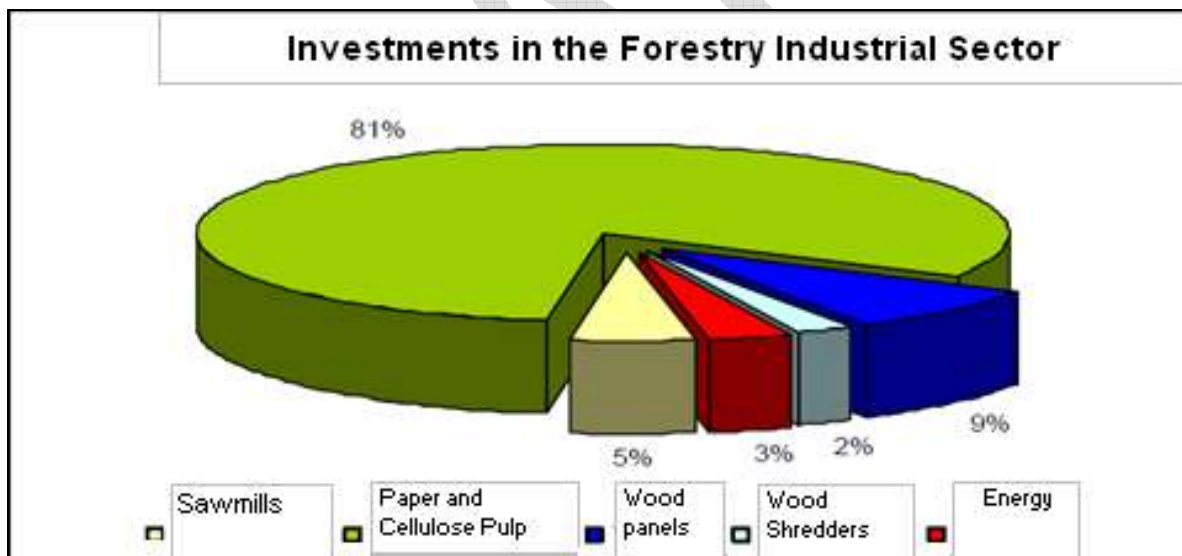
The investments were tiered. They first focused on the development and management of the plantations. At present, the development of the manufacturing sector has benefitted the most from the government's policies and has attracted the most significant investments.

Figure 9 Investments of the forestry sector



Source: SPF

Figure 10 Investments in the forestry industrial sector



Source: SPF

6. FORESTRY PRODUCTS AND SYNERGIES WITH OTHER AREAS RELATED TO SFM

6.1. Certification

The key forestry players in Uruguay are multinational and operate globally, implementing financial, commercial and technological standards broadly used worldwide. Therefore, it is sensible to think that the majority of the planted forests (owned by the companies) are certified by one or two standards, and that the forests run by third-party suppliers are also pushed to comply with such standards.

To date, a significant number of the artificial forest plantations are FSC-certified. According to the information published by the FSC, around 30 of the projects underway in Uruguay are certified under this standard, encompassing about 1 million hectares (including the land occupied by the forests and ancillary premises on the farms with certified forestry operations). This means that much of the implemented forest base currently complies with the FSC standards in terms of SFM.

Likewise, as most of the wood is exported, the forest industry is export-oriented, and hence very much aware of the need for certification by international bodies. Certification is not limited to FSC; it also includes a range of quality standards (e.g., ISO), an additional contribution to the sustainable management of forests.

It is also worth mentioning that in recent years, and under the leadership of the private sector and the key role of SPF, the sector has made significant strides with engaging various public and private stakeholders in the development of national standards (UNIT) that have applied for official PEFC recognition. This has been done to streamline the producers' authorization to enter the European markets.

Finally, it is worth mentioning that there is a project - Econormas- expected to be fully operational by January 2011, in the context of the EU-Mercosur cooperation framework. It will be funded with more than 2 million Euros, allowing the Uruguayan public and private sectors to work jointly with Paraguay in the certification of wood and furniture.

The artificial forest plantation projects authorized by DGF are required to comply with the Good Practices Protocol (developed in the framework of the country's accession to the Montreal Process). Moreover, a prerequisite of these projects establishes the need for approval by DINAMA, the national authority in charge of not only enforcing the provisions set forth in this Protocol, but also for overseeing the management of SNAP zones and for enforcing the implementation of the existing environmental and territorial planning standards. Both the young plantations developed as commercial undertakings and many of the earlier plantations are certified in accordance with one or two standards that ensure SFM. SFM is ultimately the rationale for many of the requirements of international trade, arising from the current concern about the protection of the environment. Given that the predominant players in this sector in Uruguay are corporations that operate on a global scale (clearly oriented to exporting, nearly all the artificial forests in the country are subject to a sustainable management scheme).

The commercial requirements are certainly of key importance in explaining the current situation, given that the certification processes set requisites that are more stringent than the controls implemented by the relevant regulatory authorities to ensure compliance with the Code of Good Management Practices required by DGF.

With business as usual, certification has acted (and will continue to act) as a significant barrier to trade that hinders some actors' access to markets. Hence, certification is seen as a sine qua non tool in the corporate financial flow, without which there is no business possible, but with which the companies' trade opportunities are enhanced and their pricing capability strengthened.

Notwithstanding the above, certification does not imply the existence of differential prices between certified and non-certified wood. Markets/clients operating in settings where certification is mandatory cannot even buy from uncertified suppliers, no matter how low their prices may be;

conversely, in cases where certification is not a mandatory requirement, certification of the supplier does not translate into price differentiation.

6.2. Agriculture and livestock

Some social players have questioned the expansion of forestry. They blame it for the deleterious effect of reducing the husbandry production, because forestry takes over some areas historically dedicated to cattle breeding. Indeed, the increasing demand for forestry land from local and foreign firms caused many landowners to sell their “forestry-priority” estate to these companies and to buy land fit for farming elsewhere. Others have made arrangements, for example, to operate jointly under different schemes involving (for example) production sharing, sale or leasing with arrangements of cattle or sheep grazing in the non-forested areas, consequently readjusting the structure of their productive systems. As a result, the increase of land devoted to forestry has not led to a nationwide fall in livestock production, particularly preserving cattle breeding, one of the country’s core assets.

Counter intuitively, in the midst of the forestry boom, Uruguayan beef production reached a record high. It could be hypothesized that the expansion of forestry led to a certain change in the population of cattle breeders or to a change in their mind-sets, promoting the “survival of the fittest”. In order to continue in business and to thrive under more competitive scenarios, farmers need to have a more business-oriented perspective and be keener to invest for the long term, improving their performance indicators. Thinking outside the box may also lead them to incorporate novel technologies and husbandry practices that will help them improve yields, keeping cattle breeding as a profitable activity. It is in this context that forestry appears as an enriching component, giving rise to the development of experiences of mixed production, combining plantations with other activities – cattle breeding is just one of the successful examples. Cattle raised in mixed-production farms benefit from the shade and shelter provided by the forests, while still managing to graze in a natural farmland.

There are concrete agricultural experiences in the production of forage (for pastures and seed production) and grain (cereals and oilseeds) that allow for the intensification of livestock production and/or the diversification of forestry field production. In that context, apiculture is another complementary option: bees benefit from the presence of certain species of both native and artificial forests, as well as certain artificial and natural graze lands. The diversity of the flora available, with the changing seasonal patterns, provides a varied feed that has a positive impact on the characteristics of honey.

This is how livestock farming, forage and/or grain crops and apiculture are operations that can interact with forestry in mixed systems, favouring synergies that may even enhance the productivity of any of those activities on its own.

Thus, what is described above allows for the combination of a range of public policies and financial instruments that can be applied to those production systems. Farmers could then benefit from agricultural credits, credits for the small beekeepers, regulatory changes concerning leasing, shared use of land with plantations that receive grazing cattle, special tax schemes and promotion programmes for traditional farmers with no background in forestry, encouraging them to adopt forestry as a new activity (such as the Livestock Programme of the MGAP). One or several of those instruments can be combined to promote SFM schemes.

The importance of efforts initiated in that direction by forestry companies should not be overlooked. In recent years, some forestry firms have promoted production schemes to integrate producers of the above-mentioned areas under the framework of the so-called foster programmes, which are consistent with the sustainable forestry management principles. In line with that approach, the Executive Power has passed decrees to promote the entry of non-forestry producers into the forestry business. For this purpose, they have established that the producer can devote 8 per cent of the farm area to forestry. Such farmers would be entitled to the same tax exemptions previously offered to large undertakings on soils classified as “forestry priority”, and

they would enjoy those benefits even if their land fails to meet such criteria. To apply for that scheme, the farmer has to develop a project that DGF and the Natural Resources Directorate of the MGAP must approve.

The above provision is in keeping with MGAP policy, aimed at promoting farmers that have already settled or are willing to settle in rural areas (rural families, producers, and medium and small livestock producers). It paves the way for new opportunities, encouraging projects that are not aimed at wood products alone so that rural dwellers may regard the forest with a keener eye, and hence make the most of the potential interactions between forestry and other operations.

It is worth mentioning that the main instrument in the public policy designed to promote the diversification of production (through the incorporation of forestry plantations in the farming estates with non-redeemable resources from the Agriculture and Livestock Programme) has not been as successful as the partnerships among private players who have chosen different modalities to combine forestry and other farming undertakings.

Such private partnership agreements were warmly received by traditional farmers, who saw a chance to become “partners” in the wood business without taking undue risks that could jeopardize their livelihood, as would be the case if they undertook the forestry business on their own. For example, the production risks and scale-related issues are reduced since the forestry company is the one that invests in state-of-the-art technology for harvesting. Furthermore, the newcomer is spared most of the commercial risks, since the larger firm is knowledgeable in the wood business and is likely to have better access to more alternatives in a well-known market.

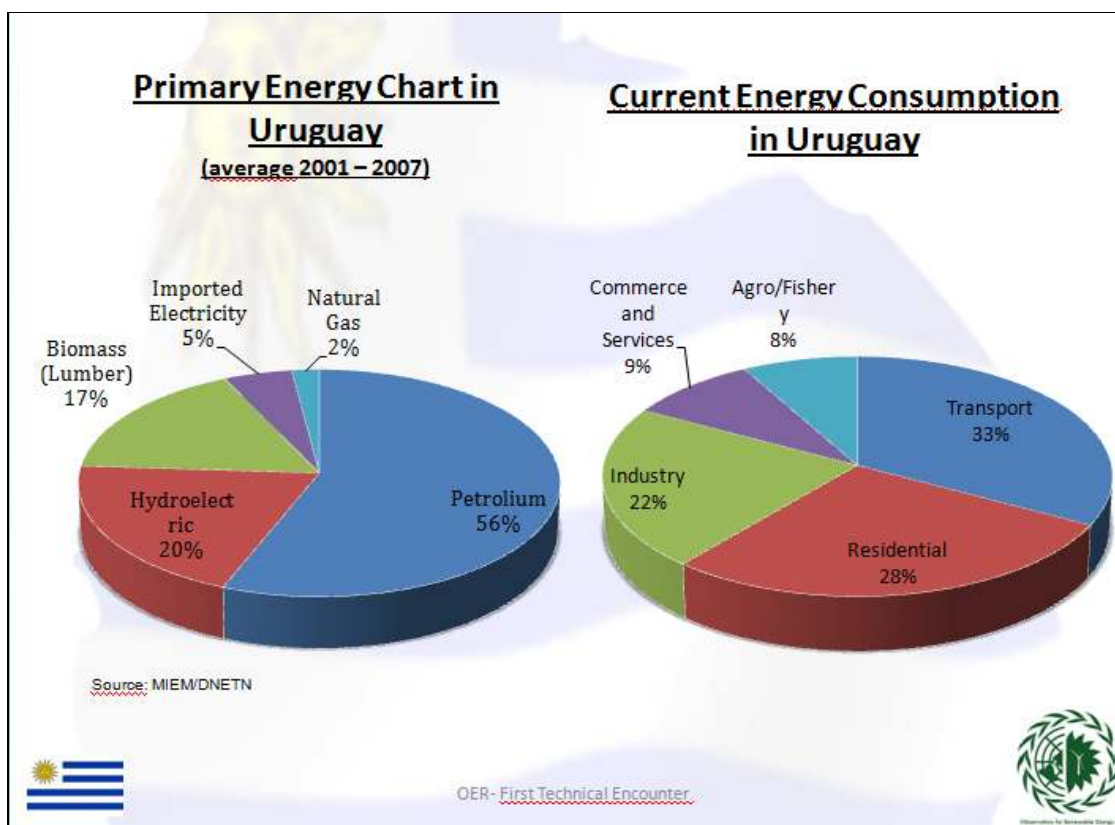
The above situation is probably the reason why the Livestock Programme has not been so popular. The farmers that choose that scheme still have to face many of the problems mentioned above. In addition, in order for the Programme to be truly beneficial, the forested area must be relatively small, and the positive impact of plantations in such cases would have more to do with environmental and/or social gains than with actual economic profits.

6.3. Energy

Uruguay is committed to incorporating innovative sources of renewable energy to the national energy grid and has made significant progress in that direction. Between 2001 and 2007, petrol-based energy represented 56 per cent of the total, hydro energy 17 per cent, biomass (mainly residual wood for residential and industrial usages) 17 per cent, natural gas 2 per cent and directly imported electricity the remaining 5 per cent.

Having no oil resources of its own, the country is highly dependent on foreign fuel, with oil being its main import. As a consequence of the soaring prices of oil, the country had to devote an increasing percentage of its imports, spending USD 600 million in 2004 to USD 1.6 billion in 2008; that is, from 18 per cent to 20 per cent of the value of imports. This reflected the need to restructure the power matrix, suggesting a potential new role for forestry. Some of the by-products derived from forestry can be seen as an opportunity, enhancing the country's sources of renewable energy, while giving value to the waste left behind by this activity (e.g., forestry by-products from thinnings and from the industrial processing of wood from managed forests (i.e., log wood and sawdust not usable by the pulp and MDF industries).

Figure 11 Primary energy chart, current energy consumption in Uruguay



Such a dependency on oil imports and the economic impact of the skyrocketing prices of petrol damaged the country's economy. It reversed its trade balance (exports lost competitiveness) and took its toll on the people's standard of living, mainly because of higher residential power and transportation costs. To address this issue, the Uruguayan government passed Decree 77/006 on 13 March 2006. It specifically promoted the incorporation of renewable sources into the energy mix, integrating the power generated by independent producers to the grid, and authorizing the state-owned utilities company UTE50 to call for a public tender (N° P35404). Through this bid, UTE pledged the purchase of up to 60MWs of electric energy, provided it be generated from a renewable source (biomass, wind or small hydropower plants). That represents approximately 3 per cent of the power structure.

As a result of the process (R07-114 1 February 2007), the public utilities company (UTE) purchased a total of 36 MWs, broken down as follows:

- Approximately 30 MWs of biomass, from three suppliers: Fenirol (Tacuarembó), Velcemar (Rivera), and Galofer (Treinta y Tres)
- 6 MWs of wind energy, from two suppliers: Amplin (Montevideo) and Nuevo Manantial (Rocha)

Approximately 2 of the 36 MWs are destined for the generator's own consumption; the remaining 34 MWs are to be incorporated into the national electrical grid.

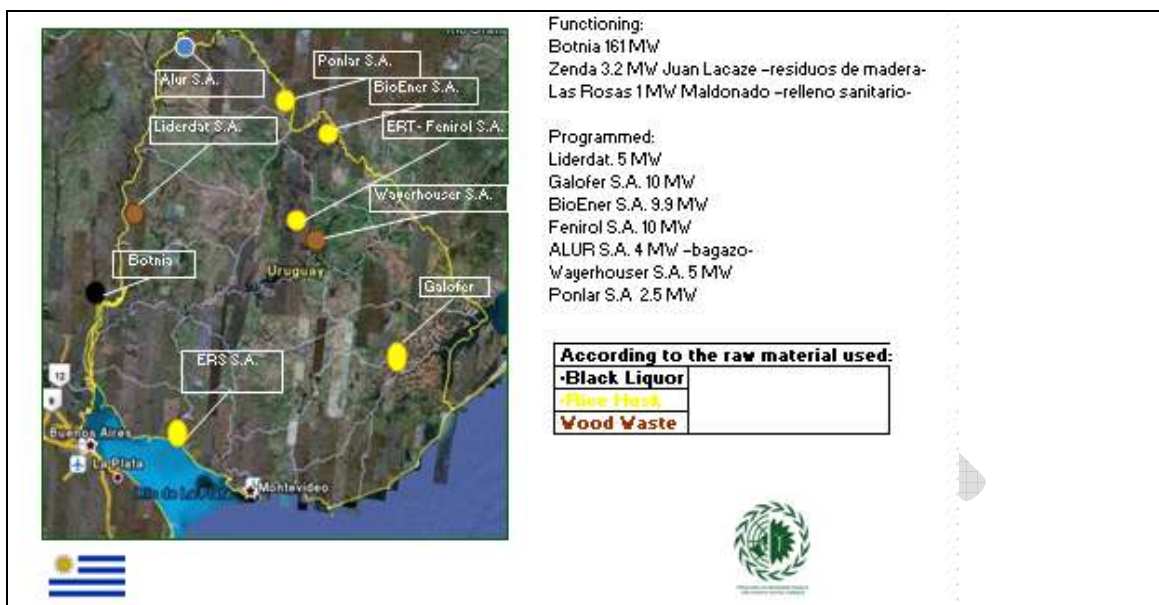
Decree 397/007 (October 26 2007) empowered UTE to call for a new public bid for the purchase of 26 MWs to meet the original 60-MW target.

⁵⁰ Usinas y Transmisiones Eléctricas del Estado

On the other hand, an increasing number of companies are generating the energy they need for their own operations (Botnia being the most prominent case) and are allowed to sell their surplus energy on the spot energy market.

Figure 12 shows the current scenario for biomass renewable energy power plants.

Figure 12 Uruguay: Biomass renewable energy power plants



Source: OER- First Technical Meeting

With the exception of Botnia, which plans to operate fuelled by black liquor, the remaining companies plan to use wood waste and/or rice husk.

The Law for the Promotion of Investment supports renewable energies. (This was already discussed in the chapter on the legal framework of the forestry sector.) Renewable sources of energy are explicitly provided for in the scope of this law, selecting these as a priority target for investment.

One of the country's medium-term (2015) main energy goals⁵¹ is to include at least 15 per cent of the electricity generation from renewable sources. At least 30 per cent of agro-forestry waste should be used for the production of energy. Specifically, the target is to promote the installation of no less than 250 MWs of wind energy, 200MWs of biomass and 50MWs of mini-hydroelectric power plants by 2015.

In the case of Uruguay, at least at present, when referring to biomass energy, three main sources are available. These are rice husk (from the rice industry), sawmill waste (from the wood industry), and products obtained from forestry management (waste from plantations). Black liquor is a minor source of biomass energy.

Energy resources obtained from waste or from by-products of solid biomass (as estimated in the latest Sector Report of the Productive Cabinet (in revision)) can potentially reach up to 200 MWs from sawmills and 100 MWs from plantation management wastes. Additionally, there will be potential energy production obtained from facilities like pulp mills, as well as a possibility to produce energy from potential plantations run to produce energy.

⁵¹ This goal arises from several documents published by the Ministry of Industry, the rationales of the National Administration's and UTE's Five-Year Budgets.

The implementation of a dedicated policy to promote the diversification of the power matrix in Uruguay, especially one seeking to favour the generation of energy from forestry biomass (from the plantations and/or related industries), undoubtedly presents a great opportunity to tap into waste resulting from logging management, such as the first thinnings of plantations located far from industrial plants. Unless they are used as an alternative source of energy, Eucalyptus thinnings are only profitable as firewood, while pinewood thinnings cannot be used at all.⁵²

It is also an alternative for the better management of the industrial waste of sawmills that cannot be used as chips for pulpwood and/or particles for MDF. All this is certainly a contribution to SFM, all the while providing new revenues to the forestry sector.

These are alternatives that contribute to the diversification of the national energy mix, using local materials. This gives value to the forestry wastes from planted forests under longer cycles of management, which in general terms are associated with SFM (less dense plantations with higher biodiversity, multiple uses of wood, previous durable products left after the wood industrial process, etc.)

A couple of agencies that play key roles in determining what the market will do in this area are the Ministry of Industry and Energy (MIE) and UTE (the State-owned electricity company). Ursea and Ancap determine the market price of energy generation, considering the cost of fossil fuels and estimating the payment for forestry wastes. That is what explains the success of the policy.

It is worth pointing out that in recent years following the political decision to promote the production of biomass electricity generation, the imports of equipment for renewable energy industries reached an annual average of USD 15 million to USD 20 million. On the other hand, in the last two years, projects related to alternative energy specifically linked to the forest industry applied for benefits from the Act for the Promotion of Industry and were at the receiving end of investments worth USD 30 million.

As some of the tax exemptions (e.g., Income Tax exemption) extend beyond the investment in time, it is difficult to estimate the exact amounts of those tax exemptions. However, it is safe to say that they would be close to USD 10 million annually in the last 3 years (2007-2009).

6.4. Construction

Wood is being promoted as a relatively important material in private sector construction. Clear public policies for its incorporation have been adopted. Although not clearly reflected in practice, the official public policy has promoted the use of good quality national wood in the construction of houses and in encouragement of choosing wood over other housing materials. Several agencies are involved in the process, including the Ministry of Housing, Territorial Planning and Environment (MVOTMA) through its rural housing programmes with public subsidies, called MEVIR⁵³, as well as public banks, such as the Banco Hipotecario del Uruguay (BHU) and the BROU, both of which grant credit to individuals.

Several mechanisms under the National Housing Plan have also been proposed to favour the public procurement of national wood for the construction of houses for low-income families. This proposal seeks to implement public policy instruments to promote the use of wood in 50 per cent of the housing materials (as masonry and internal divisions) in the upcoming 2 years. Within three years, there would already be houses in the market made 100 per cent of wood, and the goal is for wood to represent 20 per cent of all the housing materials in ten years.

⁵² In the case of plantations far from manufacturing plants, the cost of freight would preclude their usage unless they can be used as energy.

⁵³ MEVIR: Movimiento para la Erradicación de la Vivienda Insalubre Rural: Movement for the Eradication of Unhealthy Rural Housing.

Realization of this policy involves not only the ministries related to the sector and the public banks already mentioned, but also the active participation of the Laboratorio Tecnológicos del Uruguay (LATU) and several universities, in particular the Universidad de la República (UDELAR).

As explained above, public policy paves the way for further expansion of markets that demand wood from long-rotation forests, by creating demand for wood products in the domestic market. It has been historically difficult for the wood industry to thrive domestically because of the construction regulations that set the building guidelines for both national authorities and public banks that finance housing construction. Just as in the case of energy, and described in the previous section, any progress in the implementation of this policy may be instrumental in supporting SFM.

It is impossible to estimate the economic impact of this policy in terms of its potential for financing sustainable forestry. Certainly, the direct efforts made by public policy (in the form of purchasing preference by the government) and the public-private efforts made by the sector itself (promoting wood for construction) clearly contribute to moving in the direction of sustainable forestry.

Opening up public bank funding channels specifically targeting the construction of wood houses could turn out to be an instrument worth exploring. That would in turn provide the financing to the forestry sector to manage forests sustainably.

6.5. The carbon markets and the Clean Development Mechanism

Artificial forests have played an instrumental role in addressing the issue of greenhouse gases (GHGs). According to the data from the national inventory on GHGs, forestation-related carbon sequestration removes an amount of CO₂ that is four-fold the amount released into the atmosphere by the burning of fossil fuels in the country.

To help meet its commitments to the United Nations Framework Convention on Climate Change, Uruguay created a Climate Change Unit⁵⁴ under the umbrella of the Ministry of the Environment to serve as the national focal point to the convention.

Uruguay made its first National Communication (NC) in 1997, its second NC in 2004 and the third NC is currently in progress. Uruguay was the first developing country to implement the guidelines set forth by the Conference of the Parties.

Moreover, Uruguay has ratified the Kyoto Protocol and participates in the CDM. This mechanism was negotiated so that the developed country parties could meet the goals established in the Kyoto Protocol, while enabling the developing parties (like Uruguay) to access the carbon market, in turn enabling them to access sustainable development with concrete measures.

In its NCs, Uruguay has communicated its main sources of emissions, which are methane (with the enteric fermentation of cattle being by far the most significant contributor) and nitrous oxide from grasslands. In addition, the NCs show transportation as the most significant source of carbon dioxide, while forests are responsible for over 70 per cent of CO₂ absorption. Consequently, Uruguay is one of the very few countries in the world whose forests act as carbon sinks (however, this statement does not hold true for other GHGs).

The country started developing its first sustainable forestry projects eligible for issuance of carbon credits that could be traded as a CDM of the Kyoto Protocol. A methodology has already been approved for eligibility of Uruguayan CDM projects. The possibilities for accessing the benefits of the mechanism depend on the pending guidelines of national policies. Nevertheless, the country does have access to voluntary markets, such as in the USA (in Chicago, Illinois and California) or in Australia, and some certificates have already been issued.

⁵⁴ Unidad de Cambio Climático

From a broader perspective, it is worth mentioning that recent changes in the legal framework (in particular, the Act on Territorial Management⁵⁵) could also contribute to boosting those synergies, triggering additional financial mechanisms for SFM projects.

The law sets a new framework for the territorial organization, allowing for public-private partnerships with the potential to include sustainable forestry projects. The legal text states the possibility for joint land management initiatives, capturing value generated by the partners themselves and from society, a mechanism that can add to the positive impacts of, for example, protected areas or forest management in keeping with SFM guidelines.

The increased forest mass in the country removes significant amounts of carbon dioxide from the atmosphere. This gas is the leading cause of the greenhouse effect and global warming, the most crucial environmental issue responsible for climate change. The existing forestry plantations remove close to 15 million tons of carbon dioxide from the atmosphere annually. This figure offsets approximately half of all the country's emissions, making Uruguay a unique country in this sense. Finally, forestry is playing an increasingly important role as a supplier of raw material as an alternative source of energy intended to help reduce the need for fossil fuels - the leading cause of climate change – while ensuring national energy security.

In recent years, several forestry and forest-industrial companies have certified carbon fixation for their plantations, including one (Caja Bancaria) that has already traded certified bonds in the voluntary markets. On the other hand, only one project was formally presented before the MVOTMA's Office of Climate Change requesting authorization to claim certified bonds under the framework of the Kyoto Protocol. Unfortunately, to this day there is no clearly defined national policy for that. Therefore, potential candidates for such projects feel discouraged when they encounter the unpredictability of the criteria the national authority will apply when evaluating them to certify that they meet the international requirements to operate in that market. Hence, companies would rather not try for certification with MVOTMA and instead sell their carbon credits certificates on the voluntary markets.

Clearly, the absence of specific guidance limits the producers' chances of obtaining financial resources via carbon certificates/bonds, which are clearly a part of SFM. Consequently, the country is not receiving external resources that should be available to the forestry sector to help finance SFM. Moreover, such a mechanism would improve the management of the native forests. It would permit their expansion and promote biodiversity, owing to the enhanced profitability obtained from the trading of certificates.

Although there are still doubts about the standards to be applied for trading Carbon Sequestration Certificates of the forestry plantations, everything suggests that the Voluntary Carbon Units (VCUs) are more likely to remain in the future than Certified Emission Reductions (CERs) (CDM market). The market seems to be heading towards an important segmentation, opening up a range of possibilities for selling the carbon credit certificates according to the destination, including, among other places, the United States of America, the European Union, Switzerland, Norway, Japan and Oceania.

6.6. National System of Protected Areas

Law 17.234⁵⁶ underpins the National System of Protected Areas (NSPA). This law, aimed at preserving biodiversity and the natural heritage (landscaping and geomorphology), states that the MVOTMA is responsible for promoting the NSPA. Uruguay has 24 areas with some legal protection, whose affiliation into the NSPA is in progress under the Natural Protected Areas Division from MVOTMA. These 24 areas are scattered across the national territory, with about 300,000 hectares (especially consisting of wetlands and palm groves), some of which correspond to native forests. Some of those protected areas, covered by forests, are under-managed as a

⁵⁵ Ley de Ordenamiento Territorial

⁵⁶ Full regulation of Law 17.234 is currently pending.

forest ecotone (the transition area between forests and grasslands). These are sensitive and valuable areas from the point of view of the diversity and sustainability of their systems.

Law 17.234 provides for two funding sources intended to help the country meet its conservation objectives. First, it created a Fund for Protected Areas, which is managed by the MVOTMA. The fund receives resources from the following sources: the Ministry of Finances, external debt allocated to the financing of the NSPA, revenues from publications, income from local arts and crafts, income from the management of the area in question, donations, fines from violators of the law and the returns on investments of the Fund itself. Secondly, Law 17.234 authorizes MVOTMA to set prices for services provided and for operations of and entry into the natural protected areas. Resulting profits are submitted to the Fund.

This legal framework and its future development are meant to facilitate the financing of SFM projects, particularly for native forests. Not only does it define a framework for the incorporation of international resources that finance this type of initiative (in the framework of the United Nations Convention on Biological Diversity, Law No. 16.408), like the funds supported by the Global Environment Facility (GEF), but it also implicitly anticipates fees for environmental services, providing a legal basis for financial instruments that incorporate and validate this type of services. This is relevant for the National Forestry Development Strategy (NFDS)⁵⁷ in SFM.

During the process of design and implementation of the NSPA, the MVOTMA was granted funds from the national budget and several contributions from international cooperation (non-reimbursable funds). The process launched in the 1990s, and during its first decade, it received funds from international cooperation agencies (GEF, AECI and the EU) for USD 3.3 million, government funds for USD 340,000 and other contributions - largely from the private sector - for approximately USD 200,000. Hence, from its beginning in 1990 until 2000, the investments in this sector reached a total of USD 3.8 million.

From 2000 to 2010, the subsequent national budgets allocated USD 4 million to this sector, with contributions from the same funding agencies (non-refundable international cooperation, mainly from the United Nations Global Environment Facility) and public resources rising to about 15 per cent of the total.

In short, in the last 20 years, both State and international cooperation resources contributed an equivalent of USD 500,000 annually for the development of the NSPA (the main budgetary chapter of the MVOTMA related to forestry). More than 85 per cent of these monies were resources from international cooperation that entered the country as grants.

6.7. Capital market

Bonds issued by firms have become an alternative for financing bank loans in recent years. They boomed in the 1990s, when a firm with a high issuance of bonds defaulted. That led to a severe slowdown in 1998 of the bonds market, owing to investors' mistrust. That event was followed by years of financial crisis and recession that curtailed companies' possibilities of issuing bonds. Today, post crisis, several firms are again considering the possibility of capturing funds through this instrument, and some have already issued bonds, but the reactivation is still just beginning. The same applies to the public sector.

As opposed to stocks, where the investor participates in the company's capital, the bond is a security where the company pledges to pay a certain rate and redeem the capital at a certain time. The rates paid have always been more attractive than the interest paid by banks (due to the perceived higher risk), and specific rates vary according to the history or profile of the issuing

⁵⁷ ENFF: Estrategia Nacional de Desarrollo Forestal

company. The rates can be fixed or adjustable. Bond securities are traded through the two stock exchange markets in Uruguay (BVM and BEVSA⁵⁸).

Several forest/manufacturing industries have used this instrument for some time and continue to do so. Some projects that targeted the savings of small investors also issued bonds to finance their operations (the initial purchase of land), with poor results. As expressed earlier, this is an unavoidable lesson learned by small investors that are more reluctant to invest, and it must be considered when looking into mechanisms to finance sustainable forestry projects.

Another important fact is that the country is increasingly seeing a concentration of its plantations and related industrial activities moving into the hands of multinational firms. Those firms own forests and industrial plants in different regions worldwide, and they are powerful players in the trade of a vast range of products. There are also pension funds or financial funds of another nature that do not necessarily require availability of national financial alternatives. They do not bank credits, bonds or stocks to be traded on the Montevideo stock exchange market, nor do they require other methods that were used several times for other sectors with a larger amount of national and/or regional entrepreneurs that were more distant from the international financial centres (as was the case with the dairy and rice funds).

However, there are a few outstanding cases (such as the paper mill built by Botnia) that demanded investment of a magnitude that warranted the issuance of bonds traded by the Montevideo Stock Exchange. Even so, most such investments have been aimed at the industrial sector.

In that regard, if one closely watches the export structure of forestry products broken down by company, it is clear that 95 per cent of the value can be attributed to nine firms whose turnover exceeded USD 10 million in 2008. Of those nine firms, only one can be considered a “national capital business”, but its size and history allow it to access foreign financial mechanisms, as can the other eight.

⁵⁸ Bolsa Electrónica de Valores Sociedad Anónima: Corporate Electronic Stock Exchange

Table 10 Wood product exports broken down by company

<i>Company</i>	<i>USD 2008</i>	<i>% of the total</i>
Compañía Forestal Oriental S.A.	173 510 425	38
Eufores SA	53 487 388	12
Forestal Atlantico Sur Soc. Ag.	44 660 994	10
Fabrica Nacional de Papel S.A.	39 107 184	8
Los Piques Sociedad Anonima	27 423 440	6
Foresur G.I.E.	26 919 079	6
Comercializadora Grupo Foresta	22 151 444	5
Urupanel SA	20 500 732	4
Urufor S.A.	11 288 060	2
Maderas Aserradas del Litoral	5 263 153	1
Subtotal top 10 exports	424 311 899	92
Asoc Agrag de Resp Ltda de Pro	4 026 792	1
Dank S.A.	3 704 790	1
Juan c. Balerio S.A.	3 508 818	1
Los Eucalyptus S.A.	2 976 138	1
Caja de Jubilaciones Bancarias	2 470 015	1
Nevopark S.A.	2 387 368	1
Idalen S.A.	2 171 262	0
Agua Maderas Uruguay S A	1 833 962	0
Rio Tumbes S A	1 750 501	0
Datecor Sociedad Anonima	1 166 928	0
Subtotal 20 top exports	450 308 473	97
The rest	11 604 527	3
Total	461 913 000	100

Source: Developed by authors based on the DNA database

Note: The table refers to the official figures of exports that are shipped abroad from the national territory. However, the total real value must also take into account the exports that leave from Tax Free Zones; that takes the number of USD 460 million to USD 960 million. This is explained as follows:

- USD 460 million leave the national territory according to official statistics (including paper and cardboard, but not wood paste).
- Approximately USD 140 million must be subtracted, as that amount would correspond to the roundwood logs exported to the Tax Free Zone in Fray Bentos (Botnia), while adding the exports from the Tax Free Zone.
- This explains the USD 640 million figure, which corresponds to the sales of Botnia's pulp plant.

The degree of concentration of the forestry activity can also be seen in the production basis. According to a report published in 2006, around 20 firms and/or business groups held 70 per cent of the plantation projects up to that date.

Box 1 Main firms owning forest land as of 2006

Eufores is a branch of the Spanish company ENCE. It owns 120,000 hectares on the Western Coastal Zone and in the east. In 2006, there were 40,000 planted hectares, mainly consisting of *Eucalyptus globulus*. Eufores is planning a pulp plant (whose output is projected to be 500 m³/year). It has also invested in (a) a port and logistics terminal M'Bopicuá (on the Uruguay River), costing USD 35 million (USD 20 million came from credit from IDB and private banks + USD 15 million of their own money); (b) two chip production plants in Peñarol and M'Bopicuá, costing USD 6 million; and (c) Aserradero Maserlit, costing USD 5 million. The company's Accrued Net Investment is USD 88 million. Eufores is FSC certified.

Botnia is a Finnish cellulose pulp firm that is the second largest in Europe and the tenth largest in the world. Botnia owns the Metsa Group and UPM Kymenne paper mills. As of 2006, the company had 120,000 hectares mainly planted with *Eucalyptus grandis* and *Eucalyptus dunii*. It is FSC certified. In 2006, Botnia invested 1.2 million dollars building a pulp mill expected to produce 1,000 m³/year. It commenced activity in 2007.

Colonvade SA is jointly owned by Weyerhaeuser (50 per cent) and the World Timber Fund (50 per cent). Weyerhaeuser is the second largest forestry and wood company in the world. As of 2006, it owned 128,500 hectares of land in Uruguay, with 81,000 hectares already planted. The mix is 60% *Pinus taeda* and *Pinus elliottii* and 40 per cent *Eucalyptus grandis*. Colonvade SA holds ISO 14.001 certification. It has already built the first of its five plants for the manufacture of plywood panels, with a USD 35 million investment.

Stora Enso is Swedish-Finnish group and has the largest paper mill in the world. Stora Enso is planning a pulp plant with a projected output of 1.000 m³/year. It has already purchased 15,000 hectares, and the plan is to reach 120,000 hectares overall.

Cofusa (Compañía Forestal Uruguaya SA) is a national firm owning 50,000 hectares, 30,000 of which are planted in the Northern Zone. Their forests mainly consist of *Eucalyptus grandis*, which is managed to produce logs for the manufacturing of solid wood products. Cofusa is FSC certified and has one sawmill (*Urufor SA*).

Fymnsa (Forestadora y Maderera del Norte SA) is located in the Uruguayan capital. In 2006, the company had 13,200 hectares, 10,500 of which are planted with pines. Fymnsa has one sawmill, located 13 km from Tranqueras. It employs 750 people directly and indirectly. Fymnsa is FSC certified.

Grupo Arauco is a Chilean company. It is one of the world's largest forestry firms. As of 2006, 30,000 hectares had been planted with young pine stands in the north, in Tacuarembó and Rivera.

Grupo Delmonte is also Chilean and is affiliated with the family group Saenz. As of 2006, around 15,000 hectares had been planted with pines in the north, in Tacuarembó and Rivera.

Villa Luz is the beneficiary of investments from North American pension funds managed by New Zealand experts. As of 2006, Villa Luz had 13,000 hectares of young (3-4 years old) pines in Rivera.

Foresur is an economic group comprising over 70 Uruguayan producers whose forest land (as of 2006) added up to 27,000 hectares. The forests are located in the southeast of the country, in Lavalleja, Maldonado and Rocha. Since 1994, Foresur has produced roundwood logs of *Eucalyptus globules*, which they export to Europe.

Profodes is a Farming Partnership (under Law 17.777) that comprises 30 producers who trade their wood jointly. They collectively own 10,000 hectares of forests. Like Foresur, investors are non-forest businesspeople who invest in land and forestry, operating in mixed production, meaning the raising of cattle with different forestry-to-cattle ratios. Profodes includes cattle farmers that have invested in forests.

Grupo Forestal is a Group of Chilean investors. Grupo Forestal owns *Eucalyptus globulus* forests in the southeast of the country. Their aim is to produce quality wood for the production of pulp. As of 2006, the Group was owners of 27,000 hectares, of which 20,000 were planted.

Asociación de Forestadores del Centro is a Group (Durafor (Economical Interest Group) is their commercial name) of more than 50 small and medium-sized producers, comprised of both local and foreign investors. As of 2006, their holdings added up to 25,000 hectares of forested land located primarily in Durazno. 85 per cent of their trees are *Eucalyptus*.

Union pension funds: The Bank Workers Pension Fund⁵⁹ is one of the largest investments in the area, holding 12,000 hectares of forests and a sawmill in the coastal west (Piedra Coloradas, Paysandu). Other forest investors are the University Professionals' Fund (in Cerro Largo and Florida) and the Notaries' Retirements and Pensions Fund (West Coast, principally in the department of Río Negro).

Forest funds: There are a few forest funds, with Forestal Atlántico Sur, RMK being one of the largest.

Note: Some of the firms in this table have merged and/or gone out of business since 1996, because new firms in Uruguay acquired them. However, the concentration of the plantations registered in 2006 is not lower than the current number.

⁵⁹ Caja Bancaria

6.8. Private investment modalities: Paso Alto, Medical Groups and other cases

Already in the 1960s, the Bank Employees Retirement and Pension Fund had invested part of its member's (the Uruguayan Bank employees) savings in forests, with the goal of ensuring future pensions and retirements. Today, this bank, the Caja de Jubilaciones y Pensiones Bancarias (CJPB) has a Forestry Banking (FB) firm that manages more than 20,000 hectares in Paysandu and Durazno, with a sawmill and a remanufacturing plant for wood products.

Later, the Notaries' Retirement Fund⁶⁰ in Río Negro and the University Professionals' Retirement and Pension Fund⁶¹ in Florida and Cerro Largo⁶² followed the same path.

Already during the boom of Uruguayan cultivated forests that occurred in the 1990s, choices abounded for investing in forest alternatives available to small- and medium-sized savers (investors).

There are two different modalities that pooled investor resources together. In the first, professionals⁶³ became partners in corporations. Each professional bought stocks of a forestry firm; the capital raised by the partners was used to buy land and plant forests, often run directly by the partners themselves. Many of these corporations still operate in the wood products market⁶⁴; others have sold their assets and left the business. Some examples of corporations still in business are PROCER, Paysandú newspaper and magazine distributors,⁶⁵ GALENO in Paysandú, the doctors of UCM⁶⁶ with forestry projects in Rivera, and the staff of SEMM⁶⁷ in Soriano.

In the second modality that pooled investor resources together, there are groups of owners of parceled forests. Forestry firms initially purchased large extensions that were planted and later sold as 10-hectare lots to third parties. People with savings were able to buy existing forests in 10-hectare lots, and they paid annual common expenditures to the administrators in charge of the operation. The first forestry company to use this modality was Paso Alto, who planted over 17,000 hectares in Tacuarembó and Cerro Largo. Two additional firms, Fondo Forestal and Valleflor, followed with a similar offer. They planted a smaller area, also in the northern departments of the country (Tacuarembó, Paysandú and Río Negro). The main difficulties arose when the forests were harvested and commercialized, because each owner had different expectations of volume and price. This led to the merging of Alto Paraná in order to sell their wood as a single forest mass, with more than 80 percent of the corporate area known as Uruwood SA, 5 per cent as Land Group SA, and some remaining as Paso Alto. Today, the main shareholder of these firms is Forestal Oriental; many individual owners have sold their production to this company.

⁶⁰ Caja de Jubilaciones Notariales (CJPN)

⁶¹ CJPPU: Caja de Jubilaciones y Pensiones de los Profesionales Universitarios

⁶² Florida: Department in the center of the country; Cerro Largo: Department in the northwest

⁶³ Professionals here refers to University graduates. Except for lawyers and notaries, who have a Pension Fund of their own (Caja Notarial), all the rest of the university graduates pay into the professionals' pension fund (CJPU) monthly while they are actively practicing.

⁶⁴ For this purpose, we refer to the "Wood product market" as an equivalent to the "Forest product market".

⁶⁵ Repartidores de Diarios y Revistas "Canillitas De Paysandú"

⁶⁶ Unidad Coronaria Móvil de Montevideo (UCM)

⁶⁷ Servicio de Emergencia Médica (SEMM)

7. CAPITAL CASH FLOWS FOR SUSTAINABLE FOREST MANAGEMENT

To illustrate the information discussed above, we present table 12 with the key figures that illustrate the investments in the forestry sector (for the primary phase), showing the contributions by the private sector and the contributions made by the State. We have separated out non-refundable contributions made by the State (subsidies and tax exemptions) from the refundable contributions (Public Bank Credits – BROU).

Table 11 Plantation areas

Concept	As of 2000	2000	2001	2002	2003	2004	2005	2006	2007	2008	Accrued
Annual plantation under project (ha)		59	59	34	16	14	12	18	29	30	795
Accumulated planted area under project (ha)	524	583	642	676	692	706	718	736	765	795	795
Traditional plantation areas (ha)	137	150	158	166	174	182	190	198	205	205	205
Total area of planted forests (ha)	661	733	800	842	866	888	908	934	970	1 000	1 000
Native forests (ha)	590	612	634	656	678	700	722	744	752	752	752
Total forests in the country (ha)	1 251	1 345	1 434	1 498	1 544	1 588	1 630	1 678	1 722	1 752	1 752
Effective area of forests (ha)	938	1 009	1 07	1 124	1 158	1 191	1 223	1 259	1 292	1 314	1 314
Logging exports (thousand USD/year)	216 573	40 335	41 301	42 982	47 783	57 683	55 735	73 633	112 276	31 363	719 664
Fiscal effort in estate tax exemptions (thousand USD/year)	3 626	1 166	1 284	1 352	1 384	1 412	1 436	1 472	1 530	1 590	16 252
Fiscal effort in equity (thousand USD/year)	23 229	-	-	-	-	-	-	-	-	-	23 229
Returns from imp. export of logging (thousand USD/year)	4 331	807	826	860	956	1 154	1 115	1 473	2 246	-	13 766
Subsidies for plantation (thousand USD/year)	29 208	1 522	4 810	2 989	1 219	1 489	4 724	3 279	3 543	7 638	60 421
Public credit BROU (thousand USD/year)	40 567	2 777	1 416	-	-	-	-	-	-	-	44 760
Total public resources (thousand USD/year)	100 961	6 272	8 336	5 201	3 559	4 055	7 275	6 223	7 318	9 228	158 428
Public resources without reimbursement (thousand USD/year)	60 394	3 495	6 920	5 201	3 559	4 055	7 275	6 223	7 318	9 228	113 667
Primary sector investment (thousand USD/year)	340 600	41 300	47 200	30 600	16 000	21 000	24 000	45 000	101 500	135 000	802 200

Source: Developed by authors

The following comments arise from the analysis of the figures above:

- The total investment by the private sector in plantations and forestry management (accrued as of 2008) adds up to USD 800 million, not considering land value. Only as a

reference, it is valid to say that, depending on the location and other characteristics of the estate, the current price of one hectare of land with forestry-priority soil ranges from around USD 1,500 to USD 2,500.

- The non-refundable public investment, estimated as the sum of direct subsidies paid plus the taxation benefits awarded, adds up to USD 113 million, which is less than 15 % of the private investments in forests (excluding the land from calculations).
- The refundable financial support given as public bank loans reaches USD 45 million, equivalent to little more than 5 per cent of the total private investment.
- Adding together the two types of financial support from public resources, it is fair to say that the fiscal contribution is around 20 per cent of the investments made in forest plantations by the private sector.
- Given that the plantation pace has remained steady after the discontinuation of the most direct incentives (public subsidies to plantations that account for 7.5 per cent of the 20 per cent mentioned in the previous point above), and considering that the country can still plant cultivated forests in an area equal to that already planted, it is clear that in the years to come, the fiscal contribution (public /private investment ratio) to the primary forestry sector will decrease, while the number of plantations will remain the same.
- On the other hand, the value/hectare investment in plantations is rising steadily due to the costs of pruning and thinnings required by the plantations growing “quality wood” (which is the practice encouraged by the current policies). Therefore, it is likely that in future years, we will see an increase in private investment per hectare of cultivated forest in which the amount of planted area is increased and operational costs are higher. This, together with the elimination of the subsidies, will reduce the relative weight of public investment as compared to private investment.

8. NEEDS AND POSSIBILITIES FOR FINANCING ACTIVITIES CONTRIBUTING TO SUSTAINABLE FOREST MANAGEMENT

8.1. Public sector

For the public sector, we can identify certain sustainable forestry practices that would require additional resources. The most relevant of these is the Permanent Forestry Inventory. A permanent forest inventory is an indispensable tool for Uruguay to adjust the rules governing the activity. It should serve to achieve the greatest possible economic development by ensuring the sustainability of resources. On the other hand, the current public policy sets stimuli and on the other hand it establishes limits to the private sector when developing forest activity. For the time being the government does not have any systemic or reliable measurement that could evaluate the proper functioning of the SFM. Today, this is being done thanks to an international cooperation project with resources from both the UNDP and the national budget (approx. USD 3 million allocated to the 2008-2010 period, 88 per cent coming from the UNDP and 12 per cent from the national budget), with the technical assistance of FAO. At present, this activity has no budget of its own to survive beyond 2010, as would be desirable.

Another SFM practice that lacks a specific budget, and that would be instrumental in achieving successful sustainable forestry, is the on-field monitoring of the use of native forests. This would mean going to the field to control harvests and other interventions (of forest management) authorized by the DGF, and incorporating mechanisms of economic incentives in addition to the municipal tax exemptions (CIR) still in place. This would not only expand the surface area of this type of forest (there is already evidence of this), it would also contribute to improving the quality of those forests. This would be a result of complementary management that would contribute to abating the presence of invasive species, which would eventually allow for the reintroduction of valuable native species.

Other SFM activities that are currently not receiving the resources they need from the public sector for their operations are the communication/dissemination of the information available on various topics of interest to the non-forestry rural sector and to society at large. Both the public and private sectors have sound information on issues that are frequently unduly challenged by agents not familiar with the forestry sector. It would serve the image of forestry well if certain issues were better understood, such as the number of jobs and quality of labour generated by forestry, forest contributions to the hydrology cycle and to biodiversity, potential production complementation with a vast range of farming activities, contribution to the national economy and decentralization of industries, among other topics.

Finally, it should be noted that new problems related to production have emerged. This is due to various factors, including the introduction of different forest species for the production of wood for industrial purposes, the various environmental (soil, temperature, rainfalls, etc.) and cultural conditions close to native forests, and those forests harvested in the past for non-sustainable purposes without much attention being paid to the result. Despite the growing knowledge available from national researchers, some of those issues remain unsolved.

There exists a clear need to speed up applied research concerning plant health. The financial resources available for such research appear to be far from enough, in view of which some Forestry Producers Society-focused companies have undertaken joint research studies, hiring independent professionals to complement the work conducted by the research agencies.

8.2. Private sector

The private sector has an opportunity that has remained thus far untapped, concerning the sale of environmental services related to the preservation/expansion of native forests and the management of the refilling of fresh water reservoirs.

Uruguay's failing to receive recognition from the international community for expanding the forested area native forests has hindered the country's ability to progress further in the development of mechanisms that would complement measures already implemented, such as the CIR⁶⁸ exemptions. The State is actually paying farmers to spare the existing native forests, keeping them unaltered; however, that action cannot currently be sold to the international community for reimbursement. This relates back to the issues raised in the discussion on the public sector.

Additionally, with a potential evapotranspiration (PET) ranging from 800 to 1000 mm and rainfalls between 950 and 1,350 mm, Uruguay offers an untapped opportunity; i.e., in the winter time, the rain that falls on areas covered with forest plantations percolates more to the groundwater than the rain that falls on natural grasslands. Therefore, the deep groundwater, the natural reservoir of water, is of benefit to the plantations, thereby being a potential opportunity for the payment of environmental services (PES).

Another opportunity for the private sector is related to the development of forest plantations in the rural estate of non-forestry producers, supporting the public policy that promotes the diversification of the energy matrix. That is, the promotion of short-term plantations in areas hosting ventures that use biomass for the production of electric energy may serve the objective of the energy policy and the diversification of revenues to farmers, while promoting biodiversity in their environment.

The absence of an official position by MVOTMA concerning the requirements set by the competent authority to authorize the forestry projects that may apply for CDM approval in the framework of the Kyoto Protocol hinders the development of the initiatives currently underway (not many) seeking authorization. On the other hand, the uncertainty about the future of the national policy in that respect severely hinders the development of new ventures that could receive funds via this statement. It is not a matter of the public sector's lack of resources available to promote SFM. Rather, it is the absence of an official public sector position that limits the private sector's access to a market that constitutes a source of financing for cultivated forests that contribute to SFM. So far the potential of REDD+ in generating financing for SFM in Uruguay is not seriously considered as natural forest are has been increasing during last years. In addition, the potential in REDD+ in Uruguay would be very limited considering the small natural forest are of the country and the fragmented ownership of these forests creates an additional challenge.

Finally, we must highlight the private sector's need to transport the wood and deal with other logistical concerns related to forestry and the management of harvest wastes on sites located far from central biomass generation plants. New alternatives for transport, shipment of freight, reception and storage, and maybe differentiated policies to pay for production with these forestry by-products (different from those handled today for the purchase of the energy produced from industrial waste) could foster the management of cultivated forests that may significantly contribute to SFM.

⁶⁸ CIR is a municipal tax applied to land.

9. CONDITIONS FOR PRIVATE INVESTMENT AND OPPORTUNITIES FOR BETTER FINANCING OF SUSTAINABLE FOREST MANAGEMENT

We must point out that in Uruguay, both the native forests and the cultivated forests are owned by the private sector (except for a few exceptional and negligible cases). Therefore, the key problem for SFM is the prevailing climate for private forest investors. The investment climate in Uruguay is very favourable overall, as reflected by the investment figures of the private sector with respect to the GDP of earlier years. This is also confirmed when analyzing the history of the forest-industrial sector and observing the expansion of the plantations and the installation of the various wood industries (pulp wood, sawmills, wood panel and MDF plants, energy generators, etc.) in the last 15 to 20 years. These investments have turned this forestry activity into one of the most dynamic and important sectors, as well as a significant contributor to the national GDP, the commercial/trade balance, rural employment, and the productive complementation/diversification of the primary sector.

Nevertheless, there is room for improvement in the conditions offered for private investments in the forestry sector, and there are opportunities for better financing of SFM. Below is a list of the most outstanding opportunities:

- Ensuring the availability of critical public goods (National Forestry Inventory, applied research focused on forest health and communication/dissemination of information to society at large)
- Allowing the trading of environmental services of native forests and cultivated forests
- Officially supporting carbon certificate trading
- Adapting policies promoting the use of alternative energy obtained from by-products from forest wood and harvesting
- Promoting forestation scattered across land operated by agricultural producers with social and/or economic energy objectives

10. RECOMMENDATIONS OF STRATEGIES FOR INCREASING THE CAPITAL CASH FLOW TO SFM

- a) Achieve greater budget resources and contributions from international cooperation for the generation of public goods that contribute to a better climate for private investment.
- b) Achieve recognition from the international community for the country's efforts and results obtained from the expansion of native forests (preservation of biodiversity), and the expansion of cultivated forests (contribution to the hydrological cycle), which allow for capitalization (generating results or obtaining profits) via the trading of environmental services.
- c) Obtain official criteria with respect to the conditions required of CDM projects in the framework of the Kyoto Protocol.
- d) Obtain policies matching the energy reality, considering the potential biomass energy produced from forestry by-products (the crop residues left in the forests that can be used to generate energy).
- e) Adjust public policy instruments aimed at incorporating sustainable forestry as an activity to be encouraged in non-specialized agricultural companies, taking into account factors that have resulted in the success of similar businesses of the private sector.

11. CONCLUSIONS

Within two decades, Uruguay has managed to develop its forest sector from a marginal business into one of the major pillars of Uruguay's foreign trade. A favourable political environment of strong political will and continuity and coherence of policies and legislation supporting investments in SFM and forest industries, combined with favourable climatic and demographic conditions, has enabled this development. Uruguay has shown that the public sector may provide incentives for SFM, but to make SFM successful, good cooperation between sectors and public and private actors is needed, and decision makers must have a long-term perspective, due to the long-term nature of forest activities.

However, to further diversify the financing base of SFM and to create a buffer against economic turbulence also affecting forest investments, other sources of financing could be applied to industry-oriented forestry as well. Both natural and artificial forests may provide environmental services, which should be fully valued, and national and international organizations should develop incentives and mechanisms applicable to various ecological and socio-economical contexts.



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Annex 1

Annex 1: People interviewed

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LECTURERS AT THE WORKSHOP

Annex 3: Main regulations related to forestry (1967-2008)

Evolution of the regulatory framework				
Year	Instrument		Origin	Object
1967	Law	13,723	L.P.	1st Forestry Law
1987	Law	15,939	L.P.	2nd Forestry Law
1988	Law	16,002	L.P.	Subsidy presentation (art. 45)
	Bill	431/88	DGF	National Registry of Forest Guarantee
	Bill	849/88	DGF	Combat Forest Fires
	Bill	452/88	DGF	Declaration of Forest Territories
	Bill	931/88	DGF	Subsidy of the Implementation of Forests
1989	Bill	247/89	DGF	Forest Tax Benefits
	Bill	111/89	DGF	Forest Fire Prevention
1990	Bill	23/90	DGF	Transport of Forestry Products
	Bill	333/90	DGF	Soil for Forestry Priority
1991	Bill	733/91	DGF	Tax Exemption
1993	Law	16,408	L.P.	Ratification of the Convention on Biological Diversity (CBD)
	Bill	22/93	DGF	Protection of the Indigenous Forest
	Bill	26/93	DGF	Forestry Priority on New Soils
	Resolution	1736/93	DGF	Exemption of Social Security Burden on Natural Forests and Protectors
	Bill	330/93	DGF	Authorization of Native Forest Management
1994	Law	16,466	L.P.	Law on Environmental Impact Assessment
	Bill	435/94	DINAMA	Legislation on the Law on Environmental Impact Assessment
1999	Bill	372/99	MTSS	Regulation on Forestry Companies (Contractors)
2000	Law	17,234	L.P.	Creation and Management of a National System for Natural Protected Territories
2001	Law	283	L.P.	General Law on Environmental Protection
2002	Law	17,453	L.P.	Progressive Reduction of the Forestry Subsidy and its Elimination by the start of 2007
	Bill	188/002	DGF	Improvement of the Protection Plan Against Forest Fires.
2004	Code	-----	DGF	National Code for Good Forestry Practices*
	Law	17,904	L.P.	Budget – Art. 8 assigns resources to the Forestry Fund
2005	Law	17,905	L.P.	Elimination of Subsidies
	Bill	154/005	DGF	Abolish Bill 333/90
	Bill	349/005	DINAMA	Wider Environmental Evaluation on Economically Productive Forests
2006	Bill	191/006	DGF	Modify Soils for Forestry Priority
	Bill		DGF	Complementary to the Soils for Forestry Priority
2007	Law	18,083	L.P.	Tax Amendment
	Bill	197/007	DGF	The concept of "Small Forestry Producer" is defined in Art. No. 8 of Law No. 17.904 on Forestry Fund for Cancellation of Debt.
2008	Law	18,245	L.P.	Exemption of Rural Estate Property Tax for Forest Property owners on " Quality Wood" and Forest Protectors – the rest of the forests do not qualify for this Exemption
	Bill	38/008	DGF	Definition of Productive Forests for producing "Quality Wood".

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