



Native Forest Conservation within the Framework of Forest Promotion Policy in Uruguay

Andrés Normey

Supervisors: Vilis Brukas SLU, Sweden

Carlos Mantero University of the Republic, Uruguay

Swedish University of Agricultural Sciences

Master Thesis no. 196

Southern Swedish Forest Research Centre

Alnarp 2012



Native Forest Conservation within the Framework of Forest Promotion Policy in Uruguay

Andrés Normey

Supervisors: Vilis Brukas SLU, Sweden

Carlos Mantero University of the Republic, Uruguay

Examiner: Ola Sallnäs

Swedish University of Agricultural Sciences

Master Thesis no. 196

Southern Swedish Forest Research Centre

Alnarp 2012

MSc thesis in Forest Management – EUROFORESTER
Master Program, SLU course code EX0630, Advanced level, 30 ECTS

CONTENTS

1	INTRODUCTION	6
1.1	FOREST COVER IN URUGUAY	6
1.2	DEVELOPMENT OF FOREST POLICY IN URUGUAY.....	7
1.2.1	19 th century: from common to private forest property	7
1.2.2	1900-1950: Emerging forest promotion.....	7
1.2.3	1950-2000: Forestry expansion.....	8
1.2.4	National System of Preserved Areas.....	9
1.3	INTERNATIONAL POLICY PROCEEDINGS	10
1.3.1	Agreements and conventions	10
1.3.2	Forest legislation process in Latin America.....	12
1.4	OBJECTIVE OF THE THESIS	14
2	THEORETICAL FRAMEWORK: POLICY ARRANGEMENT APPROACH	14
3	MATERIALS AND METHODS.....	15
4	RESULTS	17
4.1	INTERVIEWEES' BACKGROUNDS.....	17
4.2	DISCOURSES: FOREST PROMOTION AND CONSERVATION.....	18
4.2.1	Background discourses, 1 st half of the 20 th century	18
4.2.2	1950s and 1960s: focal concepts and ideas.....	20
4.2.3	1980s: restructuring	27
4.2.4	Summary of the discourses	31
4.3	RULES: NATIVE FOREST CONSERVATION WITHIN FOREST PROMOTION LEGISLATION	33
4.3.1	The Resources and Forest Economy law	33
4.3.2	Forest Law and binding decrees	35
4.4	ACTORS AND POWER: FOREST PROMOTERS, INTERNATIONAL ORGANISATIONS AND POLITICIANS.....	37
4.4.1	Key actors: an overview.....	37
4.4.2	The Resources and Forest Economy law	41
4.4.3	Forest Law passed during dictatorship period	44
4.4.4	Forest Law 1987	45
5	DISCUSSION	47
5.1	METHODOLOGICAL REFLECTIONS.....	47
5.2	NATIONAL VS. INTERNATIONAL INFLUENCES	49
6	CONCLUSIONS.....	52
7	BIBLIOGRAPHY	54
8	APPENDIX.....	60
8.1	INTERVIEW GUIDE	60
8.2	ACRONYMS	61
8.3	NATIVE TIMBER REQUIRED AND ALLOWED TO BE TRANSPORTED	62
8.4	NATIONAL ENERGY BALANCES DATA.....	63

ABSTRACT

Environmental changes due to anthropogenic causes have brought a negative effect on Uruguayan native forest. Governments at the beginning of the 20th century began to promote the importance of the forest. In 1968 was passed the “Resources and Forest Economy Law” and in 1987 was passed the “Forest Law”. Both laws intended to boost afforestation on certain priority areas with exotic species, whilst promoting the conservation of the native forest. This thesis focuses on describing and thoroughly analysing the processes that resulted in the protection of native forest within the framework of the forest promotion legislation during the 1960s and 1980s. The theoretical framework selected was the Policy Arrangement Approach (PAA). It distinguishes four interrelated key variables to understand policy practices: discourses, power, rules and actors. Methods selected relied on qualitative rather than quantitative analysis. They were based on literature analysis (thorough the review of historical documentation) and qualitative interviews with open questions. Four major themes emerged from the analysis. First, there were three main groups of actors responsible for initiating the forest development: politicians in power, national forest promoters and FAO. Second, national forest promoters were identified to be the main force that drove the inclusion of native forest conservation. They lead the General Forest Directorate, the most important organisation which has stood for native forest conservation. Their discourses evolved from simply the importance of enlarging the forest area in the country, to the importance of preserving native forest for soil protection and waters regulation functions. Later on, biodiversity and recreation began to become important for the intrinsic value of native forest. Third, there was no organised opposition to the creation of a forest legal framework. However, some livestock producers had been individually opposed to forest promotion. Fourth, it is important to stress the strong influence of FAO and the regional forest regimes. These were not the main drivers, but the outcome of forest policy in Uruguay would have been different without such influences.

Key-words: conservation, forest policy, legislation, native forest, Uruguay

RESUMEN

Los cambios ambientales debido a las actividades humanas han traído un efecto negativo sobre el bosque nativo de Uruguay. El gobierno al comienzo del siglo XX comenzó a promover la importancia de los bosques y la forestación. En 1968 se aprobó la ley "Economía y Recursos Forestales", y en 1987 se aprobó la "Ley Forestal". Ambas leyes intentaron estimular las plantaciones forestales con especies exóticas en ciertas áreas prioritarias, y al mismo tiempo promovieron de la conservación del bosque nativo. Esta tesis se centra en la descripción y el análisis a fondo de los procesos que dieron lugar a la protección de los bosques nativos en el marco de la legislación de promoción forestal durante los años 1960 y 1980. El marco teórico elegido fue el *Policy Arrangement Approach* (PAA). Distingue cuatro variables claves relacionadas entre sí para comprender las prácticas de política: los discursos, el poder, las reglas y los actores. El método seleccionado se basó en el análisis cualitativo más que cuantitativo. Se realizó un análisis de la documentación histórica, la cual fue complementada con entrevistas cualitativas con preguntas abiertas. Cuatro temas principales surgieron del análisis. En primer lugar, hubo tres grupos principales de actores responsables de iniciar el desarrollo de la legislación forestal: políticos en el poder, promotores forestales nacionales y la FAO. En segundo lugar, los promotores forestales nacionales se identificaron como la fuerza principal que llevó a la inclusión de la conservación del bosque nativo. Lideraron la Dirección General Forestal, la organización más importante, que se ha destacado por la conservación del bosque nativo. Sus discursos evolucionaron desde la simple la importancia de la ampliación de la superficie forestal en el país, a la importancia de la preservación del bosque nativo para la protección del suelo y las funciones de regulación de las aguas. Más tarde, el concepto de biodiversidad y recreación comenzaron a ser importantes por el valor intrínseco de bosque nativo. En tercer lugar, no hubo oposición organizada a la creación de un marco legal forestal. Sin embargo, algunos productores de ganado individuales se opusieron a la promoción de los bosques. En cuarto lugar, es importante destacar la fuerte influencia de la FAO y los regímenes forestales regionales. Estos no fueron los motores principales, sino el resultado de la política forestal en Uruguay habría sido diferente sin esas influencias.

Palabras clave: conservación, bosque nativo, legislación, política forestal, Uruguay

1 INTRODUCTION

1.1 FOREST COVER IN URUGUAY

Uruguay was categorised as a “country without trees” by Charles Darwin at the beginning of the 19th century (Moron, 1957) and since then native forest has covered only a small percentage of the land (2-3%) (Gautreau, 2006). However tree planting had first been recommended even before independence, when the region was ruled by Artigas in the 1810s (Moron, 1957).

Current native forest cover in Uruguay is 752,158 hectares (National Forest Inventory, 2010) yet in spite of covering a relatively small area, the high biodiversity value of the native forest is remarkable. From 140 native families belonging to the plant kingdom in Uruguay, 27 (19.3%) are tree species. The total number of tree species is 170 (6.9% of all Uruguayan species) and if shrubs are included in this figure the total number of woody species is 260.

Uruguayan forests can be classified into five formations: those distributed alongside rivers and streams (*Ribereño*); those growing on hilly sites (*Serrano*); those in microclimates generated on ravine areas (*de quebrada*); those developing along the Oceanic and Plata coast (*Costero or Psammófilo*); and low dense stands growing on grassland areas (*de Parque*). In addition palm groups can be considered as a singular type of formation (Grela, 2004).

Native forest cover has been increasing in area in the last 60 years (Table 1). However, it is not possible to accurately state the significance of this increase because the available data are based on differing criteria and are hence not directly comparable. Despite the lack of significance, a connection between native forest cover increment (plus its biodiversity value) and national forest policies cannot be discounted.

Table 1. Evolution of native forest and plantations

Year	Native forest area (thousand ha)	Plantations area (thousand ha)
1937	529	72
1946	340	74
1966-67	597	170
2010	752	951

Table Sources: Data year 2010: MGAP-FAO (2010). Data year 1937 and 1966/7: Porcile (2007). Data year 1946: Tuset (1951).

Despite the increase in native forest area over recent decades, environmental changes due to anthropogenic causes have brought a negative effect on native forest quantity and quality. The first impact occurred when European immigrants who were settling down in the region used wood from the native forests as their main source of energy (Gautreau, 2006). In addition, two significant environmental changes occurred due to economic reasons. These were the introduction of cattle in the 17th century and the massive expansion of wool production in late

19th century. It is necessary to mention that the cattle were introduced by European civilisations living in other parts of America, nonetheless it became the former economic activity which boosted the development of the region. Introduced animals directly interacted with native woods thereby changing the ecological equilibrium. These impacts on native forest occurred in times of confusion and disorder and thus, did not greatly influence the development of future forest policy.

During the end of the 19th century and the beginning of the 20th century Uruguayan society began to evolve and organise into that which is recognisable today. The population increased dramatically, mainly due to European immigration (Pellegrino, 2003) and this change was accompanied by an increase in energy demand. In the middle of the 20th century, The Second World War brought about a lack of oil supply in the region. As a consequence fossil fuel prices rose and native woods were used in order to offset those demands (Laffitte, 1960). Native forest area decreased drastically (Table 1) and forest changed in many cases from primary forest to secondary forest (Gautreau, 2006; Porcile, 2007). In this instance, impacts occurred on a more mature and organised society. Measures in response to those impacts were about to be taken.

1.2 DEVELOPMENT OF FOREST POLICY IN URUGUAY

1.2.1 19th century: from common to private forest property

In spite of the lack of forest in the country, its ownership structure has been changing throughout Uruguayan history, at the time of Uruguay's first constitution in 1830, forest was considered to be common land. However in 1834, when the country was officially four years old, a law was created in which the trust and protection of the commonly owned forest was bestowed upon the neighbouring landowner.

This law opened the door to the privatisation of forest. The last and decisive blow against the public status of forest happened in 1875 with the adoption of the Rural Code (Gautreau, 2006).

1.2.2 1900-1950: Emerging forest promotion

Governments at the beginning of the 20th century began to promote forest development as a national strategy (Porcile, 2007). In 1911 the National Nursery of Toledo and the Forest Service were created, and in 1916 the government ordered the creation of a park on specially selected sandy soils in Montevideo. During the 1920s, the Forestry Service (belonging to the Ministry of Agriculture at that time) started to take action on the state-owned islands in the river Uruguay and several parks around the country. The law 8.172, created in 1927, declared Santa Teresa Fortress a national monument and decreed the creation of a public park around the fortress which would be surrounded by forest.

In 1935 the Honorary Commission for the Promotion of Tree Cultivation was created through the decree of the Executive Power. One of the main objectives of the commission was to formulate a Forest Law (Porcile, 2007). The commission also began to promote the conservation of native

flora whilst diffusing and promoting planting of the most appropriate tree species for the nation (according to their opinions and recommendations). The commission presented the first ever forest bill to the Livestock and Agriculture Ministry in 1939. However, the forest legislation had to wait almost two decades before being passed (Porcile, 2007).

1.2.3 1950-2000: Forestry expansion

During the 1950s two foreign commissions came to Uruguay with the aim of assessing forest development possibilities and potential. On both missions it was suggested that the country should formulate a forest law boosting forest plantation with exotic species in certain areas of the land (Hutton and Winkelmann, 1953 and Rogers, 1953). Simultaneously, individual Uruguayan “forest promoters” (most of them forest engineers), began to promote forestry. Later on, during the 1960s, the National Plan for Economic and Social Development was produced (CIDE, 1967) by the Livestock and Agriculture Ministry. This document clearly states the government’s intentions with regard to forest development. CIDE (Commission for Investment and Economic Development) states that in the 1950s Uruguay was a net importer of wood products. The government decided to be active in this aspect, the main intention was to offset wood imports by generating the country’s own timber and this objective would be met by boosting the development of forest plantations (CIDE, 1967). The strategy took into account the international situation in which the global demand for pulpwood and paper products was increasing, while traditional forest producer countries would not be able to increase their productivity to offset those demands (CIDE, 1967).

One year later the National Forest Development Plan was ratified into law (with some changes) as law 13.723 Resources and Forest Economy (Parlamento de la República Oriental del Uruguay, 1968). The law declared the protection, improvement, expansion and creation of forest resources, the development of forest industries and the forest economy in general, to be in the national interest. The main objectives of the law were firstly, to increase afforestation on certain priority areas with fast growing exotic species (*Eucalyptus* sp., *Pine* sp., *Populus* sp., and *Salix* sp.), and secondly, to release pressure on native forest. It was an interaction of different actors which led to the creation of forest law; deeper analysis is needed to determine which of these actors was the most influential on native forest conservation.

It is essential to understand that the inclusion of both native forest conservation and forest plantation promotion was part of a single piece of forest legislation. Indeed, the government strategy was to boost national timber production through the development of plantations, thus releasing logging pressure on native forest (native forest products would be substituted by plantation products). Moreover, native forest protection was directly promoted through tax exemptions for landowners who were willing to register their native forest to the Forest Directorate (an entity created to carry out forthcoming forest issues) (Parlamento de la Republica Oriental del Uruguay, 1968). Therefore, native forest conservation had two aspects: offsetting the

timber supply through newly created forest plantations, and direct promotion of its conservation through tax exemptions.

Although it was a complete and well-structured piece of legislation, the Resources and Forest Economy law did not cause the increase in forest plantations that were expected (which in turn did not result in a release of pressure on the native forest). In 1973, within the context of the “cold war”, the country began a period of military dictatorship. It is possible that this non-democratic period was the main reason why the law did not achieve its objectives. In 1985, with democracy re-established, the forest promotion drive began again. In 1987 the Forest Law 15.939 was passed and this is still the current legal framework. A few changes were made concerning the funding of forest plantations, (e.g. improved subsidies for new plantations) and for native forest, the new law included stricter measures with regard to logging regulations.

This thesis intends to examine the past events in order to establish which actor(s) were the influential at the time when the stricter conservation measures were introduced.

1.2.4 National System of Preserved Areas

Alongside these conservational measures, which involved the total amount of native forest in Uruguay, the country developed a National System of Preserved Areas (SNAP), steered towards large landowners and public areas (this was finally established in the year 2000 through law number 17.234). It is worth mentioning that according to estimates done with data taken from Sans (2008), within the total SNAP protected areas 21% (in terms of area) possesses forest and 15% possesses native forest ecosystems. According to the same source, the first National Park in Uruguay, which complies with world accepted definitions and criteria, was created in 1937.

From this point on, up until the 1990s, several areas of high conservation value were simply designated under different categories. In the 1990s the legislation changed in this respect and ecological reserves became more important. Law 16.170 (December 1990), entrusted the Ministry of Housing, Territorial Planning and Environment (MVOTMA) with the study and accurate definition of protected areas and ecological reserves, as well as their utilisation and management.

Although the national legislation covered some necessary aspects relating to protected areas, it was only as recently as February 2000 when the law creating the National System of Protected Areas was passed. Until this year the Livestock and Agriculture Ministry was in charge of appointing National Parks, through the General Directorate of Renewable Natural Resources (RENARE). This was established within the Forest Law in 1987 (15.939). Previous to this, native forest conservation was encouraged only by the 1967 Forest Directorate (Law 13.723). It is necessary to mention that most areas which are already declared protected, or which have been proposed for integration into the system, are privately owned. The state owns less than 5% of the

national territory, from which a small percentage is designated to the protection plan (Sans, 2008).

1.3 INTERNATIONAL POLICY PROCEEDINGS

1.3.1 Agreements and conventions

Uruguay's forest legislation proceedings, which led to conservation of native forest, began in the 20th century. The starting point of an international environmental policy might be considered to have occurred in the 20th century as well. According to Eulálio do Nascimento (2002), *The International Congress for the Protection of Nature* in Paris in 1923 represented the first important step to confronting the problem of pollution as a whole. The author also suggested that the first international agreement for the protection of the environment was *The International Convention on the Prevention of Sea Pollution by Oil* (London, 1954). After those events, there were two other conventions about pollution, held in Brussels in 1969. The first convention related to forest conservation in the region was in Washington in 1940. *The Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere* was promoted by the Pan-American Union and intended to conserve wildlife through designation of specifically protected areas (national parks, nature reserves, nature monuments, and strict wilderness areas). Even though the convention is still in force, it has not been strictly enforced (Tarasofsky, 1995).

In 1948 the International Union for Natural Conservation (IUNC) was created and its mission was to “*influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable*”(IUNC, 2011). International governmental organisations were created to take care of those coming issues: the United Nations in 1945 (United Nations, 2005), FAO in 1943 (FAO, 1996), UNESCO in 1946 (UNESCO, 1995) and CEPAL in 1948 (CEPAL, 2011). Conservation and protection was becoming internationally important. *The Conference on Human Environment* was considered the starting point for the international ecological movement (Tarasofsky, 1995). The Stockholm conference in 1972, within the framework of the United Nations, declared that the protection and improvement of the human environment was a key issue affecting the welfare of peoples and economic development around the world; this is an urgent desire of the peoples around the world and the duty of all governments (United Nations, 1972).

Conventions before Stockholm tended to have a broad view of the issues, thus a conference was needed which could cope with all the individual issues and specific proposals for each matter. The United Nations Conference for the Environment in 1972 had that merit, since it focused on each environmental problem raised (Eulálio do Nascimento, 2002). It cannot be ignored that the Stockholm Conference exercised a decisive influence on environmental protection. Many of the 26 principles were afterwards incorporated into other international conventions and into numerous declarations and resolutions (Eulálio do Nascimento, 2002). In Uruguay, the main

consequence of the Stockholm conference in 1972 was the creation of the Institute for Environmental Preservation. This thesis will analyse possible connections between these international proceedings and Uruguayan legislation.

Non-governmental international movements in nature conservation became important more or less simultaneously with the Stockholm conference. Many NGOs (Non-Governmental Organisations) were created throughout the world among which *Greenpeace*, founded in 1971 (Greenpeace International, 2012), *World Wildlife Fund*, created in 1961 (WWF, 2012), and *Friends of the Earth*, created in 1971 (Friends of the Earth, 2010) stand out. According to Eulálio do Nascimento (2002), Non-Governmental Organizations (NGOs) have had a decisive role on spreading information and influencing public opinion with regard to environmental conservation. The way in which these organisations could have been influential in Uruguay will be taken into account.

According to Tarasofsky (1995), prior to the Stockholm conference, there had been no international conservational agreements involving all the types of forest in the world. However, there have been several conventions and agreements since. *The International Tropical Timber Agreement (ITTA)* was intended to be a commodities agreement between producer and consumer countries. It was established in 1983 and renegotiated in 1994. The agreement did not have enough followers at that time to come into force. Uruguay is not a member of ITTA. Although *The Convention on Biological Diversity* is not limited to forest, it involves several issues relating to forest. It came into force in 1993, and has more than 115 member states. It was negotiated within the scope of the United Nations Environment Programme (UNEP). It became the agreement which had the most significant effect on the sustainable use of forest resources. Uruguay had ratified the convention through its law 17.234 (Sans, 2008). In addition, it is important to consider that Uruguay is a member of the Montreal process, established in 1994, and which has proposed sustainability indicators for decision-making. It is not mandatory and implementation has been difficult in Uruguay.

The 1974 Convention on International Trade in Endangered Species of Wild Flora and Fauna is premised with the view that controlling international markets will contribute to the preservation of endangered species. In 1974 Uruguay ratified the convention through its law 14.205. There were two other conventions which partly involved forest conservation: *The 1972 Ramsar Convention on Wetlands of International Importance Especially as Water flow Habitat* (Uruguay ratified it in 1982 through law 15.337); and *the 1972 UNESCO Convention for the Protection of the World's Cultural and Natural Heritage* (in 1988 Uruguay ratified this through law 15.964).

There were also some “soft law” agreements, which reflected political rather than legal regulations. *The World Charter for Nature* was adopted in the United Nations in 1982. It has the intention of protecting nature in a holistic manner for its own good. The Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation,

and Sustainable Development of All Types of Forest was adopted at UNCED (United Nations Conference on Environment and Development). The agreement called for efforts to improve the global environment and maintain and increase forest cover and productivity, from an economic and ecological point of view. A second soft law adopted by UNCED is Agenda 21, which addresses a whole host of issues relating to sustainable development. Within Agenda 21, the issue “Combating Deforestation” is the most important concerning forest conservation. Uruguay has ratified several international agreements since the 1970s. This thesis will examine to what extent those agreements could have amounted to real changes in the local legislation process.

1.3.2 Forest legislation process in Latin America

Despite the fact that the forest sector in Latin-America (LA) is in line with its general condition as a developing economy, in the 20th century effort has been made towards the protection and preservation of forest resources. Paraguay and Brazil banned the export of raw timber as a protection measure. Venezuela cancelled forest export concessions and Colombia limited foreign capital investment in forest exports. There has also been an increasing interest in environmental preservation. Although this interest has been especially diffused in urban areas such as Buenos Aires and Mexico City, in some cases it has included entire nations, such as Colombia, which in 1974 promulgated the National Code of Natural Resources and Environmental Protection. Over the 20th century, almost all countries in Latin-America created a Public Forest Administration as the organisation responsible for executing and complying with legislation (table 2). During the 1950s the need to preserve productive resources became clear. At the same time, the influence of anthropogenic activities on the environment and its preservation also started to become important. In addition, recreation and tourism became important (Rodriguez, 1985).

Table 2. Creation of forest institutions in Latin-America

Year	Country	Institutions created
1966	Uruguay	Forest, Parks and Fauna Directorate
1967	Nicaragua	Forest Service
1967	Cuba	National Institute of Forest Development and Utilisation
1967	Brazil	Brazilian Institute of Forest Development
1968	Colombia	Institute for the development of Natural Renewable Resources
1970	Chile	National Forest Corporation
1972	Haiti	Special Fund for Reforestation
1973	Paraguay	Forest Service
1973	Mexico	General Forest Development Directorate
1973	Argentina	National Forest Institution
1974	Honduras	Honduras Corporation for the Forest Development
1974	Guatemala	National Forest Institution
1974	Bolivia	Forest Development Centre

Table source: Rodriguez, A. (1985)

Table 3. Creation of forest-related legislation in Latin-America

Country	Year	Legislation
Chile	1931	Forest Law
Argentina	1948	Wealth Defence Law
Mexico	1960	Forest Law
Brazil	1965	Forest Code
Venezuela	1965	Forest Law of Soils and Water
Panama	1966	Forest Law of the Republic
Brazil	1966	Law of Tax Incentives to Forest Companies
Nicaragua	1967	Law of Conservation, Protection and Development of Forest Wealth
Uruguay	1968	Forest Law
Costa Rica	1969	Forest Law
Ecuador	1971	Law of Agriculture and Forest Promotion
Honduras	1972	Forest Law
Peru	1972	Organic Law of the Agriculture Sector
Guyana	1972	Forest Law
Paraguay	1973	Forest Law
Guyana	1973	Law of Timber Trade
El Salvador	1973	Forest Law
Argentina	1973	Amendment Law
Guatemala	1974	Forest Law
Chile	1974	Forest Promotion Law
Colombia	1974	National Code of Natural Resources and Environmental Protection
Bolivia	1974	General Forest Law of the Nation
Peru	1975	Forest Law and Wild Fauna
Chile	1975	Forest Law of <i>Pinus insignis</i> Trading
Argentina	1977	Law of Fiscal Credit to Forestry
Chile	1979	Law of Disposal of the Fiscal Mortgage
Argentina	1980	Law of Forest Recovery

Table source: Rodriguez, A. (1985)

According to Rodriguez (1985), the evolution of forest policies in the region has achieved an important framework during the period shown in table 3 (1930 to 1980). It is possible that the similarities between the features of LA countries have led governments to form similar policies. Although not in a generic way, policy trends have included the protection of native flora and fauna (Rodriguez, 1985). Latin-America forest policy similarities include: environmental protection, natural renewable resources treatment and forest industry development. On the other hand forest heritage administration is diverse among Latin-American states and all mixtures of ownership distribution could be found: from nations such as Uruguay and El Salvador with

between 2 and 4% of the forest belonging to the state, to nations such as Guyana where the figure is 84% (Rodriguez, 1985). How influential was this regional legislation process in Uruguay? Was Uruguay just part of a broader regional process? Or was it that Uruguayan conditions were different from the rest of the region, and therefore its internal process was unique and different? These are some of the questions that this work will seek to address

1.4 OBJECTIVE OF THE THESIS

This thesis focuses on describing and thoroughly analysing the processes that resulted in the protection of native forest within the framework of the forest promotion legislation during the 1960s and 1980s.

The aim is to examine to what extent it was the struggle between national actors related to native forest (and forest promotion as a whole) which boosted the inclusion of native forest conservation within the forest promotion legislation, or whether the policy shift towards forest protection was mainly due to international influences.

The key hypothesis suggests that the main drivers influencing the inclusion of native forest conservation into forest promotion legislation were international policy regimes rather than national policies.

This hypothesis was established based on the fact that Uruguay has been a country “without trees”. It is illogical to think that there were several actors interacting and developing local ideas relating to forest where there was a lack of it. Thus, it seems to be likely that international policy regimes could have been highly influential and led to the inclusion of native forest conservation within a broader forest policy.

2 THEORETICAL FRAMEWORK: POLICY ARRANGEMENT APPROACH

The theoretical framework selected was the Policy Arrangement Approach (PAA) which served to achieve the objectives raised in this thesis. From the theoretical frameworks which combine discursive shifts and institutional changes PAA was selected because it is based on multi-actor policy network models, it pays attention to institutional context in which policy actors operate, and it is focused on the substance of policy making and the power relations between actors involved (Wiering and Arts, 2006). PAA is defined as the way in which a certain policy domain is shaped in terms of organisation and substance (actors, power and some rules refer to organisational aspects while discourses and some rules refer to substantive aspects). PAA takes a broad starting point and distinguishes four interrelated key variables to understand policy practices: *discourses*, *power*, *rules* and *actors*, four dimensions which are intrinsically interrelated (Wiering and Arts, 2006). Having such a broad perspective enables a holistic understanding of the creation of legislation (*rules*).

A *discourse* is defined as a set of ideas, concepts and narratives which give meaning to a certain phenomenon in the real world (Dryzek, 1997; Hajer, 1995 cited by Veeman *et. al.*, 2009). Discourses related to this thesis bring notions which are mainly focused on economic and social impacts as well as direct and indirect benefits from possible forest development in the country.

The next dimension, *rules*, represents legislation and procedures. Uruguay is a Republic with a well-defined democratic system. Legislation which is above that of local government passes democratically through central government. There is a hierarchy for rules which is clearly stated. The constitution is at the top of the pyramid and this is followed by national laws, which are regulated by decrees and regulations (dealing with specific issues of the binding law). The main rules in this case are the national law n° 13.723 called Resources and Forest Economy passed in 1968, the Forest Law n° 15.939 passed in the year 1987, and their respective binding decrees. Rules mirror the actions of stakeholders who are identified as being involved in the decision-making processes. They are assessed according to criteria which include how active they were in policy-making arenas, their participation in decision-making, their influence and role in implementation processes, *etc.*

The *Power* dimension is not easy to measure as it may come in various forms and in some cases it is not possible to measure it quantitatively at all. For the purpose of this study *Power* and *Actor* dimensions will be merged into one analytical unit. *Actors* relates to a set of players who have been influential at different levels regarding the inclusion of native forest conservation policy. *Actors* mainly represent governmental authorities, political parties elected by society, landowner organisations, forest producer organisations, international organisations, non-governmental organisations (national and international), and industry. The analysis also involves the interaction between stakeholders (Kickert *et al.*, 1997; Marsh & Rhodes, 1992. Cited by Veeman *et.al.*, 2009). A pragmatic approach was selected with the intention of measuring the power distribution among these actors. Stakeholders' key interests and influence on the decision-making arena will be identified. Questions about the *power* of stakeholders are included in the interviews.

3 MATERIALS AND METHODS

In line with the objectives and goals, methods selected relied on qualitative rather than quantitative analysis. Methods were based on literature analysis (thorough the review of historical documentation) and qualitative interviews with open questions.

The historical documentation review consisted of searching texts which included discussion of the main actors. Much of the method consisted of content analysis of texts concerning the topic. The period of analysis was from the beginning of the 20th century until the 1980s, focusing on the decades with more forest policy activity. Among others, the research relied on the analysis of the following types of data source: newspapers, technical/union/university magazines, reports describing conventions, parliamentary sessions from the 1960s and 1980s, law texts, binding law decrees, forest plans, forest bills, research papers, and historically descriptive books. In addition,

contemporary works covering the same topic or which developed similar themes were researched.

Systematic interpretation of existing documents was done in order to examine changes in the variables of interest. One of the biggest drawbacks in the use of research analysis was that documents may not talk about native forest conservation as specifically as expected, or from the point of view needed for the research. Consequently, much of the information contained within the texts was useless to the specific hypothesis. A second major barrier was the possibility of misinterpreting the material, since in some cases redaction quality was not sufficiently clear to understand the real intentions of the writer. Decisions were taken without the opportunity to probe or clarify the intentions of the writer (Leming, 1997). Moreover, some material was in poor condition and was not easy to read to obtain the information. Another problem of content analysis was the time consuming nature of analysing historical materials, which was aggravated by the lack of computerised documents.

Despite the disadvantages, historical research was essential for the development of the thesis, since background documents served as a basis for forest legislation. In addition, content analysis was complemented with other research methods. These analytical techniques were used as an interpretive tool for open-ended responses to questionnaires and also for understanding qualitative data obtained during face-to-face interviews (Leming, 1997).

In order to define the sample size, a non-random sampling procedure known as a snowball sample was selected. It is a non-probability sampling and using this approach other possible respondents were identified to be included in the sample during the survey. Each respondent was asked for a referral of other individuals who could represent the population of concern (Leming, 1997). In the case of this thesis, personalities who stood out as being formative in conservation and/or persons belonging to organisations which might have influenced native forest conservation were identified. Five interviewees were identified as the starting point. In most cases the respondent naturally referred to other characters who could become the next respondent (each potential respondent suggested was analysed on a case by case basis as to their suitability for interview). Some respondents did not naturally refer to other possible important actors during the interview. In these cases they were asked directly to identify other possible respondents. Through the application of the snowball referral method a sample of the desired size was obtained. In spite of this, the results are not statistically significant.

An interview guide was developed with the aim of inquiring into the same issues during all the interviews (Appendix 1, section 8.1). Firstly, respondents were introduced to the topic, clarifying the objectives and aims of the work. Then, they were asked general questions in relation to native forest conservation. Finally data regarding the main discourses, actors and their power relationships was obtained. A total of 17 interviews were carried out. The first interview was

done on 10th of October 2011 and the last on 24th November 2011. Each interview lasted an average of 47 minutes, the shortest lasted 11.5 minutes and the longest 80 minutes.

Eleven interviews were recorded using the sound recording function (direct to the computer) whilst six were recorded on a mobile phone. Data processing involved inputting the answers, ordered by question and respondent, into an electronic spread sheet. In this way, the different answers from actors representing different sectors were analysed one by one. With regard to power relationships among actors, respondents were asked to assess (using a one to five scale) the influence of each actor which came to light during the interview. The results will not be statistically significant due to the small number of respondents. However, it is still an indication of the distribution of power among actors as perceived by key informants.

The guideline was not fully followed in all interviews. Due to the nature of open-ended questions, respondents normally elaborated general ideas and came to themes that would have been considered further in the interview. Additionally, questions were skipped when it was established that respondents would not know certain answers. The analysis of answers received during the interviews were mixed and compared with the literature found.

There were two windows of analysis: the 1960s and the 1980s. It is important to stress that the interviews were expected to provide more information for the second policy making process, while historical research would be the basis for understanding the first. Nonetheless, despite only one interviewee being involved in the proceedings of the 1960s, the knowledge of the other interviewees about what happened in the past was considered essential in complementing the historical documents.

The analysis started with early background information and then focused on the decades when the two forest laws were passed. Firstly the creation of the Resources and Forest Economy law (1960s) and later, the creation of the Forest law (1980s). The goal was to detect the main actors, study and understand the power distribution among them, analyse the legislation including the law, binding decrees and regulations (rules), and explore and assess discourses related to native forest conservation. In order to meet the objectives the investigation was done following the Policy Arrangement Approach (PAA).

4 RESULTS

4.1 INTERVIEWEES' BACKGROUNDS

Seventeen interviews were done as a result of the snowball referral method. All respondents were involved in some way at different levels of the forest legislation development. Three of the respondents were politicians holding high positions within the government (representing the Blanco Party and the Colorado Party) and all were involved in the development of the Forest Law in 1987. Nine of the respondents are or have been working in important positions at the

General Forest Directorate (DGF). Three of these are currently working in the DGF and have more than two decades of experience at the directorate.

The other five (having a common past at the DGF) are currently working in other forest sectors or are retired (professors at the Forest Department of Universidad de la República or at a private university, holding diverse positions within the Ministry of Livestock, Agriculture and Fisheries, running their own private company). Only one of the respondents had a direct connection with the Resources and Forest Economy law of 1968 (started working at the DGF right after the creation of the law). The rest of the interviewees have different backgrounds: representative of an international organisation based in Uruguay (FAO), professor of the Forest Department of Universidad de la República (specialising in protected areas); representatives of the Forest Producers Society; working for the National Energy Directorate-DNE- (focused on national energy balances); experienced enterprising forest owner; and representative of the Agricultural Engineers Association (AIA).

4.2 DISCOURSES: FOREST PROMOTION AND CONSERVATION

4.2.1 Background discourses, 1st half of the 20th century

Uruguay has had a lack of forest since its beginnings as a republic (the start of the 19th century). According to Gautreau (2006) native forest cover remained more or less the same from the mid-19th century until the middle of the 20th century (2 to 3 % of the total territory). At the beginning of the 20th century the government began to promote forest development with the aim of increasing the forest cover area (Porcile, 2007). In the same period, another group of promoters began to stress the importance of forest including an outstanding national promoter agricultural engineer Manuel Quinteros. Quinteros (1934) wrote:

“In using native forest wood, men are not doing anything wrong, since native forest will automatically regenerate without altering its natural lifecycle. A negative thing would be to destroy it after harvest, whether through continuous grazing of the area or simply through fire. Young stands must be protected, since old forest can protect itself. The soil under the native forest must be protected, since this will be the soul of the National Forest”. [Translated by the author of the thesis]

Quinteros promoted forest as a whole. He stressed how substantive it was to develop forest for the country, the importance of regeneration and to keep existing forest (land use change had to be avoided). He suggested that landowners should consider using forest management, in a country where, at the time, forest was used unplanned and whenever required. In addition, he mentioned the value of taking care of the forest environment and the soil below it, the role of forest being highly important in that matter. In spite of his representations, Quinteros' conservational ideas were not exactly the same as those developed during the 1960s. Quinteros (1934) wrote:

“It might be thought that our National Forest could only be enhanced with indigenous trees. However, this is not our belief. We know the lifecycle and production of native trees, thus they can be just a part of a new artificially created forest. The original native forest has made the area favourable for all types of forest trees. The best performance and protection comes from riparian native forest. It holds the water before reaching streams and rivers, while regulating the hydrological cycle. It is the last barrier for grasslands before reaching the watercourses and will be the primary protector of the productive forest with exotic species, which will complete the national forest. We must conserve the Native Forest if we want the realisation of an ordered reforestation, feasible, and with considerable national consequences. We will be happy when the national forest is filled with exotic species recognised for their longevity and productivity, and has a coverage the same area and location of the native forest we inherited from our ancestors. Thus, private forests being currently grasslands (which are becoming more numerous due to property division and the demand of land for farming purposes) would turn back again to forest, and demonstrate their value to the nation. The new forest established on the soil with a few indigenous forest trees and exotic tree species will enhance other agricultural areas. Both native trees and foreign trees will have to live in symbiotic association, establishing new tree stands of high productivity. Those stands will protect from wind damage and flooding. At the same time they will mitigate extreme weather conditions. National forest and private forest are different, but they must not be divided in Uruguay, since one will always complement the other. Thus, we should protect the native forest against unmindful exploitation, overgrazing, fire, and other pests and diseases which present a permanent threat”. [Translated by the author of the thesis]

Quinteros enhanced the importance of increasing the forest area, mainly through the inclusion of exotic species in the same areas where native forest was already established. He stressed the importance of the native forest as the “starter” for this future development. In general terms Quinteros was interested in enlarging and taking care of the forests on a national scale. In the following text (Quinteros, 1948) he mentions the main reasons it was so important to take care of forest:

“We have the advantage of being a young country: we can stare at the long term effects of the extravagances of old countries. Spain, and almost all the countries next to the Mediterranean, used to be the barns of Europe and yet today they pay the costs of their improvidence. It might be said that private forest area has been enlarged in those countries. It is true, but national forest has largely decreased. Their soils and environments are in decay, influencing adversely on production, though this is only visible in the long term. We are destroying our vegetation, and enabling the rainwater to drag out our soil to places where we cannot use it: this is our major short-sightedness”. [Translated by the author of the thesis]

Another important forest promoter during that period was agricultural engineer Romulo Rubbo. He promoted and encouraged the development of National Forest Parks (Rubbo, 1943). In 1943 he wrote:

“It is not just for imitation or fevered snobbery that we are keen on the development of National Forest Parks, but due to technical, scientific, artistic, social and other reasons, and because the formation of these parks implies a well understood patriotism(....). It is necessary to create concepts and criteria with regard to this work, if we want it to be an exponent of science and art. It is not with amateurs of varying enthusiasm that we will give impetus and life to this work. Resources, management and specialised people are needed if we want this noble and patriotic forest work to become a beautiful realisation”. [Translated by the author of the thesis]

Rubbo, like Quinteros, was adamant that the country needed to increase its forest area. He promoted the conservation and creation of areas destined to become parks and he was keen for these to be used for recreation. He believed that forest management of these areas should be allowed. It is important to mention that he was aware of what was going on in other countries. In other parts of the text he cites examples to follow and takes into account work done in the US and regional forest parks created in Chile and Argentina.

Concepts and ideas developed in those decades were the basis for the future generation of forest promoters. They were certain that the country needed to create and develop a larger forest resource; how to do so was a matter of discussion for the future generation. It is important to contextualise the weight of ideas and proposals regarding forestry. Livestock products were the main sources of income as well as being at the centre of culture and tradition. There were enough problems and inefficiencies to be solved in these areas without having to take into account other sectors (such as forestry). There were just a few visionary characters that could see the long-term importance and limitations of being a country with little forest area. The creation and generation of a larger forest resource was promoted within this context. A few individuals started to give importance and promoted the idea of keeping and enlarging the already existing forest. Later, native forest preservation would become a part of this strategy.

4.2.2 1950s and 1960s: focal concepts and ideas

The following decades brought about a new generation of forest promoters. Their ideas about forest were in line with the ones expressed by Quinteros and Rubbo¹. However, other more elaborate concepts began to appear. In 1949 Julio Laffitte, an emerging forest promoter, penned his ideas about the importance of native forest conservation:

“Native forest is the complement for grasslands. It is located at river edges and in hilly areas. This natural distribution allows us to identify the environments where our forest can thrive. This is our National Forest. It must be considered of vital importance for the country and requires essential attention from the government, considering the importance of the native forest’s social purpose. The fundamental functions of native forest are water cycle regulation and soil

¹ Many of them were “disciples” of the previous forest promoters (Interviews)

conservation. The irregular climate, undulating topography and the commonly poor vegetative layer results in erosion processes, lack of water sources, deterioration of pasture, and exacerbation of climate crises. All these factors are negatively influencing the main productive branches of the country: livestock and agriculture”. [Translated by the author of the thesis]

Laffite’s concepts continued to strengthen the ideas previously developed by Quinteros but in addition he introduced more elaborate concepts and motives such as water regulation, soil conservation and erosion processes. Moreover, Laffitte was less idealistic about the importance of the forest in the country and discussed its significance in relation to the influence on other more important production processes. He also began to grow the importance attached to native forest quality, not only its quantity. Nonetheless, he was highly concerned about the amount of forest too. In the same text, he continued to develop his ideas:

*“From the information available about the existence of native forest in the past there is no indication of large wooded areas. However, the percentage of native forest has undoubtedly decreased over the last 100 years. During this period intensive livestock systems and agriculture have been advancing. In addition, the quality of our forest has decreased. Exploitation has occurred in the least appropriate way for the maintenance of forest. Fire, grazing and ants destroy and impede natural regrowth. The wealth of the wood has not been considered since the main uses have been firewood and charcoal, which are the lowest values of timber. In the south of the country, it is difficult to find alternative uses however, in the north, tall and good quality species can still be found (*Prosopis sp.*, *Gleditsia amorphoides*, *Ruprechtia salicifolia*, *Ocotea sp.*, etc.). This indicates that the system used on the forest and its subsequent abandonment has not favoured the formation of high quality trunks”.* [Translated by the author of the thesis]

Contrary to ideas developed decades before, Laffitte (1949) enhanced the potential of the native forest species and stressed the importance of protecting them:

“In our native forest there are already species with a high timber value for carpentry and furniture production. If other exotic species are added, such as Ash and Elm, the country could acquire a stock of its own precious woods. To achieve this it is necessary to appeal to the forest authorities. Native forest must be protected otherwise forest development will be more difficult. The forest law should be simple, allowing cutting and making the landowner responsible for the forest’s subsequent conservation. In this manner, we can expect to achieve what is essential: maintaining of the forest sites. Our forest regenerates naturally through shoots or through seeds transported by water, wind, birds and other animals. Forest has subsisted because it forms its own optimum environment. Conservation of these environments will allow us to maintain the species we are trying to reproduce. Forest development could be reached through the seeding of forests”. [Translated by the author of the thesis]

During a FAO mission (establishing recommendations regarding forest development possibilities) Hutton and Winkelmann (1953) suggested the importance that the development of forest plantations had to the country. They did not discard the potentials of native forest too:

“Planting exotic species in suitable sites would result in higher yields and better economic returns than native species. Nevertheless, native forest at the edge of rivers could be improved and made more productive through proper forest management”. [Translated by the author of the thesis]

They continued writing in another section of the report that:

“The idea that the native forest along water streams or in some hilly regions cannot be improved is incorrect. Native forest plays an important role in soil conservation, alluvial protection (riverbanks) and wood production. Total production could be increased through suitable forest management: particularly in the case of riparian forest”. [Translated by the author of the thesis]

It is important to mention that foreign advisors noticed that there was a resigned feeling among stakeholders towards the impossibility of native forest improvement. FAO advisors tried to encourage and disseminate the idea that native forest value could be increased.

On the other hand, national forest promoters were aware and concerned about the biological difficulties that developing forest had shown in areas where the regeneration had become problematic. Laffitte (1949) wrote:

“In the current conditions the required regeneration is becoming more difficult. Forest areas have turned to grasslands with tall plants, quite propitious to ant nesting. Cavies, rats, hares and even cattle graze these areas. The effect of the climate is intense, as it usually is on open grasslands. Erosion is also visible, especially in southern areas. Thus, reforestation is becoming more difficult, more costly and less safe”. [Translated by the author of the thesis]

According to Laffitte, there were further problems and barriers to forest development:

“There are organisations which are able to carry out a forest plan. In spite of this, due to a lack of finance and for legal reasons, they cannot totally devote themselves to it. There are discussions about creating forest awareness amongst the people, but this is less necessary than creating that awareness in the men involved in the government. It would be better to fight for social legislation than for an industry whose product has a ready market in our country. The bases of national forest management must be on the legislation. While we do not have a forest law, it will be impossible to maintain and increase the forest environment”. [Translated by the author of the thesis]

Laffitte stressed the need to develop a legal framework and to convince the politicians to do it immediately. Laffitte was not the only one promoting and demanding the urgent creation of

forest legislation. Caldevilla and Weiss (1949) also stressed the need for a legal framework and pointed out some recommendations regarding native forest conservation:

“Considering that rational legislation constitutes a fundamental step, American nations must encourage the conservation and rational exploitation of their wood resources, steered essentially to ensuring a better future for the coming generations. Although the urgency of nailing down the already existing bills is recognised, few countries have established their forest laws. Through legislation it would be feasible to control devastation and disorganised exploitation which has been adversely affecting the forest heritage. Yet we recognise that forest legislation alone will not be able to offset the acknowledged problems in the short term. Nonetheless, the approval of such laws and the progressive adaptation to the features of each country imply a profound necessary step towards forest conservation. It is indisputable that any reasonable investment made in applying these laws will be broadly offset by the increment in value of the preserved forest”. [Translated by the author of the thesis]

In addition to national forest promoters, foreign opinion and ideas also suggested the importance of establishing forest legislation. Hutton and Winkelmann (1953) in their technical report about forest development possibilities wrote:

*“Each landowner must be legally responsible for preventing forest loss within their properties. Even though there are replanting provisions in certain areas, in other areas the stock of native forest is continuously depleting”*². [Translated by the author of the thesis]

Hutton and Winkelmann’s ideas were consistent with those developed by the national forest promoters. They also suggested the importance of producing legislation which would regulate native forest management. Furthermore, they recommended a possible way to regulate:

“Any time the forest has valid reason to be cut, a request should be submitted to the Forestry Service. A permit to allow such logging should only be given when another equivalent area is simultaneously forested”. [Translated by the author of the thesis]

Caldevilla *et al.* (1949) proposed alternatives for forest conservation. They demanded urgency in conserving the native forest, and suggested possible measures:

“The protection of forest on hilly areas and alongside rivers in Uruguay is needed immediately. We believe that a structured plan in our country should be introduced for the following needs: a) conservation and improvement of riparian and forest on hilly areas; b) creation of a forest reserve on wetlands and sandy dunes for timber production and secondary fuel; c) creation of forest as a complement to livestock and agricultural activities, mainly for shelter and shade; d)

² Those words were part of the chapter Supervision of Private Forest.

creation of National Parks, which would partly constitute forest reserves". [Translated by the author of the thesis]

Later on, in 1960, Laffitte continued to strengthen the case for native forest and its main functions for the country. The author elaborated on the importance of native forest features. He also emphasised the predominant ideas that had been developed by the national forest promoter Quinteros and the FAO missions (led by Winkelman and Rogers) decades before. Laffitte wrote:

"In our country we have not yet started working on the importance of our native forest. It is only taken into account within the private sector for shelter and shade; its functions in the water cycle and in soil protection are not being considered. Quinteros previously emphasised the importance of native forest on areas where water is collected and supplies large areas. He said that riparian forest and vegetation must be looked after, and in that way soil movement would be largely avoided. Winkelman and Rogers mentioned these aspects as well. The former said: when proposed forest development is assessed, special attention must be paid to the protection of the Rio Negro basin. Forest would regulate watercourses while reducing and preventing the erosion process, since sediments are already in the lake. In addition special attention must be paid to the Santa Lucia River basin, since it supplies Montevideo with water. It is essential to protect this area against flooding by creating new forest at the hillsides. Rogers said that there are certain areas that must be forested, for example, where protective forest is needed. It is recommended that forest all along the south coast, Atlantic shore and upstream of Rio Negro is established with this objective in mind. Winkelman, in his report about forestation development, is more explanatory by suggesting that the vast area of Rio Negro basin must be forested for two reasons: sandy soils represent a broad surface area which are of low agricultural value and are in serious danger of wind erosion. The second reason is the need for a constant supply of water to the power plant of Rincon del Bonete". [Translated by the author of the thesis]

In this document Laffitte merges his ideas (and those of previous promoters) with the recommendations made as a result of the foreign missions. During the interviews, most respondents stressed that soil conservation (especially soil under riparian forest at the margins of rivers) and regulation of the hydrological cycle were the two most important functions of native forest that led to its conservation. Both these concepts are clearly stated in the majority of the ideas presented by both national forest promoters and foreign missions. On the other hand, respondents also suggested that losses occurred during oil crises in the Second World War could have influenced the later conservation of native forest. Discussions did not refer directly to the influence of intense logging on native forest during the Second World War³. Nevertheless, Laffitte (1960) stressed this intense cutting as part of his argument:

³Intense logging activities during this period are well documented. Porcile (2007) stated that during the Second World War oil became of high strategic value. The lack of fossil fuels threatened the national economy, meanwhile the country had to continue

“The main natural fuel of Uruguay has always been native wood, and it was exhaustively used during the Second World War”. [Translated by the author of the thesis]

Both foreign missions (cited by Laffitte) were done with the aim of recommending action to take with regard to forest development and they were hired by organisations where the national forest promoters worked and led. They wanted to expand and look for other expert judgment above their existing ideas regarding the forest situation in the country (interviews with DGF related respondents). The first mission was in 1950 when the government brought a technical commission from the International Bank for Reconstruction and Development (IBRD) and Food and Agriculture Organization of the United Nations (FAO). This mission studied general agricultural problems of the country, with the advice of national agricultural engineers and well experienced producers. As a result of this visit, they presented a report referring to forest development in Uruguay.

In 1955 a second mission was arranged. A visit from Mr Rogers, Chief of the Silviculture Division of Queensland State, Australia, was arranged through FAO. Through publication of the material, stakeholders were seeking the establishment of a national forest law. Unlike the ideas of Hutton and Winkelmann, who discussed improving native forest, this report was almost totally focused on the development of forest plantations with exotic species. In addition it was suggested that there were no commercial forest within most Uruguayan native forest. Despite these differences, Rogers (1953) advised that the process of formulating a forest policy should take into account recommendations contained in Winkelmann and Hutton’s report (1953) *The Forest Development in Uruguay*. Additionally, he recommended that the government of Uruguay should immediately formulate a national forest policy, and that it should follow the “Principles governing the formulation of a forest policy” and “Principles governing the implementation of a forest policy” adopted in the VI FAO conference session (FAO, 1952). This volume of *Unasylva* (1952) recommends:

“Protection should be provided against damage or destruction by men or by such causes as fire, insects and tree disease”.

The importance of discourses given by forest promoters during the 1950s and 1960s was stressed by nearly all respondents during the surveys. On the other hand, recommendations made by foreign missions were mentioned by only two of the respondents. Above all, the most important

its activity and native firewood was the main source. Gautreau (2006) suggested that loading rates of firewood illustrated the evolution of urban demand. Deliveries entering Montevideo decades before the Second World War (from 200,000 tons to 350,000 tons per year) were feeding an industry that later changed to fossil fuels. During both World Wars oil supply circuits were cut while the demand for forest products increased strongly. Gautreau affirmed that in 1918 and 1945 the demands increased again and in 1945 close to 240,000 tons were transported. Three years later in 1948 no more than 40,000 tons were transported. Carrere (1990) suggested that in the past, the main destinations of native wood were cooking, domestic heating and manufacture of lime and brick kilns. During world wars native forest wood was also destined for automotive and railroad transportation.

document promoting native forest conservation within the framework of forest development stressed during the interviews was the Forest Development Plan presented by CIDE (1967). The plan, led by Wilson Ferreira Aldunate (Blanco Party leader), had several bills for the promotion of agrarian production, among which the forest development strategy was presented. The plan was developed by the Office of Agricultural Planning and Policy in the Livestock and Agricultural Ministry. The Resources and Forest Economy law of 1968 was based on this forest development plan. During parliament sessions (Diarios de Sesión de la Cámara de Representantes, 1968-A) the national plan prepared by CIDE was mentioned and this became the base document for structuring the law. Its first chapter, corresponding to the Forest development plan, states:

“It is not only economic aspects related to forest production that strengthen the idea of forest development. In addition, its protective function becomes important (protective forest) and this provides an additional opportunity, albeit limited, of obtaining forest products through multiple-use. Forest has a great influence on soil, animals, crops and the hydrological cycle”. [Translated by the author of the thesis]

It is important to stress that the multiple-use concept was mentioned here for the first time. This idea was reflected on afterwards in the forest policy. It is hard to know the real cause that led to the inclusion of this concept. However, other concepts and ideas suggested by forest promoters, as well as recommendations made by the FAO mission, could be seen throughout the analysis of this document (CIDE, 1967). In spite of this, the plan did not consider native forest from a timber production point of view. Further on the document stated that:

“Native forest is a scarce resource in Uruguay (455 thousand hectares) and it provides protection to watercourses. However, the amount of firewood (and other forest products) is limited, thus it is of little importance from a productive point of view”. [Translated by the author of the thesis]

Conservational values of native forest were considered in the plan produced by CIDE (1967). With regard to palm tree clusters, the plan states that:

“The conservation of species and varieties of particular botanic interest are to be promoted, as in the case of palms, whose protection has been understood to be essential”. [Translated by the author of the thesis]

The combination of ideas, proposals and recommendations led to the establishment of the Resources and Forest Economy law in 1968. The main proposals promoting the importance of including native forest conservation within the forest promotion framework are presented above. On top of searching for documents showing discourses strongly in favour of native forest conservation, a thorough search was made for documentation opposing forest development or native forest conservation. Nonetheless, documents showing opposition to forest promotion were

not found during the literature review. In addition, during the interviews, respondents were asked about possible “conflicts of interests” which could have emerged during the process of creating the legislation.

On the one hand, native forest conservation did not affect agriculture producers, since land for agriculture would remain for that purpose. Furthermore, at that time only a few areas of native forest would have been suitable to turn over to agriculture. Thus, it is logical that this activity did not present any opposition. On the other hand, livestock production, which included grazing areas, was the only sector that would logically present opposition to this project as a whole, given that priority areas established for the forest development (forest plantations) were in many cases in zones allocated to cattle breeding and production. Furthermore, native forest was occupying areas which could be easily turned over to grazing areas and in some cases native forest even needed to be cut in order for the cattle to reach watercourses. In spite of all these possible arguments, the ARU (Rural Association of Uruguay) which was the strongest union and which had been representing livestock producers for almost a hundred years, did not present opposition (interviews with DGF related respondents; ARU Magazine, 1968 and 1969). On top of that, the Forest Producer Society (SPF) has been part of ARU since its creation in the 1950s.

4.2.3 1980s: restructuring

Laffitte (1982) stressed the importance of forest plantation and the role it had played in native forest conservation up to that point:

“Fortunately, forest plantations in our country (to date they are estimated to occupy around 150,000 hectares) have shifted the interest of consumers (whether producers or industries) towards new sources of production, thereby releasing pressure over native forest. In this way, fences are mostly built or repaired with Eucalyptus timber, whose use has become quite common among rural settlements. [...] Increasing difficulties in timber importation, especially for the construction and furniture industries, create an internal demand which is being supplied by artificial forest production rather than native forest, because its timber is more abundant and homogeneous”. [Translated by the author of the thesis]

In this text Laffitte was arguing for forest plantation development. He pointed out benefits which would result from an increase of forest plantations in the country. Among those benefits, he stressed the importance of releasing pressure on native forest. He affirmed that plantations with exotic species had direct and indirect positive environmental impacts:

“Among these arguments⁴ is, in the first place, the surety to legislate and conserve the native forest. Through this, it is not only that fauna habitats are maintained, but proper regulation of

⁴ Laffitte referred to arguments in favour of forest plantations

watercourses is ensured, diminishing the possibilities of erosion and flooding. Moreover, genetic resources present in native forest flora are conserved". [Translated by the author of the thesis]

Laffitte began to talk about conserving genetic resources (biodiversity conservation), a concept which had not been raised in previous discussions. These ideas would become important at the moment of reformulating the legal framework. Back again in democracy (1984), national forest promoters started to encourage updating and putting into practice the forest legislation. Agricultural engineer Larrobla (1985), who promoted and worked for forest development prior to the previous legislation, talked about the importance of the legal framework with regard to native forest:

"The current legal framework⁵ establishes that native forest is as important from a timber production point of view as for the services it provides to society. These are: soil and watershed conservation, fauna refuge and recreation. Services provided by our (native) forest outweigh timber production in several cases. Maintaining and increasing these benefits should be the concern of the Forest Directorate. Native forest as a protector of soil and watercourses must be maintained, stimulating the efforts for its conservation and improvement, using suitable forest management and complementing it with exotic species. Native forest should maintain its position when faced with erosion problems (watercourse protection, etc.) and it is integral to conserving indigenous fauna. Special management of native forest on hilly areas should be applied. Furthermore, procedures should be sought for the conservation, improvement, maintenance and enhancement of its protective and productive functions. The protection of forest in the margin of rivers and watersheds should be especially emphasised, since they are vital for the national economy. Research contributing to forest development should be done on these terrains. The expansion of the national hydroelectric system should be accompanied by a conservation plan in which protected forest can help to regulate the hydrological cycle". [Translated by the author of the thesis]

Larrobla stated that native forest was equally important from a production and conservation point of view. Nonetheless, forest legislation at that time barely considered native forest timber productivity. It could be read that he was trying to enhance the importance of native forest timber for possible future legislation. Concepts discussed by Larrobla were similar to those developed 20 years before. He enhanced the importance of native forest functions to society. Bases and ideas applying to the emerging new Forest Law were the same. However, results related to releasing pressure on native forest had not been enough. Thus, changes in the legislation were necessary (according to interviewed representatives of DGF and AIA).

The Forest Law was passed in 1987 and overall there were four major changes. One of these changes made it illegal to cut native forest or to perform any operation that would affect its

⁵Resources and Forest Economy Law (Parlamento de la República Oriental del Uruguay, 1968)

survival (with two exceptions, see section 4.3.2)⁶. Most respondents pointed out that the reason the legislation became severer in this aspect was because indiscriminate logging was still threatening native forest and that the tax exemptions established in the previous law were not enough. The oil crises after the Second World War had resulted in even more pressure on native forest.

The Law was passed almost unanimously in both the Senate and the House of representatives. Voting at the Senate was done article by article (or by gathering a few of them at the same time) and all stages were passed either unanimously or with only one or two votes against (the amount of senators in the room varied but was typically around 20). Article 24 banning native forest logging was passed with 18 votes out of 20 (Diarios de Sesión de la Cámara de Senado, 1987-C). After it was passed at the Senate, the law bill went to the House of Representatives where it was voted and passed at once with 56 votes out of 58 (Diarios de Sesión de la Cámara de representantes, 1987).

Discussions did not occur as to how to implement native forest conservation. However, there were some texts stressing the importance of conserving the native forest. The Commission of Ministries (Diarios de Sesión de la Cámara de Senado, 1987-B), when presenting the forest bill to the senate, said:

“Among the innovations enshrined in this project, the prohibition of logging or any operation that would affect the survival of native forest deserves to be distinguished, due to its significance from a protection and conservation point of view. The scarcity of forest resources, aggravated by the increased consumption of firewood as a substitute of fossil fuels, has brought about aggressive and indiscriminate logging and its subsequent damage. Native timber production is not the most important feature, given that native forest meets vital functions in climate regulation, soil and watershed protection, natural benefits, defence of livestock farming, fauna refuge and recreation. For all these reasons, it deserves to have obligatory enforced rules which ensure its survival”. [Translated by the author of the thesis]

In addition, it is important to point out Prieto’s words from the parliamentary session (Diarios de Sesión de la Cámara de Representantes, 1986):

“It is also necessary to preserve what is the historical heritage of the country, its rich flora. It is essential to seek ways of organising and making all of this achievable, instead of preying on it –

⁶It is important to clarify that banning of native forest cutting was included in the previous Forest Law passed in 1984 (number 15.695) during the dictatorship period. This law was based on the same law of 1968. Finally law 15.939 was passed in 1987 and all previous forest laws were derogated)

as has occurred in the past, especially over the last 10-12 years. For our collective interest, it should not only be preserved, but incremented". [Translated by the author of the thesis]

There was a general consensus among politicians to take severer measures through the forest legislation with regard to native forest conservation⁷. However, it was a secondary (albeit binding) objective which came after the main economic goal. Moreover, it was considered "politically correct" to conserve the native flora (according to an interviewed representative of DGF). Consequently, there were no politicians who spoke against conservation. On the other hand, different proposals, points of view and discussions occurred during the session in which issues were raised about the forest fund, forest plantation stakeholders (enterprises, landowners, *etc.*), and other similar issues.

Considering the nature of the law, opposition could have been predicted from landowners, both organised and individual. As in the law of 1968, a possible organisation declaring opposition could have been the Association of Livestock Producers (ARU). Unexpectedly, they spoke in favour of forest development and the need for a suitable legal framework to improve conditions for increasing plantations among landowners (Rodriguez, 1987).

Individual livestock producers who were opposed to forest promotion did not express themselves through an organisation (according to an interviewed representative of DGF). They were opposed to productive plantations rather than logging prohibition in native forests but they had no arguments beyond their forest promotion resistance (according to an interviewed representative of DGF). Their conventional reasoning led them to refuse any possible change in their production systems. The role of DGF was to promote forest and to try to change landowners' minds (according to most interviewees).

The second possible conflict could have arisen from article 24 of the Forest Law, which banned native forest logging. Seeing that Uruguay had traditionally respected landowners' private property rights, there was a possibility that native forest owners would complain, and claim that the law was against their freedom to decide. Despite this, no documents were found that keenly opposed the legislation. Besides this, interviewees suggested that despite the fact that forest conservation involved a policy which was to some extent against property rights, there were no important discussions regarding this topic.

During the discussions at the commission created at DGF, one person spoke against the native forest logging ban, arguing that it was contrary to property rights. However, according to an interviewed DGF representative, this was one minor isolated remark by a single person. A possible explanation is that the law did not go directly against private rights, but tried to regulate native forest cutting. Despite the fact the law declared that native forest logging was banned,

⁷ Article 24 (banning native forest logging) was voted almost unanimously (18 out of 20). There were no discussions regarding the topic prior to it being passed (Diarios de Sesión de la Cámara de Senado, 1987-C).

there were two exceptions which steered the prohibition towards certain sectors of the society. The first exception allowed people living on rural settlements to continue to take wood freely from the forest. On top of that, transportation of native timber was allowed after approval from DGF. Thus, despite the article using the word “ban” its objectives were closer to being *regulatory* than *prohibitive*.

4.2.4 Summary of the discourses

In this section, it is important to clarify the overall dynamics of discourses studied over time and how they evolved (Figure 1). During the first half of the 20th century, national forest promoters developed concepts and ideas that were the bases for future generations of national forest promoters. They promoted “keeping and enlarging” the already existing forest. These “visionaries” were concerned about future problems due to the lack of forest. Native forest preservation would become part of that strategy later on.

The new generation of national forest promoters (1950s onwards) added more elaborate concepts and reasons behind forest promotion such as water regulation, soil conservation and erosion processes (Figure 1, black bubble: Importance of Native Forest Functions and Conservation). They began to enhance the importance of native forest quality, besides its quantity. In addition, they started to talk about native forest species potential, and for the first time stressed the importance of protecting it. They also strived to develop a legal framework in this regard, and keenly tried to convince politicians of the same (Figure 1, black bubble: Importance of Legislate and Regulate). Promoters based their arguments on the need to take care of the forest resource. Improving the management and enlarging the forest area would be highly beneficial to the country. They talked about biological, social and economic benefits.

During the same period, and on the request of national forest promoters, FAO stressed the importance that the development of forest plantations represented to the country. Besides this, they did not discard the potential of native forest (Figure 1, black bubble: Importance of Legislate and Regulate). They also suggested the importance of including native forest management regulation as part of overall forest legislation. It is important to clarify that the weight of native forest conservation within FAO’s proposals was much lower than that of the national forest promoters. Politicians gathered all the concepts previously raised and developed a forest bill (Figure 1, black bubble: National Plan for Economic and Social Development. Forestry Bill). It is important to stress that they also incorporated new concepts, such as the multiple-use of forest. The forest bill became the Economic and Forest Resources Law in 1968.

The only opposition presented to the creation of this law was from individual livestock producers (Figure 1, Opposition lightning). It is important to contextualise how a forest law could have been seen from the eyes of a traditional farmer. Cattle and sheep products were the main sources of income in the country as well as being the main traditional and cultural products. They might have thought that boosting other new forms of production would negatively affect their way of

life. Despite this, the expected conflict and opposition was unsubstantial. It did not lead to the opponents organising themselves into a bigger force.

After the period of dictatorship, national forest promoters took up the forest issue again. There were new concepts to consider such as biodiversity conservation (mentioned in the national promoter proposals) (Figure 1, black bubble: Native Forest Conservation). Furthermore, national forest promoters began to encourage the updating and putting into practice of the forest legislation (Figure 1, black bubble: Importance of Improving Legislation). Bases and ideas applying to the emerging new Forest Law were the same but this time there were no “intellectual” inputs from FAO (or any other international organisation). Encouraged by forest promoters, there was a general consensus among politicians to take severer measures through the forest legislation with regard to native forest conservation.

It is worth explaining that the main focus on both processes of legislating was forest plantation promotion, encouraged by actors identified in both periods, except for FAO during the 80s (Figure 1, black bubble: Promotion of Forest Plantation).

This time there were two possible opponents. The former would be the individual livestock producers, in the same way and at the same level of significance as in the previous law. The second could emerge from native forest logging prohibition, which may have been interpreted as being contrary to private property rights (Figure 1, Conflicts of Interest lightning). Despite this, there was only one minor isolated discussion at the commission created by DGF, and this did not represent any threat to the creation of the law.

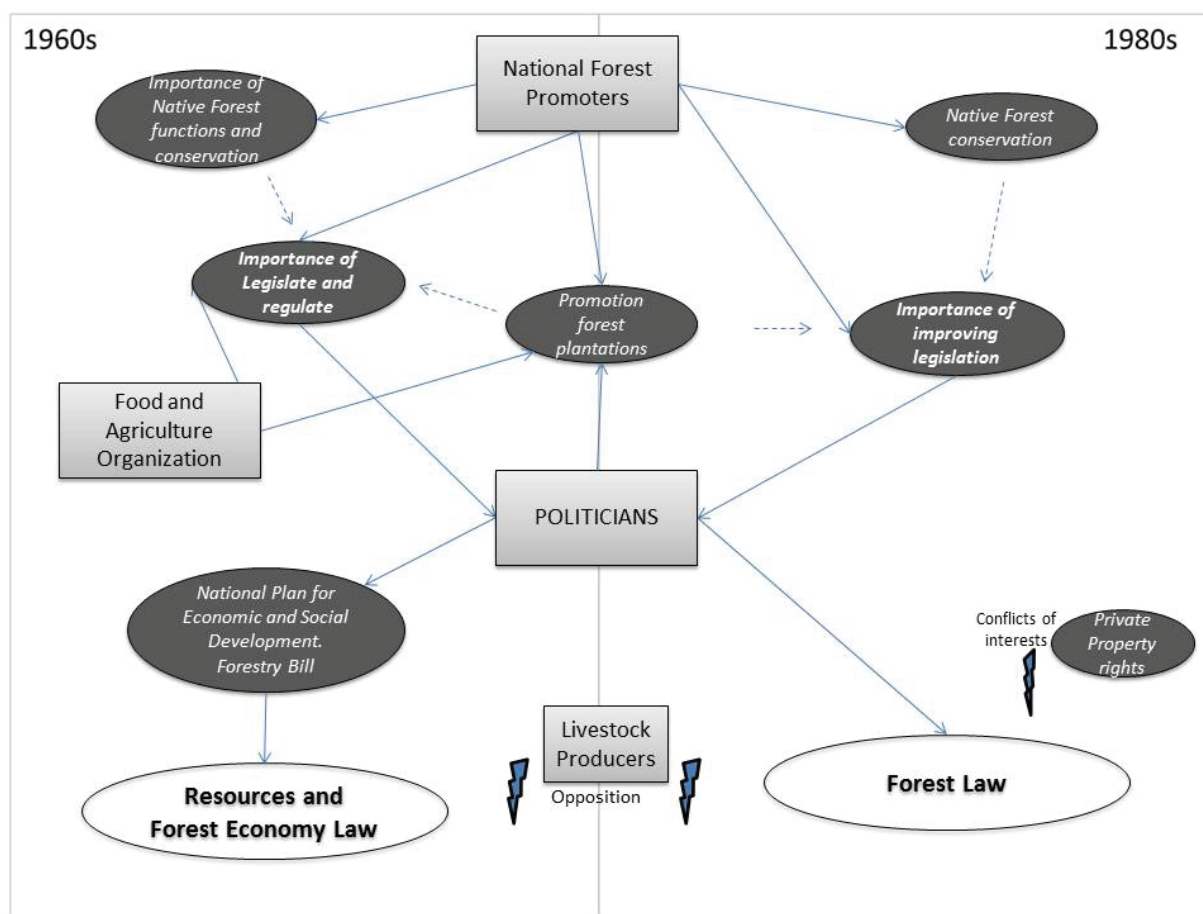


Figure 1. The general outline shows the interaction between actors and their discourses, which led to the creation of rules. The figure intends to summarise both periods examined in this work. The left side of the frame corresponds to the process of creating the Resources and Forest Economy law during the 1960s and the right hand side the creation of the Forest law during the 1980s. Actors are represented by grey rectangles, main discourses by black bubbles and rules by white bubbles. Solid arrows illustrate which actor was the main driving force behind a discourse. Dotted arrows show interrelations between discourses.

4.3 RULES: NATIVE FOREST CONSERVATION WITHIN FOREST PROMOTION LEGISLATION

4.3.1 The Resources and Forest Economy law

The forest bill was largely discussed at the Senate and the House of Representatives. Discussions, differing opinions and bargaining among politicians could be seen as they sought the best way to implement and boost forest plantations (e.g. creation of the fund, location of the new resources, feasibility of plantation creation, ways the landowner could obtain finance, how to apply tax exemptions, etc.). In addition, in their discussions politicians dealt with issues such as international market trends, timber prices, wood consumption, and the risk the country had of

running out of timber supply (due to international circumstances). However, there were neither arguments nor opposition amongst politicians with regard to forest conservation measures established. The law was voted almost unanimously at both stages. Voting in the Senate was done by section, and all of them were passed either unanimously or with only one or two votes against (the amount of senators in the room varied but was typically around 20) (Diarios de Sesión de la Cámara de Representantes, 1968-B). After it was passed at the Senate the law bill went to the House of Representatives. In this instance the vote occurred immediately and was unanimously passed with 50 votes out of 50 (Diarios de Sesión de la Cámara de Representantes, 1968-B). In 1968, a national forest development strategy was legally achieved, law n° 13.723 called Resources and Forest Economy was passed. The law declared the protection, improvement, expansion and creation of forest resources and the development of forest industries and the forest economy in general, to be in the national interest. It ordered the Forest Directorate to visit public organisations and private forest owners regarding the management of natural and artificial formations and national exploitation. Forests would be classified in three categories: *protectors* - when they had the objective of preserving the soil, water and other natural resources; *yielding* - when the main purpose was the production of wood or other forest commodities; and *general* when the forest was classified as neither protector nor yielding (Parlamento de la República Oriental del Uruguay, 1968).

The main objectives of the law were to boost afforestation on certain priority areas (called forest priority soils) with exotic species, whilst promoting the conservation of the native forest. After registration with the Forestry Directorate, the native forest declared *protector* and plantations declared as *yielding* would enjoy the benefit of tax exemptions. Rural properties would be exempt from all taxes. It is important to clarify that almost all native forest to be classified would be categorised as *protector*, given that it would mostly be covering areas at the margins of rivers. Thus, the soil would be protected from erosion and the hydrological cycle would be regulated.

Moreover, the respective forest value or its growth would not be considered when calculating the amount payable in income and property tax. Loans were fixed and were intended to be provided through the creation of the Forest Fund. Loans were requested from Banco de la República Oriental del Uruguay (BROU), which was responsible for their delivery, having had previous approval from the Forest Directorate. Finance was awarded for works of afforestation, natural regeneration, forest management and forest protection. Credits were agreed for already existing or for projected forests, although their status of *protector* or *yielding* had to have been previously classified. The amount of a loan could have been up to 75% of the direct investment (excluding the cost of the land).

The law also declared mandatory planting of *protector* forest where required and furthermore, the destruction of *protector* or *yielding* forest was banned. Any operation that did not comply with the plan referred to in law, and which would adversely influence (intentionally or not) the development or establishment of forest would be considered destruction. Only in individual

cases, with prior authorisation and with precautions set by the Forest Directorate, was destruction permitted. Additionally, the destruction of natural palms and any operation that threatened their survival was forbidden (Parlamento de la Republica Oriental del Uruguay. 1968).

The law did not have the expected results. Only a few thousand hectares of plantation were developed within the framework of the law (according to most respondents in the interviews). Thus, the second objective of releasing pressure on native forest through forest plantations was not met. The main reasons for this might have been the lack of political stability during and immediately after the law being passed. During the 1960s radical left wing groups began to mobilise and they tried to reach power through armed struggle. These conflicts ended with the establishment of a military dictatorship, which began in 1973 and remained until 1984. The regulation (decrees) necessary for the law to come into practice was established in 1975. However, regulation for the application of the law was only available for four years, since it was subsequently removed in 1979 (Aguerre, 2011). Most of the respondents agreed with the fact that the main reason why the law was not successful was the lack of regulation (decrees).

4.3.2 Forest Law and binding decrees

In 1984, during the last stage of the military dictatorship, law 15,695 (Parlamento de la Republica Oriental del Uruguay, 1984) was passed which replaced several articles of law 13,723 from 1968. Cutting and any operation that threatened the survival of indigenous forest was banned (among other innovations). There were two exceptions: firstly, when the product of the holding was intended for domestic use or for building of rural fences; and secondly, when cutting had been previously approved by the Forest Directorate (based on a technical report detailing the causes that justified both the cutting and the plans to be put into effect). These modifications to the Resources and Forest Economy Law did not have any real implications.

After recovering democracy, the new government derogated the Forest Law (which had been passed only 4 months before by the State Council of Military forces) through law 15,738 (Parlamento de la Republica Oriental del Uruguay, 1985). Thus, in 1987 the Forest Law (Parlamento de la Republica Oriental del Uruguay, 1987) was finally passed. The new law used the 1968 law as a foundation whilst at the same time derogating it. According to San Roman (2004), four major changes were included in the new legal framework. Firstly, a minimum annual amount (equivalent to the notional costs of afforesting 10,000 hectares) was allocated to the forest fund and a committee was created to administer this fund. Secondly, the new law banned native forest logging, taking as its base the article adopted in the Forest Law of 1987 (above). Thirdly, corporations with bearer shares were authorised to be holding land intended for afforestation. Finally, the forest (above soil) could now be pledged without including the land where it stood. Before this law, forest was considered part of the land.

In 1988 the decree 452/988 (MGAP, 1988) regulated native forest cutting. In article 15, Native Forest Cuttings for Domestic Use, “domestic use” of native forest wood is defined. This “free”

use of native timber is approved in cases where it is used for heat generation, cooking and in rustic buildings. In article 16 of the same decree, Native Forest Cuttings, it is established that stakeholders must present a technical report to the Forest Directorate explaining their reasons for cutting or any projected operation, as well as the plans that will be put into effect on the native forest. In the same article it is stated that the Forest Directorate will authorise cutting where forest limits the best use of the soil (soils with agricultural capability for high plains, areas not subject to flooding and undulating land).

Five years later through decrees 22/993 (MGAP, 1993-A) and 24/993 (MGAP, 1993-B) the organisation responsible for the implementation of the law (only with regard to native forest control) was changed. It was established that the General Directorate of Renewable Natural Resources (RENARE), would be responsible for the study and consideration of cutting requests, monitoring of cutting, control of transportation and possession of native forest products. Moreover, according to these decrees, native forest cutting would be authorised when there were no reasons to conserve communities, tree species and ecosystems, nor reasons of general interest. In summary the tasks allocated to RENARE were: requisition of the technical reports to support harvesting requests; determining the documents which enabled the transportation and possession of native forest products; requisitioning affidavits for the existence of native forest products from industries or intermediaries; carrying out the design and management of documents; and coordinating and establishing the necessary links for the purpose of carrying out their overall objectives.

The decree 330/993 (MGAP, 1993-C) established that transportation of more than 1,500 kg of native forest products would have to be accompanied by “transit authorisation documents”. The decree included other specific binding regulations related to the required transit officials. Despite all the regulations established, RENARE was responsible for native forest conservation control for only one year. In 1994, as a result of an internal restructure, control returned to the hands of what is now known as the General Forest Directorate (formerly the Forest Directorate).

According to Nebel, Chief of the Native Forest Department of the National Forest Directorate, control and enforcement of the law and decrees were effectively and sufficiently achieved. Nebel (2011) stated that:

Over nineteen years of effective management the situation has been reversed. Forest resources have increased and native forest is now rationally and sustainably managed. According to the most recent inventory, native forest occupies an area of 740,000 hectares (plus palm tree stands). The management and exploitation of natural forest in the world is still an unsolved problem. Degradation and deforestation prevails at high rates. The situation in Uruguay is different: we have afforestation and no deforestation. [Translated by the author of the thesis]

In addition, according to the Native Forest Department using DGF data (appendix 7.3, comparison of the amount of tonnes requested to be cut and transported against the amount

allowed by DGF) native wood transportation decreased by approximately 50% each year as a result of the implementation of the current legal framework.

On the other hand, the national energy balance done by National Energy Directorate (DNE) stated that 193,000 tons of native timber was transported during the year 2006 (assumptions and calculations are presented in appendix 8.4). According to DGF 30,000 tonnes were allowed to be cut and transported during that year (appendix 8.3)⁸. This is to say that there is still a significant amount of illegal logging taking place. Nevertheless, a second analysis was done using DNE data. The amount of native timber transported in 1984 (before Forest Law) was higher than that freighted in 2006⁹. Thus, it can be concluded that the law has been controlling native forest logging successfully. Moreover, in spite of the fact that there are no studies stating that native forest logging has been successfully controlled, there is a general consensus that the work done by DGF in this aspect has been effective (according to most interviewees).

4.4 ACTORS AND POWER: FOREST PROMOTERS, INTERNATIONAL ORGANISATIONS AND POLITICIANS

4.4.1 Key actors: an overview

Three main groups of actors were identified as contributing at different levels towards the inclusion of native forest conservation into the general forest promotion legislation. These were: forest promoters, politicians and international organisations (led by FAO). Their functions and level of influence were different but there were no major conflicts between them. They interacted and worked together having the same ultimate purpose: the forest development of the country.

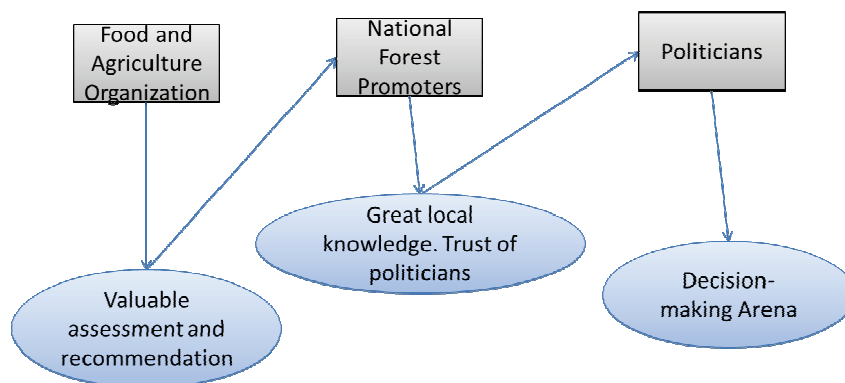


Figure 2. Functions of the major three actors and their interactions

⁸ It is important to mention that the level of accuracy in the presented numbers is low and there is a large difference between the two sources of information.

⁹The percentage of native forest consumption was assumed to have decreased at the same rate as the sharing of native forest/forest plantations changed

The way of interacting between actors did not change throughout the two phases of legislation creation. However, the level of influence of FAO changed in the second period. The organisation was not active in the “intellectual” process of formulation of the legislation (see section 4.4.3). There were several organisations involved which were represented by national forest promoters, most of them state institutions. The most influential (table 4) was the General Forest Directorate (DGF), the state institution belonging to the Livestock and Agriculture Ministry and which was created within the Resources and Forest Economy law. At that time it was known as the Forest Directorate¹⁰. Its functions were: promoting the forest policy; formulation, promotion and development of a plantation and forest utilisation program; technical assistance to landowners; administration, conservation, and rational utilisation and demonstration of the National Forest Heritage; preservation and protection of forest against pests, diseases and fire; marking out and registry of forests; administration of the forest fund; promotion of forest owner associations; and the application of penalties in cases where the law had not been complied with (Moron, 1968).

An active association speaking for forest development was the Agricultural Engineers Association, set up in 1912 (Henry, 2012). Forest promoters (through AIA magazine) tried to enhance the importance of forest as a whole and its biological functions and important interactions with other production systems. The association was active during both forest legislation processes. Another important institution (created in 1959) was the Forest Department of Universidad de la República. Through the creation of this branch within general agricultural studies, an attempt was made to concentrate efforts and resources on improved forest education and research.

Forest promoters also worked on papers and journals through the forest department. In addition, they thoroughly encouraged the forest development through the Honorary Board of Forestry which was established within the jurisdiction of the Ministry of Livestock and Agriculture in 1945. Through this scope individual and state initiatives were able to work together with the common purpose of increasing the forest resources. According to Porcile (2007) this organisation carried out intense promotional activity and for several years was a successful executive unit. Senator Legnani recalled the important work done by HBF (Honorary Board of Forestry) at the session when the law was passed (Diarios de Sesión de la Cámara de Senado, 1968):

“In these circumstances where we apply ourselves to the process of turning this bill into a law, I would like to remind all senators of the mission that has been accomplished by the members of the Honorary Board of Forestry. Members of this committee have for years maintained an interest and enthusiasm for the cause of forestry in our country and they have performed important investigative work, that is, in our judgment, worthy of the highest praise and collective

¹⁰ The previous institution (belonging as well to the same Ministry) was the Forest Service (Moron, 1955)

recognition, because they have been continuously, I would say stubbornly, pointing to one of the paths that the country must take in order to achieve clear and specific benefits.” [Translated by the author of the thesis]

National forest promoters’ overall intentions were about increasing the total forest cover. They considered it was of wide importance to national development. They mentioned concepts ranging from economic importance and market strategy to biological functions and social and environmental impacts. Politicians too were aware of the high importance of forest to the country. Furthermore, they were focused on the economic importance and the need to have a clear strategy (they talked about energy supply and demand, international markets, and substituting timber imports). On the other hand, FAO was hired to assess possibilities and ways to follow the required strategy. They also assessed the feasibility of forest promotion created by the national forest experts.

During the survey the level of influence of the actors identified was assessed (for both periods). Results are shown in table 4 below. General Forest Directorate received the highest score, followed by FAO and then politicians. The prevalence of institutions and organisations where national forest promoters used to work is clear. If the analysis is done considering the institution that each respondent identified as having the highest score, the General Forest Directorate (DGF) again resulted with the highest mark (6 of the respondents). Two respondents identified the Forest Department (Universidad de la República) and two others suggested that the Honorary Board of Forestry had the highest influence. Politicians, FAO, and the Agricultural Engineers Association (AIA) were identified as having the highest score by only one respondent. Most respondents suggested that FAO and politicians had a certain level of influence. That would explain the high scores gathered from all the responses.

Table 4. Actors identified and their main features

INSTITUTES / ORGANISATIONS	MEASURING LEVEL OF INFLUENCE ¹¹	CATEGORISATION	INTERESTS	FOREST LAW INFLUENCED	POLICY-MAKING LANDSCAPE
General Forest Directorate (DGF)	10	National Forest Promoters	General forest development	Both	Knowledge (advising politicians), close relations with politicians. Laws, regulations
Food and Agriculture Organization (FAO)	6	International Organisations	General forest development	1968	Knowledge and high quality on their recommendations
Political Parties (Blanco and Colorado Parties)	5	Politicians	Forest development (economic)	Both	Power to decide, vote, and propose legislations. Decision-making arena
Honorary Board of Forestry	3	National Forest Promoters	General forest development	1968	Knowledge. Close relations with politicians
Forest Department of "Universidad de la República"	3	National Forest Promoters	General forest development	Both	Knowledge. Close relations with politicians
Agricultural Engineers Association (AIA)	2	National Forest Promoters	General forest development	Both	Knowledge. Close relations with politicians
Friends of Environmental Preservation (APA)	2	National Forest Conservation Promoters	Native Forest Conservation	1987	Lobbying on nature conservation
Forest Producers Society (SPF)	1	Landowners (Forest producers)	Forest Production	Both	Only "voice" of forest landowners
Silviculture School of "Universidad del Trabajo"	None	National Forest Promoters	General forest development	1968	Knowledge. Close relations with politicians
None	None	Individual LS producers	Opposing	Both	None
None	None	PP rights	Opposing	1987	None

¹¹ With the aim of obtaining numbers which would represent the level of influence on the inclusion of native forest conservation measures within the forest promotion policy, respondents were asked to assess from 1 to 5 the level of influence of actors identified during the interviews. All numbers obtained during interviews were summed and brought to a 1-10 scale (in order to be easier to compare).

4.4.2 The Resources and Forest Economy law

National forest promoters created the bases for native forest conservation before the creation of the law in 1968. This group of promoters were involved in several institutions and associations. There is a good reference of characters (forest promoters) and organisations in the Bulletin of the Industrial School of Silviculture (1957). A technical commission was created (through the Livestock and Agriculture Ministry) for the study and redaction of a forest law. A group of agricultural engineers (specialists in forestry) working in diverse forest institutions and sectors were selected: Agr. Eng. Romulo Rubbo, Chief of the Forest Division of the Livestock and Agriculture Ministry; Agr.Eng, Gabriel Caldevilla, Chief of the Department of National Parks of the Public Works Ministry; Agr. Eng. Carlos Mezzotoni, representative of the Agriculture Faculty; Eng. Franco Vazques and Gral. E. Genta, representing the Honoray Forest Bureau; Agr. Eng. E. Lopez, Chief of the Reforestation Section of Livestock and Agriculture Ministry; Agr.Eng. J. Laffitte, Chief of the Forest Sector of ANCAP (National Fuel Administration); Agr. Eng. O. Lopez, representative of the National Institute of Colonisation and Agr. Eng. I. Moron, Director of the Silviculture School.

Most of them were agricultural engineers (specialists in forestry) and they all worked in senior positions for state institutions relating to forest at different scopes and levels. Within their promotional discussions they tried to persuade their audience that conserving native forest was an essential part of the promotion. Forest promoters, as well as having great technical knowledge, also had a “political profile”. In order to reach the policy-making arena, they needed to have direct and close relations with powerful political parties. They tried to implement their ideas through the institutions of which they were part (DGF, AIA, HBF and DF). In some cases they had staff working for them to help implement their objectives. Thus, it is important to clarify that the actors identified were just a part of the institutions that they were leading.

According to respondents, in most cases each national forest promoter was directly involved and had a close relationship with one of the traditional parties (Blanco or Colorado)¹². It is important to emphasise that two of the leaders were close to Colorado Party (the party in power during that period) while another was close to Blanco Party¹³. In addition, the fact that most of these personalities had senior positions in state institutions shows the level of relationship that existed with politicians. They were trying to convince politicians to create forest promotion legislation in

¹²It is important to clarify that at that time (during the 1960s) the parties with power were the traditional ones Colorado and Blanco. Frente Amplio was created in 1971. In the elections held that year the new party (coalition of leftists parties) took 18.3% of the vote (<http://www.frenteamplio.org.uy/frenteamplio/historia>). From these elections onwards the power distribution among the political parties changed. There were now three parties with power (Frente Amplio, Blanco and Colorado).

¹³Caldevilla and Laffitte have held senior positions at several state institutions (since the 1950s) and shared the position of manager of DGF during the 1960s and 70s. They both belonged to Colorado Party. Larrobla has been involved in the forest

which native forest conservation would be included as part of the plan. This is stated by Laffitte (1949):

“There are proposals talking about creating forest awareness amongst the people, but this is less necessary than creating that awareness amongst the men involved in the government”.
[Translated by the author of the thesis]

Due to the long term vision needed for such a venture it was not easy to persuade others to turn their activities and resources to forest development, particularly considering the long history of livestock production in Uruguay (where projects were usually of short duration). As stressed by Laffitte, they thought it was easier or more effective to address all their efforts directly towards politicians rather than convincing stakeholders to implement forest measures without a legal framework. Landowners were resilient to those recommendations but in the end this proposed legislation would provide the additional incentive that was needed to bring about the changes. A small amount of livestock producers were individually opposed to forest promotion. However, they did not organise themselves as a group in order to express their ideas (section 4.2.2). DGF played an essential role in informing livestock producers about the positive impacts of forest development (according to most interviewees).

ARU did not represent the objections to the forest promotion of some individual livestock producers. No document siding either for or against forest was found for that period. According to most respondents ARU was never against forest development. In addition, interviewees were asked about possible conflicts (or support) of NGOs during that period. Answers were unanimous in that matter. This kind of organisation did not exist in Uruguay at that time. NGOs began their activities worldwide during the 1960s and 70s (Tarasofsky, 1995). Their influence in Uruguay started two decades later (according to most interviewees).

FAO (Food and Agriculture Organization of the United Nations) has been the international organisation most active in relation to forest promotion. In 1948 FAO created the Latin American and Caribbean Forestry Commission -COFLAC (FAO, 1949). Its main purpose was to:

“Provide a policy and technical forum for countries to discuss and address forest issues on a regional basis”

Uruguay had been part of the commission since the first meeting in 1949, represented by Agr. Eng. Laffitte (FAO, 1949). These meetings looked at issues such as improving forest education (creating institutes), the need for more forest technicians, the need to elaborate on statistics, and soil conservation problems (among others). FAO encouraged each country to create its own

sector since the 1960s and was also director of DGF during the 1970s. He was connected to Blanco Party. There were also other important forest promoters, but these three were stressed as being key characters during the interviews.

bases and measures in order to improve forest management in the long run. According to respondents COFLAC was not useful and did not affect Uruguayan forest development. They stressed that issues addressed during the meetings were far from the Uruguayan forest sector reality. The forest situation in Uruguay was different to the rest of the continent, even to neighbouring Argentina and southern Brazil.

Besides the Commission, FAO addressed forest development recommendations. These were directly steered to the Uruguayan forest sector through the realisation of two missions (recommendations described in section 4.2.2). Both missions were arranged by institutions where national forest promoters used to lead. It is visible that they wanted to receive expert recommendations from people who had an extensive knowledge of forestry. Both missions involved foresters coming from countries with a strong forest tradition (Australia and Switzerland). Thus, the power of their proposals and recommendations was determined by the considerable quality of their discourses and as a result forest promoters took into account their ideas.

According to respondents, the influence coming from international organisations was significant. It was also suggested that the creation of Uruguayan forest legislation was influenced by what was happening in the region. Forest legislation had already been passed in Brazil, Chile and Argentina at that time (section 1.2, table 3). Despite foreign influences and recommendations, respondents reaffirmed that the actors having the major influence were national forest promoters. Most of these personalities worked for state institutions in senior positions. Within these scopes, they had the power to promote and apply their ideas. Furthermore, they were involved in forest education (Forest Department of Universidad de la República and Silviculture School of Universidad del Trabajo) where they were able to disseminate their ideas and concepts with a long term impact. Finally, their close relationships with politicians implied a direct trend in reaching the decision-making arena. All these factors, plus the fact that they represented the group of professionals with the most comprehensive technical knowledge, explain why respondents affirmed that forest promoters were the major actors.

The third major stakeholder was politicians (Table 4). Their main concern was the generation of a national forest strategy from an economic perspective. Main concepts and ideas were established in the National Plan (CIDE, 1967). According to most interviewees (except politicians and CIDE, 1967) native forest was barely taken into account, since there were other overriding measures. However, influenced by forest promoters (plus foreign mission recommendations), native forest conservation was finally included as part of the strategy (according to most interviewees).

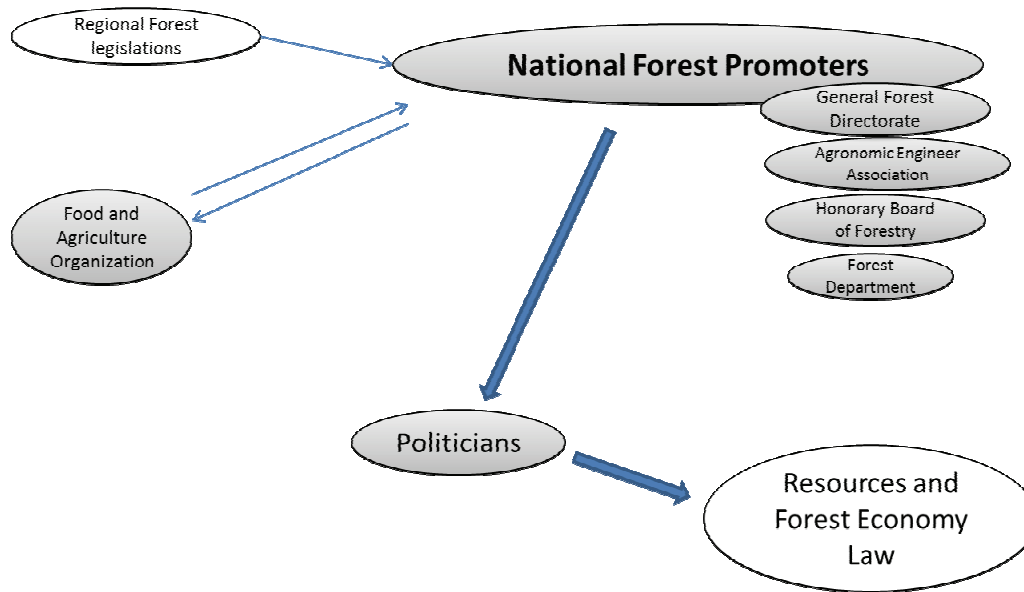


Figure 3. General outline of main stakeholders at the time the forest law was passed in 1968. Grey backgrounds represent actors, white backgrounds represent rules.

4.4.3 Forest Law passed during dictatorship period

In December 1984 the State Council of Military Forces passed a Forest Law. The law did not have real implications since it was derogated four months after being passed (when democracy was again established). However, the creation of this law was important since again it involved concepts developed by national forest promoters. This time their ideas were merged with the military forces point of view (according to interviewed DGF representatives)¹⁴.

The military believed forest plantations should have been developed close to industries in order to generate a renewable resource which would be cost-effective and readily available to feed industry’s energy demands (according to interviewed DGF representatives). The main objective of these plantations would be to contribute to the mitigation of the Uruguayan lack of oil, especially during oil crises. Some interviewees (DGF representatives) suggested that the influence and advice of the National Energy Directorate was important. However, they also mentioned that Military Forces consulted General Forest Directorate on several occasions looking for national forest promoter advice. It is important to mention that the relationship between DGF and the Military was not good. Two of the most important leaders (both directors in different periods, Laffitte and Caldevilla) eventually left the Directorate due to major differences with the rulers (according to interviewed DGF representatives).

¹⁴ Unfortunately, it was not possible to obtain documents describing the creation of this law. These were acts from a special commission created within the framework of the Livestock and Agriculture Ministry and documents from that period were unavailable.

Despite this, the Military listened to some of their points and this resulted in native forest logging being forbidden by law (according to interviewed DGF representatives). Pressure over its timber for firewood was released by new forest plantation on the land surrounding industries. Objectives were similar to the previous and future forest law. Despite this, respondents strongly criticised the lack of agricultural and biological concepts considered for forest plantation development (and attributed legislation mistakes or omissions to the Military involved in the process). The native forest logging ban article was similar to the one included in the Forest Law passed three years later. In that case general rural use of native forest was accepted (while in 1987 the law only allowed for domestic and fencing use). The second exception also had an important difference to the future Forest Law. Cutting was allowed when authorised by the Forest Directorate and turning native forest to artificial forest was permitted if it had been previously approved by the Forest Directorate. It is important to draw attention to the fact that national forest promoters' opinion was highly considered during times of dictatorship as well as democracy.

4.4.4 Forest Law 1987

The new Forest Law passed in 1987 brought about severer control measures over native forest whilst presenting some changes with regard to finance. According to respondents the main actors upholding improvements were again national forest promoters. In addition, in the same way as the previous law, the role of DGF was preponderant. A special commission was formed in order to study major changes to the legislation. Several unions, associations and institutions gathered at their meetings. Among which, the role of the Agricultural Engineers Association (AIA) stood out. According to one respondent (who was part of the commission), AIA presented changes (which finally became article 24) relating to native forest logging prohibition. They took as a base the article included in law which had passed during the dictatorship. Their idea was to stop native forest logging, which could not have been achieved with just tax exemptions. Major regulations were needed.

An NGO was part of the commission as well. Friends of Environmental Preservation (APA) agreed with the general forest plan for the country but they wanted severer measures when dealing with native forest (according to interviewed DGF representatives). It is important to clarify that some of the forest promoters representing other organisations and institutions (also involved in the legislation creation) were part of APA¹⁵. Thus, ideas about forest development were the same, and this organisation represented their more “environmentally caring” side (according to interviewed DGF representatives). There were also other NGOs actively established in Uruguay, such as CIEDUR (Centro Interdisciplinario de Estudios sobre el Desarrollo, 2012) and ITeM (Instituto Tercer Mundo, 1997). However, they neither supported nor disapproved of the forest legislation at that time (according to interviewed DGF representatives).

¹⁵ As part of the snowball method an attempt was made to locate APA but the organisation could not be found.

There were two opponents to the legislation. The first were individual livestock producers still refusing to accept changes and not represented by any union (Section 4.3.3). The second was a person (involved with DGF) claiming that the law was against property rights¹⁶ (according to an interviewed DGF representative). Neither of these led to major conflicts (Section 4.3.3).

Forest promoters' influence on politicians was again transcendent. Politicians were trying to improve the forest legislation with the aim of obtaining tangible field results. They were sure about the positive economic outcomes to the country in the case of forest development becoming a reality (Diarios de Sesión de la Cámara de Senado, 1987-A). Forest promoters were all related to the three major political parties.

In 1984 Colorado Party won the elections and was the main party when the law was passed. The second party in terms of electorate were Blancos and the third party was Frente Amplio. There was not much difference of vote share between parties (Colorado 41%, Blancos 35% and Frente Amplio 21%) (Centro Nacional de Capacitación e Investigación Demócrata Cristiano, 1999). The policy making arena had changed if compared to the creation of the Resources and Forest Economy law. There were now three important political parties. Caldevilla (who was highly influential during the 1960s) was not part of this new process. However, the influences of Larrobla (still related to Blanco Party) and Laffite (Colorado Party) were essential. Moreover, input from Ligrone (director of DGF at that time and related to Colorado Party) and Rodriguez, advising Frente Amplio, were highly important (according to some DGF representatives interviewed)¹⁷.

The importance of forest promoters was voiced by politicians during the Diarios de Sesión de la Cámara de Senado (1987-C):

“I believe it is fair to point out the advice we have counted on. In the first place, engineer Larrobla, an excellent functionary, who was at that time Director of the Forest Directorate of the Livestock, Agriculture and Fisheries Ministry and who held that position for many years. In addition, we received the collaboration of the previous Director of the same division, engineer Laffitte, who repeatedly advised the Commission in the creation of this project”. [Translated by the author of the thesis]

National forest promoters spoke for the inclusion of severer measures for native forest conservation within the framework of promotion (according to interviewed DGF representatives). On the other hand, politicians did not discuss measures to be taken with regard to native forest during parliamentary sessions, not even when article 24 (banning native forest

¹⁶ Respondents talking about this conflict did not want to mention the institution which represented the person remonstrating for property rights.

¹⁷It is important to mention that these are some of the forest promoters involved with political parties. There were also other important promoters related to political parties, but their names did not come up during the interviews.

logging) was passed. Moreover, politicians that were interviewed said that native forest conservation was secondary to the objectives of the law. They also stated that conservational arguments were based more on technical than political issues. Native forest conservation was a binding objective and this would have happened whether the main objectives were met or not. Thus, there was no discussion and all political sectors agreed to the inclusion of severer measures.

Adversely to the creation of the Resources and Forest Economy law, there was no direct international influence detected on the intellectual generation of proposed changes (according to interviewed DGF representatives). Neither reports nor recommendation texts were found. Uruguay was still a member of COFLAC. Nevertheless, no one was sent to represent Uruguay at the meetings held during the 1980s (FAO, 1982 and FAO, 1986) before the Forest Law was passed (FAO, 1988).

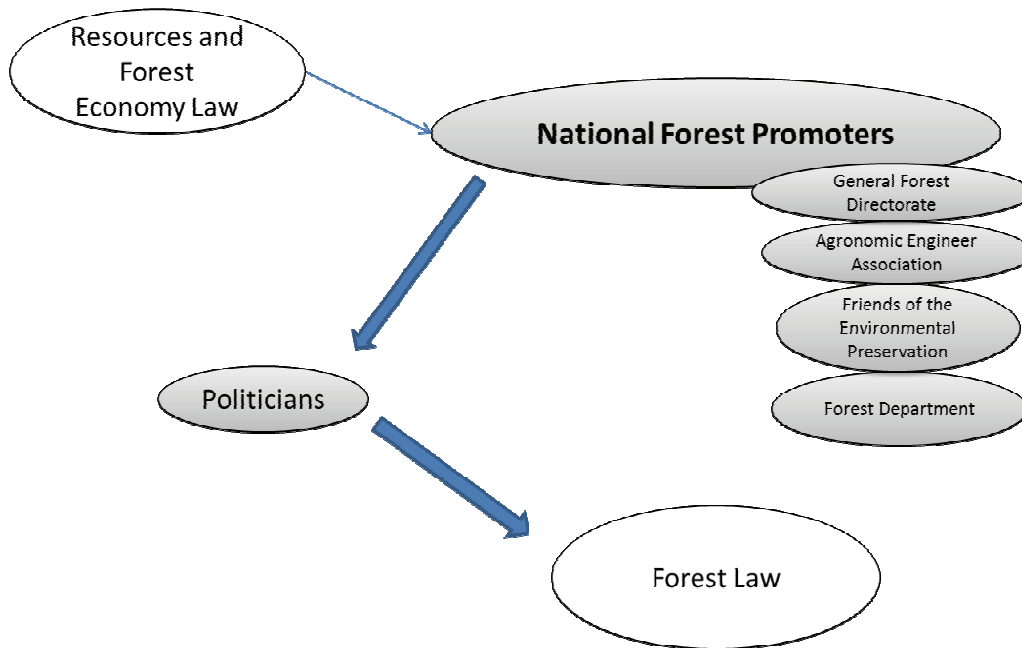


Figure 4. General outline of main stakeholders before forest law was passed in 1987. Grey backgrounds represent actors, white backgrounds represent rules and arrows represent conflict.

5 DISCUSSION

5.1 METHODOLOGICAL REFLECTIONS

The method of analysis selected, which combined interviews with historical literature review was found to be suitable. The combination of interviews and the review of historical documentation were found to be highly appropriate in meeting the objectives. A large amount of information was obtained during the interviews. The level of subjectivity of that information was

measured against the historical documents. Furthermore, a considerable amount of additional information was gathered through documentation. This was important to support the analysis of information obtained during the interviews. In this case, the researcher's own subjectivity could also be levelled out.

Nevertheless, certain limitations restricted the development of this work. Searching documentation was time-consuming and in some cases had unsuccessful results. There was a scarcity of documents talking about native forest conservation. Obtaining information from DGF library and parliament sessions took a lot of time. In addition, information from commissions working on forest bills at MGAP was not available and could have been highly valuable for this work. In addition, it is important to take into account the "pride of interviewees" when analysing some of their responses. For example, some of them showed a certain level of rejection in recognising any international influence on national policy.

During some interviews it was difficult to focus on native forest conservation. A general lack of interest was perceived in this matter for some of the interviewees. Since interviews consisted of open-ended questions, respondents tended to expand their ideas towards forest plantations promotion. A lot of work has been done in order to select native forest related answers. The major limitation concerning interviews was the lack of availability of outstanding promoters from the 1960s.

It is important to emphasise that PAA has shaped the way this work has been written. It provided the main ideas which were essential to confront and developed the subject posed in the objectives and hypothesis. The analysis would have concluded differently if another framework such as neo-institutionalism had been chosen. This would have led to an analysis focused on institutions, measuring their level of influence and considering the ways they affect the behaviour of people involved. Some of the outcomes, which go beyond institutions, and are explained by individual behaviours, could not have been seen. On the other hand, deeper analysis of relationships between institutions would have been part of the work and it could have been interesting to understand details of power within DGF, how DGF began to lose this power over time, and the relationships with HBF, ARU or even with FAO.

The importance of choosing PAA and its consequences is worth recognising. Nonetheless, it is necessary to mention the difficulty that was presented in measuring the power dimension within the theoretical framework selected. The numbers obtained have no significant value, but they give an idea of which were the most powerful institutions and actors. On the other hand, through the application of PAA the actors involved in native forest conservation and their main discourses were explained and described well. In addition, the relationship between actors and the way they reached the policy-making arena was properly explained.

Another important issue, which has particularly shaped this work, is the need to accurately explain local processes in order to be comprehensible to those who do not have a full understanding of regional conditions.

5.2 NATIONAL VS. INTERNATIONAL INFLUENCES

At the beginning of the 20th century Uruguay had only remnants of native forest. There was heavy utilisation of timber for fuel during the 2nd World War and no forest legislation was in place to regulate the forest exploitation. The discussions led by national forest promoters had been going on for half a century, with the prevalent arguments being that native forest played a major role concerning soil and watershed protection and that native forest had importance in other production systems (in particular native forest prevented decreases in productivity in livestock and agriculture). In addition, they discussed the importance of improving the forest management, since wood fuel was the least quality product to obtain. Then the discourse materialised into legislation, primarily due to charismatic promoters and their strong political links. The forest legislation which finally passed was focused on boosting forest plantation since this was the stance of politicians. Nonetheless, national forest promoters spoke for forest plantations and native forest conservation at the same level. They suggested that both objectives should have been linked to each other (which they indeed were) and that they were equally important. They did not manage to convince politicians of setting both objectives at the same level, but they were responsible for giving conservational weight to the law.

The most influential and powerful forest promoter institution was DGF. There were other important institutions such as HBF (Honorary Board of Forestry), FD (Forest Department of Universidad de la República) and AIA (Agricultural Engineers Association). They worked for forest development and influenced different groups within society (landowners, students, colleagues, *etc.*). It is important to emphasise the fact that national forest promoters' opinions were highly considered both during times of dictatorship and democracy (Diarios de Sesión del Consejo de Estado, 1984).

FAO recommendations made during their missions had a highly influential effect on national forest promoters. Several of the ideas developed during those missions were afterwards expressed in the legislation. It is necessary to mention that representatives of FAO who were interviewed did not know about the importance of FAO recommendations to forest legislation during the 1950s. The reason for this could be that those missions were organised by national forest promoters looking for foreign expertise and advice. FAO was focused on forest plantation development rather than native forest conservation. Despite this, recommendations regarding the protection of native forest were also established. Their influence was visible during the creation of the Resources and Forest Economy law.

Another important feature to take into account during the whole process was the weakly organised opposition. Opponents of forest legislation did not gather together to lobby against

forest promotion. However, there were individuals (livestock producers) opposed to the overall rules created to promote forest. Their traditional way of thinking was the only reason for their opposition. There were no developed concepts behind their position. DGF went to several of the areas where forest was intended to be established with the aim of convincing and introducing positive ideas about forest. Its role was essential in this matter (according to DGF representatives' interviews).

Another important factor, which was a positive influence towards the inclusion of native forest conservation, was the low level of economic loss attached to preserving native forest. Native timber was not considered to have any economic value by politicians and native timber exploitation was not common practice among landowners. Thus, the cost required for the environmental benefit was not high when compared to forest in other countries in the region.

Later on, during the 1980s, proposals led by national forest promoters began again, with the prevalent arguments being that native forest had not been successfully protected and that there were new concepts to consider linked to recreation and conservation value. Again, in the same way as with the forest legislation of 1967, this group of national forest promoters managed to materialise these new concepts into the updated forest legislation of 1987. This time, it was important to prevent native forest logging due to the intrinsic native forest value on the top of the functions it provided to society.

The main difference between the legislating processes of the 1960s and 1980s was the lack of intellectual influence from FAO during the creation of the Forest Law of 1987. On the other hand, it is important to emphasise that after the Forest Law was passed, FAO contributed financially (through UNPD-United Nations Procurement Division) to the forest development by funding DGF's research studies and hiring technical advisors (according to an interviewed DGF representative). Moreover, there were Latin American meetings every two years through COFLAC. Although these meetings were not instrumental to Uruguayan forest sector development, the support from FAO accompanied the entire internal forest development process.

During the development of the 1987 Forest Law there were discussions as to whether the coming legislation would be to some extent against private property rights. However, these minor discussions could not be classified as more than isolated disapproval, rather than opposition to the legislation (Interview: DGF representative).

Implementation of the Forest Law of 1987 is deemed as having been successful. Forest plantations have increased, offsetting pressure over native forest. It is worth clarifying that there has always been a certain level of illegal logging. Native timber used in barbeques cannot be offset with Eucalyptus timber. In addition, the lack of institutional capability of DGF to control illegal logging has been decreasing and that is one of the main threats to native forest according to the Native Forest Department in DGF (Interview: DGF representative).

If the requirements established through international forestry conservation conventions are analysed, it can be seen that any of them (where Uruguay is involved) require conservational measures over the entire native forest cover (issue covered in the current Uruguayan legislation). Thus, it is clear that Uruguay took ideas from the forest related conventions but the conservation weight of the policy in Uruguay was not a direct outcome of any international convention on forest conservation. On the other hand, the influence of laws passed in neighbouring countries (Brazil, Argentina and in particular Chile) was not insignificant (according to interviewed DGF representatives). National forest promoters started the success of forest development in regional nations (especially Chile). This was also influential in their thoughts regarding Uruguayan needs for a legal framework in order to develop its forest sector (according to most interviews).

The role of politicians and political stability since 1968 was essential regarding the forest promotion vision. Despite national forest promoters being identified as the main actors, politicians were also involved in the whole forest promotion process from the beginning. The pluralism of parties involved in the creation of the law from the start was a fundamental feature which led to the success of the legislation. The first relevant document produced by politicians (CIDE, 1967) involved the work of authorities representing all major political parties. Moreover, the fact that the law was voted in unanimously (and/or almost unanimously) was highly important for the maintenance of forestry policy in the long run. Political parties' balance of power changed over the development of the forest legislation. In 1971 the Frente Amplio party was founded and had 18.28% of the electorate, Colorados were the main party followed by Blanco party. In 1984 the scenario was similar. After this, the weight of the electorate of the main three political parties changed. During the elections that followed the parties split the electorate into three almost equal parts. Frente Amplio has been the main party since 2005. In spite of the differences in the balance of power, the forest policy has been maintained and is considered state policy.

Main actors involved in the intellectual development of ideas concerning native forest conservation were national forest promoters. They were capable of convincing and influencing politicians thereby achieving success in the policy-making arena. International policy influence, represented by FAO was important but not essential. Their recommendations were taken into account and considered highly important for development. Nevertheless, bases and ideas had already been established by national forest promoters. They managed to advise and be influential during democratic periods (1968 and 1987) and even during dictatorship (1984).

Finally, one valuable aspect of the process was that financial resources of actors did not influence the way that rules (forest legislation) were generated (according to most interviewees). Intellectual capacities and knowledge were the main drivers during the legislation creation process.

6 CONCLUSIONS

There are currently other new threats to native forest, if compared to the period when forest legislation was passed (*e.g.* exotic species encroachment, land use change to agriculture, decreasing control capability of DGF, among others - according to most interviewees). Moreover, concepts such as biodiversity preservation and recreational value have increased in importance since the 1990s. In order to assess whether the current legal framework is still suitable and up-to-date, it is important to understand and analyse the origin of native forest conservation. The forest policy development in Uruguay is part of an overall advancement in the development of regional forest laws. The influence of FAO in Latin America has been strong. In spite of this, outstanding national promoters have been identified as having had the greatest influence on native forest conservation in Uruguay.

Thus, it is important to affirm that concepts involved within Uruguayan forest legislation have risen as a result of national experience, whilst at the same time international recommendations have been perceived and acquired. The outcome would have been different if FAO had not been involved. FAO made some important recommendations, among others ideas relating to the way native forest management might be regulated. These proposals were first taken into account by national forest promoters and later on by politicians.

It is interesting to have a supporting document assessing the origins of native forest conservation when deciding to improve or update the legislation (or decrees). In addition, it is important for students and upcoming foresters to have established bases of how the legislation was developed in Uruguay. The following extracts are the five most interesting and significant findings:

- There were three main groups of actors responsible for initiating the forest development. People involved in the decision-making arena were politicians in power (voted for and selected by the people). National forest promoters tried to influence them and advise them from their technical perspective, sometimes involving concepts beyond forestry. In addition, FAO boosted forest development as part of a broader Latin American program. Their recommendations were taken into account by national forest promoters and authorities (in the first period analysed in the 1960s).
- Exceptional national forest promoters established foundations during the 1960s. They determined the biological, economical and social justifications, and provided the political ground. This was the main force that drove the inclusion of native forest conservation within the framework of a national forest promotion strategy.
- Their discourses evolved from simply the importance of enlarging the forest area in the country (at the beginning of the century), to the importance of preserving native forest for soil protection and waters regulation functions (in the 1960s). Later on, during the 1980s

conservation began to become important for the intrinsic value of native forest (biodiversity and recreation were concepts which could be seen among the discussions).

- The most important organisation which has stood for native forest conservation has been the General Forest Directorate (DGF). This institution was led by different charismatic leaders with strong political links. They spoke keenly of native forest conservation. This aspect was as important as forest plantation development. Thus, the institution worked on both areas at the same level.
- From a conservational point of view, the most significant update between the law of 1987 and the law of 1967 was the inclusion of the article which prohibits native forest cutting. It is remarkable that banning was already included in the law on 1984 passed by the military dictatorship. There was no organised opposition to the creation of a forest legal framework. However, some livestock producers had been individually opposed to forest promotion. Reasons behind their opposition are not easy to explain.
- The conclusion of the analysis did not follow the line established in the key hypothesis, since the main drivers identified were local actors. Nonetheless, it is important to stress the strong influence of FAO and the regional forest regimes. These were not the main drivers, but the outcome of forest policy in Uruguay would have been different without such influences.

Finally, it is important to note that this is the first document assessing the origins of native forest conservation within the framework of forest promotion policy in Uruguay. It would be advisable to continue such analysis to thoroughly understand the forestry situation through the 1990s. During this period opposition to forest promotion emerged from some NGOs (tangible opposition when compared to the past) and there was subsequent reaction from SPF and individual private companies. In the same period, a certain level of influence came from the financing provided by UNPD and a measurement of the importance of the master plan was produced by JICA (Japan International Cooperation Agency) and DGF.

7 BIBLIOGRAPHY

Aguerre, T. 2011. *La Forestación en el Uruguay*. [online], [accessed 9 December 2011]. Available from: <http://www.maderexpo.com/wp-content/themes/Adclerum/images/congreso/dia1/1.pdf>

Caldevilla, G., Laffitte, J., and Lopez, E. 1949. Informe sobre la situación del Uruguay en materia forestal. *Revista de la Asociación de Ingenieros Agrónomos*. 21(84):5-11.

Caldevilla, G., Weiss, A. 1949. Informe de la delegación Uruguaya. Conferencia Latino Americana de Silvicultura y Productos Forestales.

Carrere, R. 1990. *El Bosque natural Uruguayo: Utilización y Usos Tradicionales*. [online], [accessed 4 December 2011]. Available from: <http://www.guayubira.org.uy/monte/Ciedur7.html>

Centro Interdisciplinario de Estudios sobre el Desarrollo. 2012. [online], [accessed 22 April 2012]. Available from: <http://www.ciedur.org.uy/presentacion.php?id=1>

Centro Nacional de Capacitación e Investigación Demócrata Cristiano. 1999. *Para Comprender la Estructura Política del Uruguay*. [online], [accessed 22 April 2012]. Available from: <http://www.chasque.net/pdc/comprender.htm>

CEPAL. 2011. Acerca de CEPAL. [online], [accessed 17 March 2012]. Available from: <http://www.eclac.org/cgi-bin/getprod.asp?xml=/noticias/paginas/3/43023/P43023.xml&xsl=/tpl/p18f-st.xsl&base=/tpl/top-bottom.xsl>

CIDE. 1967. Proyecto de Ley Forestal. In *Plan Nacional de Desarrollo Económico y Social. Proyecto de leyes de promoción Agropecuaria*. Library of the General Forest Directorate. Montevideo

Diarios de Sesión de la Cámara de Representantes. 1968-A. Session of the 15 April. p. 148. Biblioteca del Poder Legislativo. Montevideo

Diarios de Sesión de la Cámara de Representantes. 1968-B. Session of the 13 December. p. 455. Biblioteca del Poder Legislativo. Montevideo

Diarios de Sesión de la Cámara de Representantes. 1986. Session of the 15 April. p. 378. Biblioteca del Poder Legislativo. Montevideo

Diarios de Sesión de la Cámara de Representantes. 1987. Session of the 18 November. Biblioteca del Poder Legislativo. Montevideo

Diarios de Sesión de la Cámara de Senado. 1968. Session 5 November. p. 363-378 Biblioteca del Poder Legislativo. Montevideo

Diarios de Sesión de la Cámara de Senado. 1987-A.Session 4 August. p. 316 Biblioteca del Poder Legislativo. Montevideo

Diarios de Sesión de la Cámara de Senado. 1987-B.Session 4 August. p.281. Biblioteca del Poder Legislativo. Montevideo

Diarios de Sesión de la Cámara de Senado. 1987-C.Session 13 August. p. 314-427. Biblioteca del Poder Legislativo. Montevideo

Diarios de Sesión del Consejo de Estado. 1984. p. 267-291. Biblioteca del Poder Legislativo. Montevideo

Eulálio do Nascimento, G. 2002. *Direito Ambiental Internacional. Meio Ambiente, Desenvolvimento Sustentável e os Desafios da Nova Ordem Mundial*. 2nd edition. Rio de Janeiro: Thex Editora

FAO. 1949. *Informe de la Primera Reunion de la Comision Lationo Americana de Bosques y Productos Forestales*. [online], [accessed 22April 2012]. Available from: <http://www.fao.org/docrep/meeting/023/am725S.pdf>

FAO.1952. *Principles of forest Policy*. [online], [accessed 9 December 2011]. Available from: <http://www.fao.org/docrep/x5362e/x5362e00.htm#Contents>

FAO.1982. *Fourteenth Session of the Latin Amrecian Forestry Comission*. [online], [accessed 22April 2012]. Available from: <http://www.fao.org/docrep/meeting/023/Q6950E.pdf>

FAO.1986. *Fifteenth Session of the Latin Amrecian Forestry Comission*. [online], [accessed 22April 2012]. Available from: <http://www.fao.org/docrep/meeting/023/S2969E.pdf>

FAO.1996. *Breve Historia de la FAO*. [online],[accessed 15 October 2011]. Available from: <http://www.fao.org/UNFAO/Histo-s.htm>

Friends of the Earth. 2010 [online], [accessed 22April 2012]. Available from: <http://www.foe.co.uk/index.html>

Gautreau, P. 2006. *Relatos de crisis ambiental en el Rio de la Plata. Una evaluación geográfica de 300 años de relatos de “destrucción” de los bosques uruguayos (siglos XVIII al 20th)*. Université des Sciences et Technologies de Lille.

Greenpeace International.2012 *About Greenpeace*. [online], [accessed 22April 2012]. Available from: <http://www.greenpeace.org/international/en/about/>

Grela, I. 2004. *Geografía Florística de las Especies Arbóreas de Uruguay: Propuesta para la Delimitación de Dendrofloras*. Universidad de la República. Facultad de Agronomía.

Henry, J. 2012. *Nuestra Historia: Los Comienzos de la AIA*. [online], [accessed 22 April 2012]. Available from: <http://www.aia.org.uy/nuestra-historia>

Hutton, M. and Winkelmann, H. 1953. Informe sobre forestación y desarrollo forestal en Uruguay. *Boletín de la Escuela Industrial de Silvicultura*. p. 9-47. Library of the General Forest Directorate. Montevideo

Instituto Tercer Mundo. 1997. [online], [accessed 22 April 2012]. Available from: <http://www.item.org.uy/>

IUNC. 2011 *About IUNC*. [online], [accessed 13 December 2011]. Available from: <http://www.iucn.org/about/>

Laffitte, J. 1949. *Conceptos sobre Forestación en Uruguay*. Revista de la Asociación de Ingenieros Agrónomos. AIA. Montevideo

Laffitte, J. 1960. *Problemas Forestales Nacionales y la Posible Contribución Experimental que Puede Realizar la Facultad de Agronomía*. Revista de la Facultad de Agronomía. p. 3-99. AIA. Montevideo

Laffitte, J. 1982. *La Forestación Exótica*. [online], [accessed 15 January 2012]. Available from: <http://www.bse.com.uy/almanaque/Almanaque%201982/pdf/0%20-%20069.pdf>

Leming, M. 1997. *Research and Sampling Designs: Techniques for Evaluating Hypotheses*. [online], [accessed 5 October 2011]. Available from: <http://www.stolaf.edu/people/leming/soc371res/research.html>

MGAP. 1988. *Decreto N° 452/988*. [online], [accessed 9 December 2011]. Available from: <http://www.mgap.gub.uy/portal/hgxpp001.aspx?7,20,417,O,S,0,MNU;E;2;15;125;1;MNU;>

^

MGAP. 1993-A. *Decreto N° 22/993*. [online], [accessed 9 December 2011]. Available from: <http://www.mgap.gub.uy/portal/hgxpp001.aspx?7,20,417,O,S,0,MNU;E;2;15;125;1;MNU;>

MGAP. 1993-B. *Decreto N° 24/993*. [online], [accessed 9 December 2011]. Available from: <http://www.mgap.gub.uy/portal/hgxpp001.aspx?7,20,417,O,S,0,MNU;E;2;15;125;1;MNU;>

,

MGAP. 1993-C. *Decreto N° 330/993*. [online], [accessed 9 December 2011]. Available from: <http://www.mgap.gub.uy/portal/hgxpp001.aspx?7,20,417,O,S,0,MNU;E;2;15;125;1;MNU>

MGAP.2012. *Recurso Forestal*. [online], [accessed 22 April 2012] Available from: <http://www.mgap.gub.uy/portal/hgxpp001.aspx?7,20,441,O,S,0,MNU,E;134;2;MNU;>

MGAP-FAO. 2010. *Monitoreo de los Recursos Forestales .Inventario Forestal Nacional. Resumen de Resultado*. Library of the General Forest Directorate. Montevideo

Moron, I. 1955. *Extensión Forestal*. Boletín de la Escuela Industrial de Silvicultura. Library of the General Forest Directorate. Montevideo}

Moron, I. 1957. *Legislación Forestal*. Boletín de la Escuela Industrial de Silvicultura. Library of the General Forest Directorate. Montevideo

Moron, I. 1968. *Instancia Histórica para Nuestro Desarrollo Forestal*. Boletín de la Escuela Industrial de Silvicultura. Library of the General Forest Directorate. Montevideo

Nebel, J. 2011. *Gestión de Conservación del Bosque Nativo*. MGAP-DGF. Library of the General Forest Directorate. Montevideo

Parlamento de la Republica Oriental del Uruguay.1968. *Ley N° 13.723*. [online] [accessed 8 December 2011]. Available from: <http://www0.parlamento.gub.uy/leyes/AccesoTextoLey.asp?Ley=13723&Anchor=>

Parlamento de la Republica Oriental del Uruguay. 1984. *Ley 15.659*. [online], [accessed 9 December 2011]. Available from: <http://www0.parlamento.gub.uy/leyes/AccesoTextoLey.asp?Ley=15695&Anchor=>

Parlamento de la Republica Oriental del Uruguay. 1985. *Ley 15.738*. [online], [accessed 9 December 2011]. Available from: <http://www0.parlamento.gub.uy/leyes/AccesoTextoLey.asp?Ley=15738&Anchor=>

Parlamento de la Republica Oriental del Uruguay. 1987. *Ley 15.939*. [online], [accessed 9 December 2011]. Available from: <http://www0.parlamento.gub.uy/leyes/AccesoTextoLey.asp?Ley=15939&Anchor=>

Pellegrino, A. 2003. *Caracterización Demográfica de Uruguay*. [online], [accessed 20 December 2011]. Available from: http://www.anep.edu.uy/historia/clases/clase20/cuadros/15_Pellegrino-Demo.pdf.

Porcile, J. 2007. *Crónicas del desarrollo forestal del Uruguay*. Montevideo: Fin de Siglo.

Quinteros, M. 1934. *Temas Forestales*. Revista de la Facultad de Agronomía. Library of the General Forest Directorate. Montevideo.

Quinteros, M. 1948. *La defensa del Bosque*. [online], [accessed 13 January 2012]. Available from: <http://www.bse.com.uy/almanaque/Almanaque%201948/pdf/0%20-%2030.pdf>

Rodriguez, A. 1985. *Legislación y Políticas Forestales en América Latina. Jornadas Forestales*. Departamento de Producción Forestal y Tecnología de la Madera, Facultad de Agronomía. Universidad de la República. Montevideo

Rodriguez, A. 1987. *Alternativas del Uso del Bosque y Necesidad de Estimulos Fiscales*. Revista de la Asociación Rural del Uruguay. p. 8-11. AIA. Montevideo

Rogers, L. 1953. *Forestry Study in Uruguay*. Comisión Honoraria Forestal-MGAP. Library of the General Forest Directorate. Montevideo.

Rubbo, R. 1943. *Algo sobre Parques Forestales*. [online], [accessed 13 January 2012]. Available from: <http://www.bse.com.uy/almanaque/Almanaque%201943/pdf/0%20-%2030.pdf>

San Roman, D. 2004. *Antecedentes, Situación Actual y Prioridades para el Período 2004-2010*. DGF. Library of the General Forest Directorate. Montevideo.

Sans, C. 2008. *Uruguay y sus Areas Protegidas. Curso de Planificación de Areas Protegidas*. Departamento de Producción Forestal y Tecnología de la Madera, Facultad de Agronomía. Universidad de la República. Montevideo.

Tarasofsky, R. 1995. *The International Forest Regime, Legal and Policy Issues. Issues in Forest Conservation*. IUCN-The World Conservation Union

Tuset, R. 1951. *Panorama Forestal del Uruguay*. Boletín de la Escuela Industrial de Silvicultura. p. 13-28

UNESCO. 1995. *Historia de la organización*. [online], [accessed 15 October 2011]. Available from: <http://www.unesco.org/new/es/unesco/about-us/who-we-are/history/>

United Nations. 2005. *History of United Nations*. [online], [accessed 15 October 2011]. Available from: <http://www.un.org/aboutun/unhistory/>

United Nations. 1972. *Declaración de Estocolmo sobre Medio Ambiente Humano*. [online], [accessed 17 November 2011]. Available from: <http://www.ordenjuridico.gob.mx/TratInt/Derechos%20Humanos/INST%2005.pdf>

Veeman *et. al.* 2009. A short history of Dutch forest policy: The ‘de-institutionalisation’ of a policy arrangement. *Forest Policy and Economics*. 11:202-208.

Wiering, M., Arts, B. 2006. Discursive shifts in Dutch river management: ‘deep’ institutional change or adaptation strategy?. *Hidrobiologia*.565:327-338.

WWF. 2012. *La Historia de WWF: los Años 60*. [online],[accessed 22April 2012]. Available from: <http://wwf.panda.org/es/acerca/historia/sesenta/>

8 APPENDIX

8.1 INTERVIEW GUIDE

Introduction

*The researcher explains who he is and the overall objectives of the research. It is also explained that the answers will be treated in confidence.

*The hypothesis to test is clearly defined and an explanation is given of how the issue will be analysed following the theoretical framework (PAA) .

General questions about conservation of native forests

*Why was forest conservation promoted in the 1st Native Forest Law in 1968 (Law 13, 723)? (Native forest was declared tax exempt)

*Why was cutting, or any operation that threatened the survival of native forest in the Forest Law, banned in 1987 (Law 15,939)? (The cutting of native forest is only allowed when approved by the Forest Directorate and when it is for rural consumption)

*Do you consider the policy was successful in the conservation of native forest?

*What has been and what is the greatest danger to native forest?

*What legal developments can be expected in the future on the conservation of native forests?

*Regarding native forest prior to the first and second forest laws, how much was known about:

timber productivity; botanical issues; phytosociological and other uses (fruit, *etc.*); services (soil and water conservation, livestock services, agriculture) ?

*What is known today?

*What was the influence of the international forest policy regimes?

*What was the influence of FAO and/or other international organisation(s) on the decisions made?

*What was the influence of the internal organisations (those interested in the indigenous forest, landowners, *etc.*) on the decisions made?

Identification of discourses

*What do you think were the discourses (written or spoken) that influenced the preservation of native forests?

Identification of Actors

*What people and organisations played a leading role in relation to the conservation of native forests?

Identification of power

* What people and organisations identified above played the major role in the conservation of native forest?

* Why?

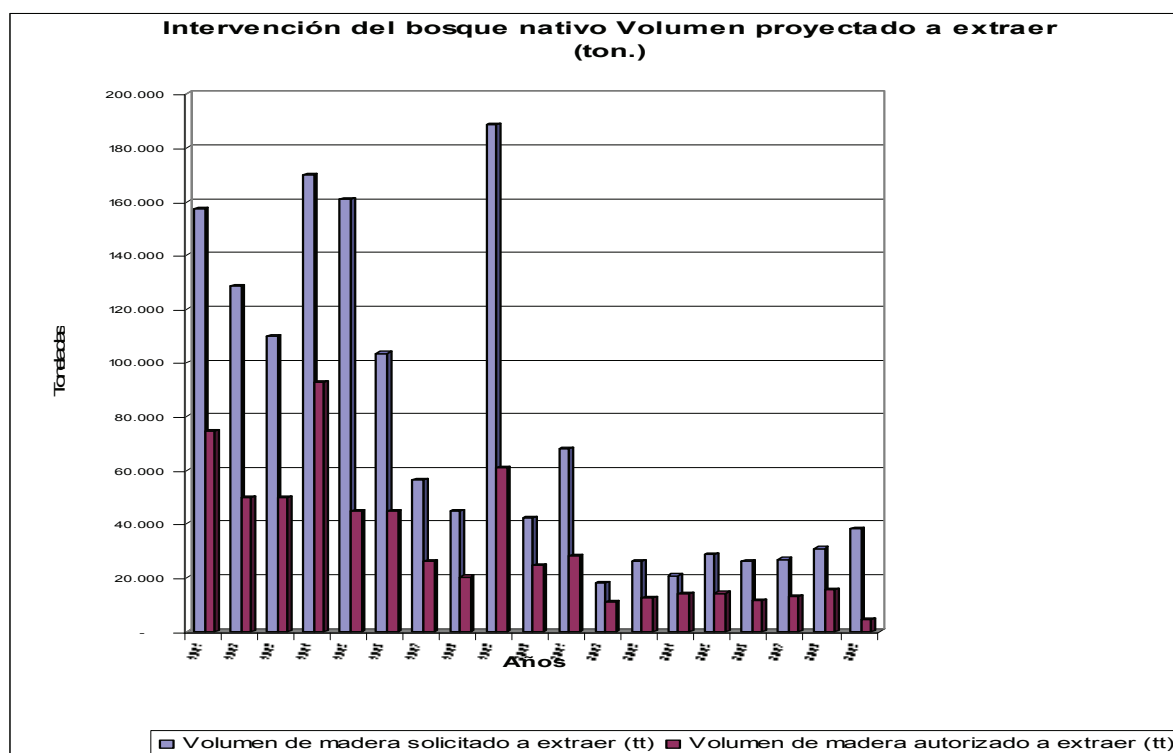
* Assess the influence of each of the actors identified on a scale of 1 to 5.

8.2 ACRONYMS

<i>ACRONYMS</i>	
AIA	Agricultural Engineers Association
ANCAP	National Fuel Administration
APA	Friends of Environmental Preservation
ARU	Rural Association of Uruguay
CEPAL	Economic Commission for Latin America
CIDE	Commission for Investment and Economic Development
CIEDUR	Interdisciplinary Centre for Studies about Development
DGF	General Forest Directorate
DNE	National Energy Directorate
FAO	Food and Agriculture Organization
FD	Forest Department of “Universidad de la República”
HBF	Honorary Board of Forestry
IBRD	International Bank for Reconstruction and Development
ITeM	Third World Institute
ITTA	The International Tropical Timber Agreement
IUNC	International Union for Natural Conservation
JICA	Japan International Cooperation Agency
COFLAC	Latin American and Caribbean Forestry Commission
NFP	National Forest Promoters

LS	Livestock
MGAP	Ministry of Livestock, Agriculture and Fisheries
MVOTMA	Ministry of Housing, Territorial Planning and Environment
NGO	Non-Governmental Organizations
PAA	Policy Arrangement Approach
PP	Private Property
RENARE	General Directorate of Renewable Natural Resources
SPF	Forest Producers Society
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNPD	United Nations Procurement Division
UNESCO	United Nations Educational, Scientific and Cultural Organization
WWF	World Wildlife Fund

8.3 NATIVE TIMBER REQUIRED AND ALLOWED TO BE TRANSPORTED



Native forest mass (in tons) required and allowed to be transported (from 1991 to 2009) by the National Forest Directorate. Blue bars represent tonnes requested and red bars represent tonnes allowed (Source: DGF).

8.4 NATIONAL ENERGY BALANCES DATA

The National Directorate of Energy has done three national energy balances¹⁸. One important component of these balances was firewood consumption (obtained through national census). Roughly a million tons of firewood was consumed in the whole country in the three years under the census. In the first two the weight of native forest wood representing the total amount of firewood consumed was estimated at 40%. Unfortunately, this analysis was excluded in the third year for practical reasons. However, this factor could be estimated considering the share of native forest area, which changed from 75% to 50% in that period according to DGF data (MGAP, 2012). In this way, native forest weight as a proportion of total consumption is estimated at 27%. This would imply a total amount of native firewood consumed of 260,000 tonnes. In order to get a comparable number against the native wood transit guides delivered by DGF (an allowance in tonnes) the amount of wood consumed in rural residences should be taken (wood which is not controlled and whose use is permitted according to the law). According to the DNE data, the relationship between wood consumed in rural areas and wood consumed in urban areas is 1:2 respectively¹⁹. The final outcome according to DNE statistics would suggest approximately 193,000 tons of native forest wood transported and consumed during the year 2006. A comparison could be made with the approximate 30,000 tonnes of native forest wood which was allowed to be transported by the DGF in that year.

¹⁸ Two of these were done during the 1980s. Due to political reasons the government did not perform the third one until 2006.

¹⁹ Data conservatively estimated, since consumption on resorts and whole urban areas outside Montevideo's suburbs was considered "rural".