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July 2015

WOOD PRODUCTION IN CATALONIA

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PRESENTATION

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Director General for the Environment and Biodiversity

The production and processing of wood in Catalonia amounts to a small percentage of the figure for the agricultural and industrial sectors, despite two thirds of the area of Catalonia being occupied by forests.

The volume of timber harvesting in Catalonia is well below its potential. Despite the rise in demand for timber for energy uses leading to an increase in recent years, the rate of extraction (the percentage of harvests compared to growth) stands below 30%, when it could be as high as 60%. It should be pointed out that these harvests comply with all the sustainability guarantees. In addition to compliance with legislation, traditional management by the owners and certification systems guarantee the forests' sustainability. In fact, the area occupied by forests is increasing as many crops are being abandoned, and their structure is simultaneously changing, and they are becoming more sensitive to fires and to the effects of climate change.

The dichotomies between conservation and production, or the environmentalist simplifications according to which the preservation of nature could only be based on limiting human interventions, today belong to the past. Environmental organisations and conservationist foundations advocate 'active participation' in the environment to ensure the preservation of environmental assets. According to professor Terrades *'protection should not mean abandonment, but instead a new type of development'* and sometimes governments have taken this concept of conservation to mean the absence of intervention, which has created the conditions that have led to the disappearance of the real managers.

But we also must take into account multi-functionality and sustainability, which have been basic concepts in forest management since the mid-nineteenth century, and include environmental, social and economic aspects. Principle 4 of the Rio Declaration states that *'environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it'*. Indeed, the conservation of nature is closely related to rural development.

Furthermore, Catalonia is an industrialised country where wood products are in demand and there is a long tradition in the sector. However, paper mills and other first-stage processing industries that enabled profitable forest management have been closing for the twenty years, even before the current crisis, as secondary products began to valorise. This phenomenon has taken place at the same time as globalisation, which has led to many industries (even those requiring lower quality wood) to find that wood is cheaper to import than to buy in Catalonia.

Catalonia now has just over 1,000 companies in the timber sector, which are generally very small. The real estate crisis has heavily affected many of these industries (furniture, timber for construction, wooden flooring, etc.) but the figures suggest that the sector is beginning to see the light at the end of the tunnel. The increase in forestry products with higher added value is accompanied by technological innovation and new applications. We must be cautious in our optimism, given the outlook for an increased demand for wood and its by-products.

In order to promote forest management aimed at enhancing the economic, social and environmental value of the forests, the Government has adopted the following four strategic pillars for action in forestry, based on the concept of the bioeconomy: environmental sustainability, innovation in technology and knowledge, extended management to make it economically competitive, and inclusion and benefits for rural areas with the creation of jobs.

The main instrument for achieving these goals is the General Forestry Policy Plan 2014-2020 (GFPP). The third strategic area of this Plan involves boosting reduction in the forestry sector and includes two areas of action:

- Encouraging the production of wood products and forest biomass and the development of new roads.
- Optimisation of industrial processing and the use of timber products.

Last year also saw the approval of the Forestry Regeneration Plan, which established targets such as promotion of the use of timber in construction, encouraging its use in private carpentry, the Catalan timber and cork mark, and reinforcing Catalonia's biomass strategy.

The specific measures aimed at increasing the forest management to 50% of the territory in 2020 and improving the value chain include:

- A Government agreement to increase technical support for public ownership by means of collaboration agreements with local institutions owning forests and the concentration of the public supply of timber.
- Promotion of strategic planning: implementation of the GFPP and approval of forest resource management plans (three of the seven planned are already at an advanced drafting stage).
- Development of forestry culture in Catalonia by means of awareness campaigns.
- Strategy for the use of biomass energy and a Governmental Agreement for the use of biomass boilers in the Government of Catalonia's buildings (soon).
- Government agreement for the use of wood in the Government of Catalonia's buildings.
- Establishment of the CATFOREST quality guarantee mark for marketing Catalan forestry products.
- Classification of Catalan timber to facilitate its use in construction.
- Promotion of clusters.
- Activation of ownership (municipal and private) and joint sales.
- Initiatives and collaborations with architects, designers and consumers.
- Collaboration with the Barcelona Carpenters' Guild for the use of Catalan wood.

In the long term, it will be necessary for forests to provide more value for their owners, the local population and society in general, and to increase their resilience and resistance to changes.

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Cover photo:
Author : J.S. Blanch (FORCAT)

WOOD PRODUCTION IN CATALONIA

Figure 1: *Unclassified timber (Forest of Pallerols). Photo: J.S. Blanch (FORCAT).*

01 Introduction

Catalonia is a country of forests; according to the 4th version of the Land Cover Map of Catalonia (CREAF, 2009), 63% of the area of Catalonia, or 2,036,781 ha, is wooded. Two-thirds of this area is forested (1,351,188 ha), and the remaining third consists of shrubland, meadow, grassland, wetland vegetation, etc.

Catalonia's forested area has steadily increased since the 1950s due to the intensive abandonment of agricultural and livestock farming. This has led much of the land that was used for crops to become forest: first as grassland and shrubland, and finally as forest. This can be seen by the fact that dry stone walls typical of terracing in agricultural areas can be found in areas that are now forested. An estimated 140,000 ha of crops were transformed in the period between the two most recent versions of the Land Cover Map of Catalonia (1993-2005) alone (Fig. 2).

This change is still taking place not only in terms of area, but also in the types of forest: they are thicker, more impenetrable, and have a greater fuel load. One consequence of this is increased competition for water resources. Another effect has been the substantial reduction of the road network linked to agrosilvopastoral farming, which has been abandoned.

The Spanish national forest inventories (NFI) give us a snapshot of our forests; it is therefore possible to state that Catalonia's forests have stocks of 118,157,125 m^3 of timber (3rd NFI, 2001). In terms of the distribution of the diameter classes (Fig. 3) we can see that the distribution of stocks is shaped like a reversed J; this means that there are many specimens of the lower diameter classes.

By comparing the inventory periods, we can evaluate the growth of these forests. Thus, by

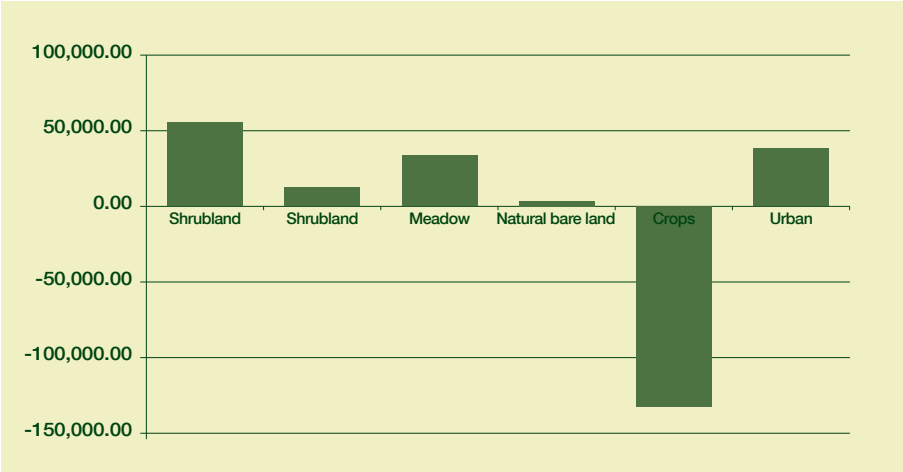

Figure 2. *Changes in land cover in Catalonia between 1993 and 2005 (ha) (Source: MCSC)*

Figure 3. *Stocks of timber (m³) per diameter class in Catalonia (Source: 3rd NFI, 2001).*

Figure 4. *Increase in volume of timber (m³) per diameter class in Catalonia (Source: comparison of the 2nd and 3rd NFI using the MiraBosc tool).*

comparing NFI2 and NFI3, we find that most of the growth is above diameter class 50 (Fig. 4), which is quantified at 2.95 M m³/year. According to the strategy to promote the energy use of forest and agricultural biomass adopted on 18 February 2014, the rate of extraction ranges between 60 and 70% of growth, meaning that it could be possible to obtain 2.7 mm³ or 1.4 and 1.9 M t_{30}.

The volume of timber harvesting in Catalonia remained stable for some years until 2010 (without taking into account the level of mobilisation of timber due to the 2009 snowfalls), for both softwoods and hardwoods, except for occasional fluctuations. Since then there has been an increase in uses (Fig. 5), especially in the softwoods category. The softwood species that have experienced the greatest increase in harvest have been the Austrian pine, Scots pine and the Aleppo pine. Meanwhile, the most harvested hardwood tree was the poplar, followed by the eucalyptus and the chestnut. This increase in recent years is due to the increased demand for timber for energy uses (biomass), especially since 2012. Today, it is estimated that the market for biomass for energy purposes accounts for 50% of the total (this percentage also includes firewood), while 45% is used for pallets and packaging and 5% is used to manufacture furniture (Fig. 6).

Part of this change is due to the slight rise in timber prices over the past two years (Fig. 6), which increased the percentage of volume used to almost 30% in 2014, from 20% in 2011.

02 **Promotion of timber and the General Forestry Policy Plan (GFPP)**

One of the six strategic areas of the GFPP, approved by the Government on 17 June 2014, focuses specifically on the regeneration of forestry production and job creation. This is falls into two areas of action:

First, **promotion of the production of wood products and forest biomass and the development of a new road network** with the operational actions directed generically at the forestry sector:

- Implementation of measures to promote forestry for timber and forest biomass production, management infrastructure, reforestation, related forest management and forestry advice.

- Implementation of measures to promote mechanisation adapted to forest exploitation.

- Promotion of adherence to sustainable forest management certification systems for all forest land.

- Promotion of the creation of formulas for the supply of raw materials, in both public and in private ownership, to ensure the supply.

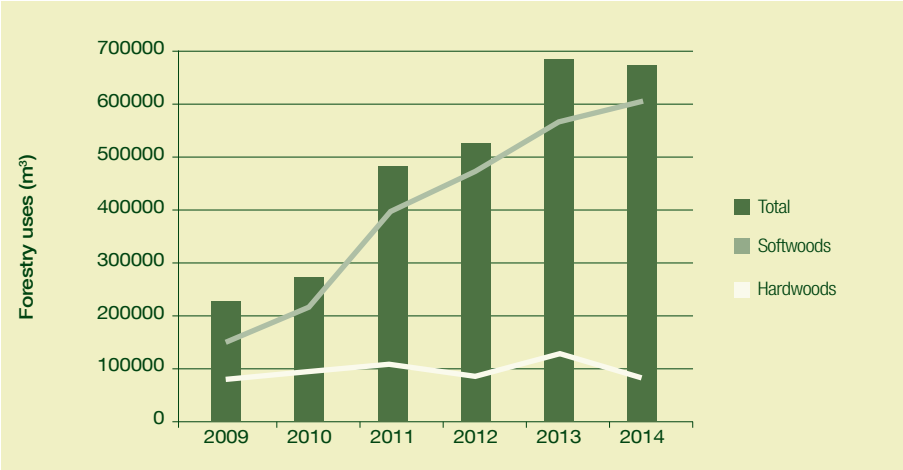

Figure 5. *Forestry harvests of timber (m³) for the period 2009-2014, for softwoods and hardwoods.*

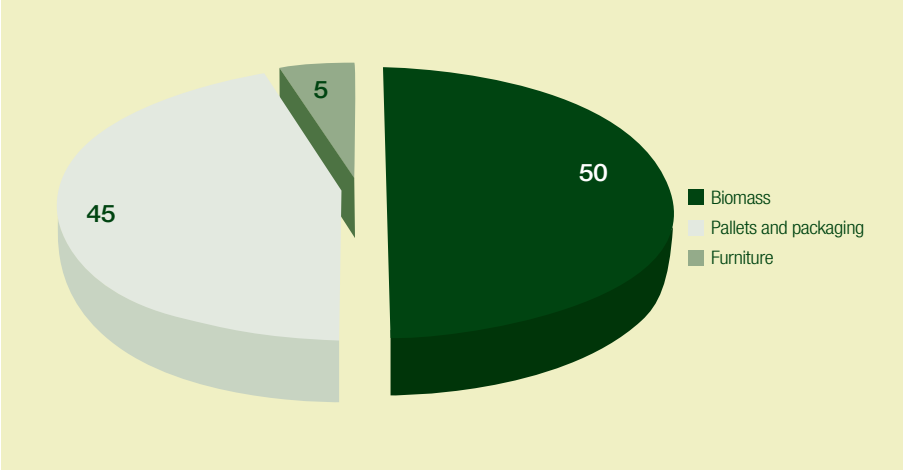

Figure 6. *Main uses of wood in 2015.*

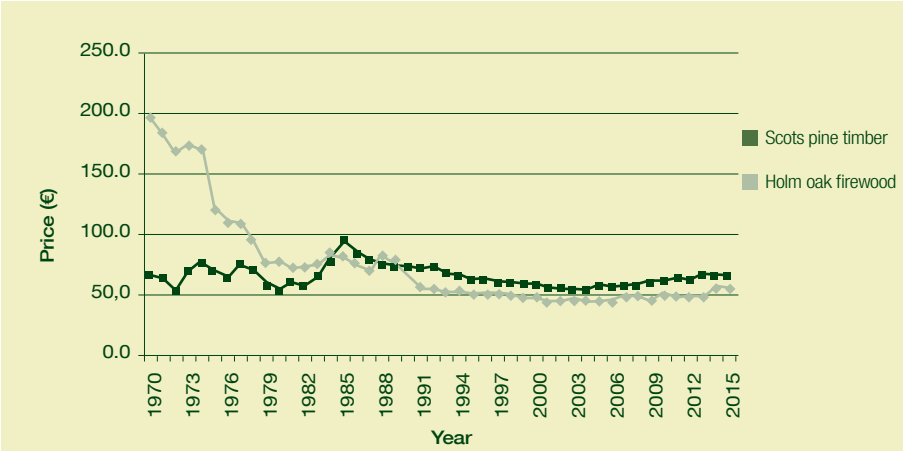

Figure 7. *Time series of trends in timber prices for Scots pine and Holm oak firewood (updated with Vic market prices since Vayreda 2004).*

→

Since 2010 there has been an increase in the uses of timber, and especially softwoods and particularly Austrian pine, Scots pine and Aleppo pine. This increase is due to the increased demand for timber for energy uses (biomass).

→

There are two main areas of action in the regeneration of the forestry production sector:
- Fostering the optimisation of forestry products and forestry biomass and the development of the road network,
- Optimisation of industrial processing and the use of timber products.

- Coordination of measures accompanying the mobilisation of forest products and a boost for the market, favouring transport and storage conditions, simplifying administrative procedures for timber uses and related infrastructures, and creating spaces for representation of the sector and the government (intersectoral forestry Table).

- Support for the mobilisation of timber products in areas affected by natural disturbances.

- Work on an associative model for forests that explicitly benefits from tax benefits and is covered by European and national aid programmes.

Measures to support this line of action include:

- Enhanced professional training for forest management in the forestry sector in order to optimise the profitability of timber harvesting, conservation of the environment and the dignity of the profession

Figure 8. *Production area in Pallerols Forest. Photo: J.S. Blanch (FORCAT)*

- Enhanced study and research for the classification of the different types of locally produced timber, and allocation of certified priority uses.

- Promotion of research, development and investigation in harvest machinery, especially in the field of forestry biomass, in order to optimise production yields.

- Creation of tools for gathering information on forestry harvests and to facilitate traceability, promoting mechanisms that show the flow of trade in timber.

- Mapping of forest qualities.

- Raising of awareness of the benefits of certification of sustainable forestry and promotion thereof.

In the industrial sector, there is a second **specific line for the optimisation of industrial processing and use of timber products.**

- Implementation of measures to promote the diversification and mechanisation of the wood product processing industry (sawn wood, milling, firewood and biomass), prioritising technological innovation that leads to improved yields and a diversification of products, and premises for the consumption of those products.

- Promotion of energy production facilities fuelled by forest biomass

- Promotion of the use of timber products by technological certification by means of the standardisation and classification of local wood products, fostering green procurement policies and promoting initiatives to diversify the uses of forest products.

The support actions include:

- Promotion of research and technological innovation in the uses of wood and its by-products and increase market competitiveness.

- Transferral of new technologies to the forestry sector.

03 **Find out more**

Pla General de Política Forestal:
http://agricultura.gencat.cat/ca/ambits/medi-natural/gestio-forestal/planificacio-forestal/pla-general-politica-forestal-public

Estratègia per promoure l'aprofitament energètic de la biomassa forestal i agrícola:
www.gencat.cat/icaen/estrategiabiomassa/

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USES OF WOOD IN CATALONIA

Figure 1: *Stacked poplar timber. Photo: R. Martin (DGMNB).*

01 Introduction

Catalonia is a region that is very variable climatically, where a mostly Mediterranean climate predominates. This is a type of transitional climate between the temperate climate typical of central Europe and the subtropical and tropical climate of Africa. To this must be added the variability of the area's topography, which includes major mountain ranges, the fact that much of the land is coastal, and the presence of an Atlantic climate in the Val d'Aran. The consequence of all the above is a great diversity of habitats, associated with a rich botanical variety, that provides local industry with an extensive list of potentially interesting species, unlike elsewhere in Europe. This leads to significant difficulties in managing production, but is also a source of opportunities in terms of the amount of products differentiated from the competition which could potentially be manufactured. However, it is necessary to take into account that in order to obtain good quality products at a competitive price it is essential to use wood with the fewest possible peculiarities, and this is achieved by investing in forestry. Forest owners recover their investment after selling the wood, depending on its quality, as is the case with any other raw material. Classifying the wood is therefore the only way for the forest owner to have a business case for selling their wood at a better price. To put it another way: as far as the purchaser is concerned, unclassified high quality wood is no different from wood that is full of defects, and the seller will therefore have no argument for selling it at a better price. The most important species in Catalonia are summarised below.

02 Wood species in Catalonia

Wood is a fibrous plant tissue that fulfils structural and transport functions and is used in the storage of nutrients. Each plant species produces wood with its own specific characteristics, as a result of the changes undergone over millions of years due to the need to adapt to environmental conditions. At this point, it is necessary to distinguish between the two main types of large plants that produce wood: gymnosperms and angiosperms. This phylogenetic difference is essential for understanding the morphological differences that can be found in the various species of wood. To put it in less technical terms, gymnosperms are called softwoods and angiosperms are known as hardwoods. These classifications as 'softwoods' and 'hardwoods' leads to numerous commercial and technological errors, which are complicated by the large number and variety of woods sold all over the world. There are estimated to be about sixty thousand different types of wood worldwide, of which only around two thousand are sold regularly. Of these, five hundred are softwoods and one thousand five hundred are hardwoods. In Spain, around fifty softwoods and fifty hardwoods are sold regularly. To make the situation a little more complex than it seems at first glance, each species may have many different names for reasons of origin, quality, format, tradition, or simply marketing. In the commercial sphere, this often leads to numerous mistakes and misunderstandings. To avoid these situations, it is advisable to identify each species by

its scientific name, as this is unique and unmistakable.

In Catalonia, the most technologically interesting native softwoods are Scots pine *(Pinus sylvestris)*, Austrian pine *(Pinus nigra)*, mountain pine *(Pinus uncinata)* and European silver fir *(Abies alba)*. All of them are widely present in Europe, except for the mountain pine, which is found mainly in the Pyrenees. In fact, the Scots pine is the most common on the continent, and can be found from Scandinavia to the south of the Iberian Peninsula. There are also many other native species such as the Monterey pine *(Pinus radiata)* and the Douglas fir *(Pseudotsuga menziesii)* which are very highly valued due to the quality of their wood. Other softwoods such as Aleppo pine *(Pinus halepensis)*, maritime pine *(Pinus pinaster)* and stone pine *(Pinus pinea)* are also plentiful, and should be taken into account despite their technological properties being less interesting for some uses.

The local softwoods that Catalan industry works with most provide relatively light and soft woods, and are easy to dry, with little abrasion for the cutting tools, and except for the resin, which is not found in all species, free from extracts. These woods are easy to work with and have good technological properties as long as they do not have too many peculiarities. In quantitative terms, softwoods are the type of wood most commonly consumed by the first-stage processing industry in Catalonia. Table 1 shows us the main uses of softwood species.

The other group contains the hardwoods. Quantitatively, these woods are not the most extensively consumed by the industry, but it is the most diverse and varied group of species in terms of quantity and properties. The holm oak *(Quercus ilex)* and the small-leaved oak *(Quercus faginea, Quercus pubescens and Quercus cerrioides)* are the most common species in Catalonia, but in practice they are hardly ever used in industry. They are followed by the beech *(Fagus sylvatica)*, the chestnut *(Castanea sativa)*, the sessile oak *(Quercus petraea)* and the birch *(Betula pendula)*, which are species which often provide the market with wood products. At a third level, and often grown on plantations designed for production on an industrial scale, are the eucalyptus *(Eucalyptus globulus)*, the poplar with its various commercial clones *(Populus nigra and Populus x canadensis)*, the White poplar *(Populus alba)* and the London plane tree *(Platanus x hispanica)*.

Taula 1. Main uses of wood from softwoods in Catalonia

Species	Uses
European silver fir *(Abies alba)*	Shipbuilding, packaging, structural timber, carpentry, musical instruments, posts, paper pulp, flooring, doors
Aleppo pine *(Pinus halepensis)*	Shipbuilding, packaging, carpentry, firewood, furniture, chipboard, milling
Austrian pine *(Pinus nigra)*	Shipbuilding, packaging, carpentry, posts, flooring, doors, chipboard, panelling
Maritime pine *(Pinus pinaster)*	Packaging, carpentry, paper pulp, plywood, fibreboard, chipboard, blockboard
Stone pine *(Pinus pinea)*	Packaging, carpentry, furniture, posts, flooring, blockboard
Monterey pine *(Pinus radiata)*	Packaging, structural timber, carpentry, paper pulp, flooring, doors, plywood, fibreboard, chipboard, blockboard
Scots pine *(Pinus sylvestris)*	Packaging, structural timber, glue-laminated timber, furniture, posts, flooring, doors, chipboard, panelling
Mountain pine *(Pinus uncinata)*	Structural timber, carpentry, musical instruments, furniture, fibreboard, chipboard, blockboard, turning
Douglas Fir *(Pseudotsuga menziesii)*	Cooperage, packaging, structural timber, carpentry, furniture, paper pulp, doors, plywood, blockboard

Other species such as the ash *(Fraxinus excelsior)*, the cherry *(Prunus avium)* and the walnut *(Juglans regia)* are technologically very interesting, but much less plentiful in our forests and therefore our industry.

Within the hardwoods, there are two groups of local species, classified according to the technological properties of wood that they provide: on the one hand are the poplars and on the other, the other species. The *Populus* genus has a soft, white wood that is light and easy to saw, develop and dry; however, other hardwoods have significantly harder wood, meaning that processing is more laborious and their aesthetic value is very highly appreciated. This diversity means that specialised uses can be made of softwoods. The main uses of the Catalan hardwoods are in Table 2.

03 The main wood products made in Catalonia

There are countless wood products and they differ widely. It should be remembered that if we consider all the species of wood, supplementary materials, additives, the processing and variants in the production processes, the amount of products increases exponentially. As a result, when products derived from wood are described generically many aspects must be simplified. Moreover, although Catalonia has a diverse timber industry, this does not include all types of production processes. In fact, there are only a few and they are generally not especially technologically complex, and in addition, the closure of industries that have historically been present in Catalonia has simplified this industrial situation to a large extent.

Starting with the chemical processing of wood, at present the only product produced in Catalonia is charcoal, which is always produced on a small scale and using traditional methods with limited technology. Paper pulp from logs is also no longer produced. INPACSA in Balaguer closed in 1993, and its premises were partially converted to recycling and the manufacture of tissue paper. The business closed completely more than a decade later. A similar process took place at Torraspapel in Sarrià de Ter. In 2008, its production fell substantially as a result of the global crisis in the paper industry at that time, and the factory finally closed its doors in 2014. Other products that were traditionally obtained from chemical processes were tannins extracted from species such as the chestnut and oak, which were highly valued by the traditional leather tanning industry. In the twentieth century, much of the industry has been replaced by petrochemicals, in a process which could be reversed if oil becomes more expensive in the future.

As for biofuels, in addition to the charcoal mentioned above, Catalonia has significant levels of production of wood chips and in recent years, pellets and briquettes. These are all products that require relatively simple processing and

Table 2. Main uses of wood from hardwood trees in Catalonia

Species	Uses
Birch *(Betula pendula)*	Carpentry, furniture, paper pulp, tools and instruments, panelling
Chestnut *(Castanea sativa)*	Stakes, cooperage, structural timber, glue-laminated timber, carpentry, furniture, posts, flooring, doors, blockboard
Eucalyptus *(Eucalyptus globulus)*	Shipbuilding, structural timber, carpentry, furniture, paper pulp, fibreboard, chipboard, tools and instruments, panelling
Beech *(Fagus sylvatica)*	Carpentry, musical instruments, sports material, furniture flooring, doors, tools and instruments, panelling
Ash *(Fraxinus excelsior)*	Carpentry, firewood, sports material, furniture, flooring, tools and instruments, panelling
Wallnut tree *(Juglans regia)*	Carpentry, furniture, tools and instruments, panelling
London plane *(Platanus x hispànica)*	Shipbuilding, furniture, tools and instruments, veneer panelling
Poplar *(Populus sp.)*	Packaging, musical instruments, furniture, paper pulp, tools and instruments, panelling
Cherry *(Prunus avium)*	Furniture, tools and utensils, board
Mirbeck's oak *(Quercus canariensis)*	Cooperage, carpentry, firewood
Cerroid oak *(Quercus cerrioides)*	Carpentry, firewood
Small-leaved oak *(Quercus faginea)*	Firewood
Holm oak *(Quercus ilex)*	Firewood, hydraulic works, flooring, tools and instruments
Sessile oak *(Quercus petraea)*	Cooperage, shipbuilding, structural timber, carpentry, furniture, hydraulic works

which largely use by-products from other industries, such as chips, sawdust and waste wood, as their raw materials. A similar case is that of all the millable material which is consumed as mulch or as compost for fertilisers for gardening or agriculture. The range of products requiring new wood or logs for milling as a raw material also included agglomerated chipboard until 2012. Unfortunately, the closure of TRADEMA in Solsona, which for decades was the largest consumer of wood in Catalonia, accounting for more than one hundred thousand cubic metres each year, ended this product's presence in the Catalan industrial landscape.

Other types of product made in Catalonia are stakes and posts. The former are usually manufactured with durable woods such as chestnut, are not usually treated nor stripped, and are used as tree supports or to make rustic fences. It is therefore a product that requires little processing. However, posts are stripped and treated to improve their durability because they are almost all from pine trees. Those used for electrical or telephone overhead lines are the only product that is currently treated with creosote because of the legal restrictions in place as a result of the product's carcinogenicity. Other posts are treated with soluble copper salts or with fungicides and insecticides based on organic solvent. These two protective processes are normally applied on an industrial scale in the treatment of solid timber.

The logistics sector generates the largest volume of business for the timber industry in Catalonia. Pallets, crates, boxes and coils are manufactured from solid timber. In general, these products are manufactured from pine timber, and in some rare cases, from poplar or even Douglas fir. The level of processing of the raw material is very basic, and it consists of sawing and nailing the product and then drying it only if this is necessary for phytosanitary reasons. Another type of packaging manufactured in Catalonia is the poplar plywood boxes usually used to transport fruit or fish.

Another very wide range of products ranges from solid timber to glued timber, both structural and otherwise. This is a very broad range of materials, and not all of them are produced in Catalonia. Solid wood has been the standard structural product throughout history, but now the market is turning to more processed materials that provide more uniform products with less pronounced peculiarities. However, the key factor today for penetrating the market is the CE label, because it is mandatory for all products which are to be permanently included in a building. Solid beams are currently manufactured in Catalonia, and there is an emerging production of glue-laminated and cross-laminated timber. Nevertheless, the productive capacity of the Catalan industry is much more limited than the

Figura 3: *Building constructed with cross-laminated timber.*

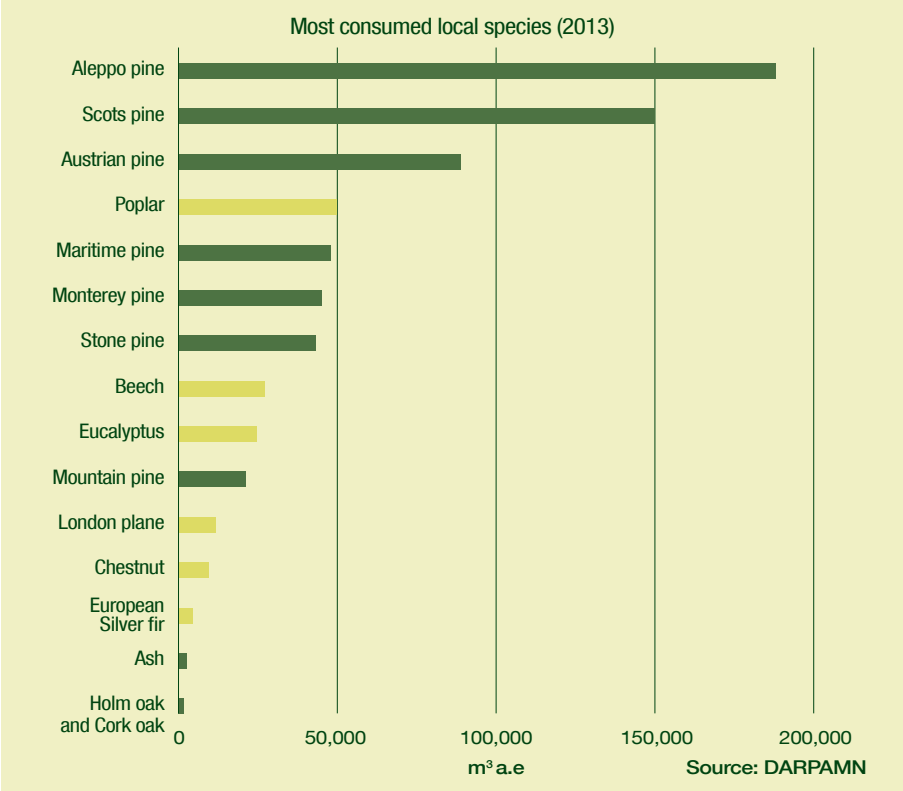

Figura 3. *Local wood species most frequently consumed in Catalonia (DARPAMN).*

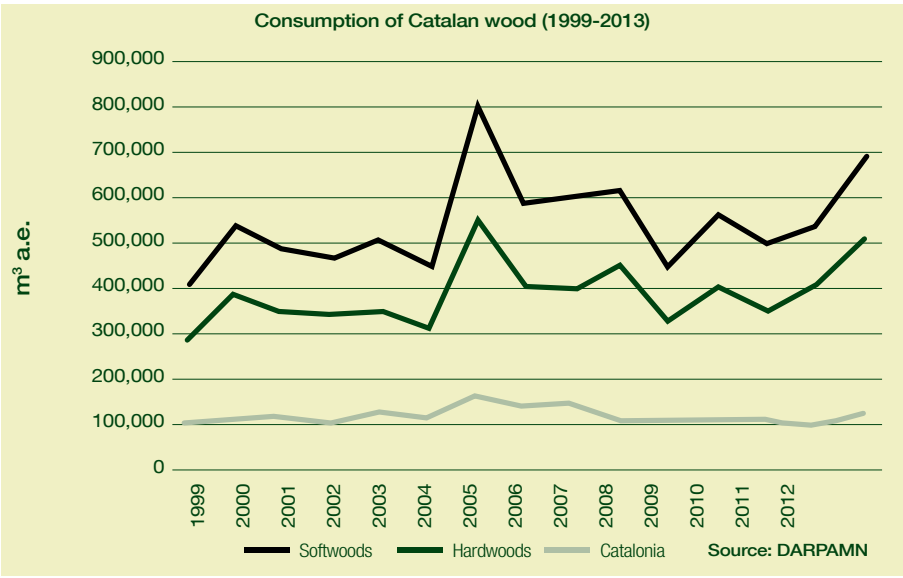

Figura 4. *Consumption of Catalan wood between 1999 and 2013 (DARPAMN)*

millions of cubic metres produced all over Europe, and is concentrated on products in special shapes and sizes used in projects with which the manufacturers themselves are involved.

In the field of industrial carpentry, many products are manufactured using combinations of local wood, wood from elsewhere in Europe and tropical species. This is because unlike first-stage processing, the second-stage processing sector often involves wholesalers and dealers working largely with imported woods. The origin of the wood is a factor of vital importance in some products, such as barrels for wine production, and in the turneries which make handles for tools, household implements, toys and sports equipment. However, the origin of timber products such as doors, windows and furniture in general is much less important, because the level of processing is much higher.

04 **Perspectives and challenges**

In the international arena, an increase in wood consumption is to be expected thanks to the technological development of wood products, the increasing environmental awareness of consumers and the gradual depletion of oil resources, which will foreseeably lead to a rise in prices of petrochemical and energy products. However, in comparative terms this will favour wood products because their processing requires less energy consumption than stone, metal or plastic products. This will probably lead to an increase in the demand for wood internationally and locally.

However, the uses made of wood in Catalonia in the future will essentially depend on the strategy adopted towards the sector. If a low technological profile is adopted, the products must penetrate the market on the basis of price and this means finding inexpensive supplies of raw material. In this scenario, no differential will be paid for high quality wood, and the incentives to produce it will therefore disappear. The paradigmatic case is biomass - a product in which the presence of peculiarities in the wood is completely irrelevant. By contrast, products with high added value are the only ones which need high quality wood, and which have sufficient profit margins to cover the necessary investment in forestry and the improvement of forests.

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WOOD INDUSTRIES IN CATALONIA: A CYCLICAL AND STRUCTURAL ANALYSIS

Figure 1: *Stacked poplar timber. Photo: R. Martin (DGMNB).*

01 Structural characteristics of the timber sector

Catalonia is one of the autonomous regions with the highest levels of employment in this sector but nevertheless, its dimensions in Catalonia are still rather modest. According to the Industrial Survey of Companies (ISC), its size, measured in terms of employment (7,300 people), turnover (674 million euros) and GVA at basic prices (215 million euros) is quite small, making it one of the smallest sectors in Catalan industry.

The Catalan timber sector accounts for about one sixth of Spain's entire sector in terms of the key figures. Year on year, this sector's relative importance in the Spanish industry as a whole is declining, and this is also the case in Europe. Catalonia accounts for 0.3% of the EU figure in terms of turnover, 0.4% in terms of GVA and the number of companies and 0.6% in terms of employment.

The structure of the Catalan timber sector is very fragmented: despite its small size, it is one of the sectors with the most companies (1,165). This structure is the result of family businesses, low barriers to entry for new producers, the lack of foreign shareholders and the ability to organise in industrial districts.

Only five companies (0.4%) have 50 or more employees, and the average size is 5.8 employees. There are companies with over 100 employees such as Alberch and Serradora Boix, but the rest are much smaller. These figures are significantly lower than those for other sectors of industry as a whole (5.3% of companies with 50 or more employees and an average size of 11.8 employees). The degree of concentration is small relative to other manufacturing sectors (the 5 largest businesses account for 8.2% of employment and 13.4% of turnover).

According to some opinions in the sector, the small size of the companies in the wood sector hampers their competitiveness, and the same arguments emphasise the importance of increasing scale domains of alliances with other companies, mergers or acquisitions, the creation of investee companies and joint ventures (Confemadera, 2009).

As for the territorial distribution of the wood sector, the companies are concentrated mainly in the regions of El Berguedà and Osona.

The profitability of the wood sector (calculated as the result for the financial year compared to turnover) in 2013, the last year for which figures are available, was negative (-1.3%), meaning that the sector made losses (industry as a whole achieved a return of 2.1%). The apparent labour productivity (GVA per hour worked) is about 17.2 euros, i.e. half the productivity of industry as a whole (38.4 euros).

The cost structure in the wood, cork and furniture sector is mainly determined by the human factor and the raw materials. Labour accounts for between 20 and 30% of the costs, depending on the product. This subsector is very labour-intensive, meaning that the sector is exposed to strong competition from Eastern Europe and Asia, where wages are much lower than in Catalonia.

As for raw materials, basic wood accounts for between 35 and 50% of manufacturing costs. The value of the raw material depends on the type of wood and therefore is not a production decision. Catalonia's topography and climate generally does not favour massive availability of high-quality timber and its transportation from the forest, which creates a competitive disadvantage and increases the cost of raw materials, which have to be sought elsewhere. This disadvantage is aggravated by the frequent forest fires from which our country suffers, where the costs of transporting the burnt wood often exceed the value of the product. Wood imports are very important for all these reasons.

As for capital, estimates suggest that the installed capacity is currently only using 60% in this sector, which means that it is difficult to recoup investments made (AITIM, 2011).

From the perspective of end demand, the products of the timber industry are usually consumer durable goods and are therefore directly dependent on variables such as the real disposable income of households, the cost of external financing, developments in residential construction and the distribution of domestic consumption between durable and non-durable goods.

Sales in the wood sector have fallen by 50% in seven years, and half of the companies have had to close. Forty-two per cent of Catalonia's area is forested (CREAF, 2009) and this has increased by 7% in the last 10 years, but almost all the wood used comes from elsewhere. According to the Barcelona Carpenters' Guild, Catalan wood is not of sufficient quality for use in construction and furniture, which is a result of the state of the forests due to lack of management. It is therefore necessary to improve its quality and reduce imports, which will always be more expensive than domestic production.

According to Confemadera, there is increasing pressure to comply with European and international standards, e.g. in relation to size, safety, finishes and sustainability. Standardisation is therefore essential for the competitiveness of our products in the foreign market. The Industrial Wood Observatory highlights the importance of developing products that comply with criteria such as fire safety, resistance and durability, protection against insect and fungal attack, and respect for consumer health.

02 Evolution of the timber sector in Catalonia in 2014

In 2014, the timber sector in Catalonia consisted of 1,165 companies (5.2% of the manufacturing industry). The companies suffered a great deal from the economic crisis and the number fell by 6.7%, a figure which shows that they went out of business or no longer have employees; this decline was in addition to the heavy reductions of previous years. In Spain as a whole, the number fell by 7.8% (CCD).

However, unlike the previous two years, production (IPI) increased in Catalonia by 13.3% in 2014 and did so much more intensively than for industry as a whole (1.3%) and for Spain (4.5%). After the decline in production in 2012 and 2013, the IPI for the EU performed positively in 2014, thereby increasing timber production (0.6%).

However, this improvement did not prevent the number of employees registered with the Social Security from falling (by 2.8%, added to the declines between 2010 and 2013, of exceeding 9% each year). The same was true in Spain as a whole, where registrations fell by 2.3%. However, in industry as a whole, registrations showed slight signs of improvement in 2014 (0.2%).

Sales abroad by the wood sector account for approximately 24.8% of turnover (ISC), which is by no means negligible given the sector's need for foreign sales to offset the decline in domestic demand in recent years. However, exports in 2014 fell by 1.8%, due to non-EU sales, which amounted to 34.8%, falling by 16.8%. Sales outside the EU28 went to America (12%) and Asia (10.6%). By contrast, exports to EU countries (65.2%) increased by 8.7%. These were destined for France (30.7%), Italy (12.7%) and Portugal (9%). Unlike Catalan exports, Spanish exports increased by 3.2%, which is more consistent with what has happened to our industry as a whole (2.4%). It cannot therefore be said that exports contribute to improving the production of wood in Catalonia, but rather that the improvement may instead have been the result of domestic demand.

However, unlike previous years, imports grew considerably (11.4%). Ninety-six per cent of purchases of wood from abroad originated in the EU28, and specifically in France (23.2%), Portugal (22.1%), Germany (17.7%) and countries in eastern Europe (12.6%), and particularly Poland (6.9%). In 2014, imports from the EU increased by 10.2% and those from outside it increased by 54.6% (despite accounting for a very small proportion). Imports to Spain as a whole performed similarly (11.8%) as did those for Catalan industry as a whole (6.9%). However, the wood and cork sector's trade balance showed a deficit, amounting to a deterioration compared to 2013.

Taula 1. Wood industry production.

	INDUSTRIAL PRODUCTION INDEX (IPI) Average annual midyear rate (%) 2010 base = 100											
	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CCAE-09												
Catalonia	18.7	3.2	-2.5	16.2	-7.0	-14.5	-22.5	7.0	1.0	-7.9	-0.3	13.3
Spain	0.7	1.6	-2.0	1.9	-3.0	-21,6	-25.0	-7.1	-5.6	-16.6	-3.5	4.5
European Union	2.2	3.2	0.1	4.2	1.0	-9.1	-15.1	3.1	3.0	-4.8	-1.0	0.7

Source: Idescat, based on data from the NSI.

Table 2. Variation in the Industrial Production Index (IPI) (2010 base = 100)						
Timber industry (Catalan Economic Activities Classification 16)						
Short-term indicators	**Catalonia**	**Catalonia**	**Spain**	**% var. Catalonia**	**% total indústria**	**%Catalunya /Spain**
	2013	**2014**	**2014**	**2013-2014**	**2014**	**2014**
Social Security employee registrations	8,965	8,717	55,338	-2.8	2.0	15.8
Number of companies with employees	1,248	1,165	6,779	-6.7	5.2	17.2
Companies with> = 50 employees	6	5	88	-16.7	0.4	5.7
Industrial production index (% annual var.)	-0.3	13.3	4.5	-	-	-
Producer Price Index (% annual var.)	0.2	1.2	0.6	-	-	-
Imports	178.6	199.0	1,081.8	11.4	0.3	18.4
Exports	192.5	189.1	1,243.4	-1.8	0.3	15.2
Balance	13.9	-9.9	161.5	-	-	-
Coverage rate (%)	107.8	95.0	114.9	-	-	-

Structural indicators	**Catalonia 2012**	**Catalonia 2013**	**Spain 2013**	**% total industry 2013**	**Catalonia /Spain 2013**
Number of people employed	7,641	7,289	48,027	1.7	15.2
Net turnover	860.1	674.4	5,117.7	0,5	13.2
GVA (at basic prices)	255.6	214.8	1,583.7	0.8	13.6
Investments in tangible and intangible assets	28.8	24.3	147.1	0.5	16.5
Result for the financial year/turnover (%)	-2.6	-1.3	-1.9	-	65.9
Apparent labour productivity (GVA/hour) (€)	19.4	17.2	19.2	45.3	89.7
Overseas sales (%)	21.1	24.8	n.d.	77.7	-

NB: amounts expressed in millions of euros.

Sources: DEMO (Ministry of Enterprise and Employment); MINETUR (Ministry of Industry, Energy and Tourism); CCD (Directorate Central of Companies of the Spanish National Statistics Institute); IPI and IPRI figures from Idescat and Eurostat; Datacomex (customs figures, prepared by the Spanish Tax Agency and Idescat); EPF (the Spanish National Statistics Institute's Household Budget Survey); CPI (National Statistics Institute); ISC (Survey of Industrial Companies); SBS, Structural Statistics Database (Eurostat); Technological Innovation Survey and R&D Survey (carried out by the NSI, Idescat figures); EPO (European Patent Office, Eurostat figures).

In 2014, prices of timber in the exchanges and source markets in Vic and Girona remained relatively stable or as in the case of some varieties, rose by between 1% and 3% (poplar, ash, beech, oak and most varieties of pine). Industrial prices (IPRI) increased by 1.2%, in contrast to what happened in industry as a whole (-1.6%) and above the growth rates for Spain (0.6%).

Within the wood subsector, a distinction can be made between the packaging manufacturing segment and other wood products (46% according to the Industrial Products Survey, IPS), the wood panels manufacturing and construction for carpentry segment (27%) and the cork products manufacturing segment (27%). We will now look at the first two groups.

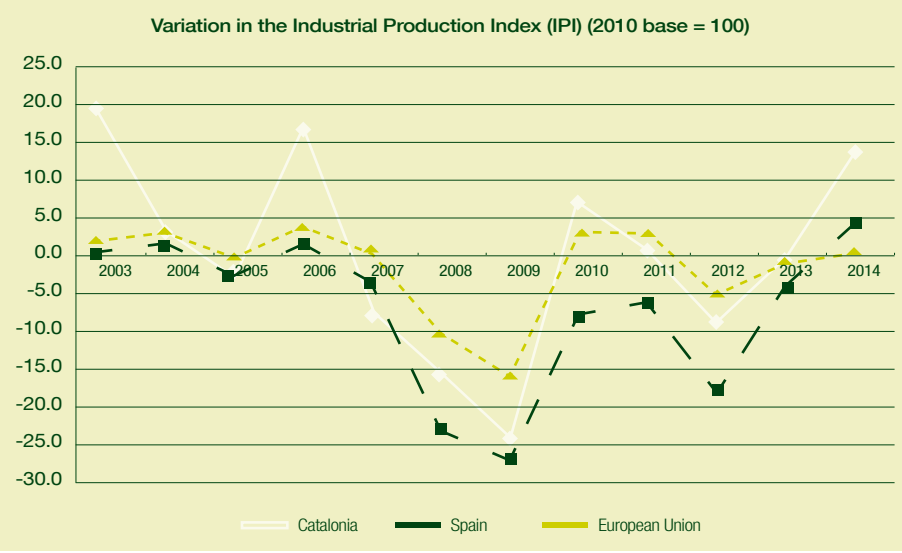

Figure 2. *Variation in the Industrial Production Index (IPI) (2010 base = 100)*

02.01 Packaging and other wood products manufacturing segment

This segment includes industrial sawing and planing of wood (Catalan Economic Activities Classification 161), manufacturing of wooden packaging and packaging (Catalan Economic Activities Classification 1624) and the manufacture of other wood products (Catalan Economic Activities Classification 1629.1).

This segment employs 3,000 people (41.1% of the timber sector), generates a turnover of 420 million euros, and has a GVA of about 112 million euros (62% and 52%, respectively). In addition, Catalonia accounts for about one-sixth of Spanish production (ISC).[1]

The average size of the companies is 7.2 workers, a relatively large number compared to

[1] *The ISC figures include the manufacturing of cork, straw and woven materials (Catalan Economic Activities Classification 1629.2) within this segment, which account for about a quarter of the timber industry, although they are not analysed in this study.*

the total for the timber sector (5.8 employees), but one that is very small compared to industry as a whole (11.8). This concentration in this segment is similar to other segments: the five largest companies account for 13% of employment and 20.2% of turnover (ISC).

The main products manufactured within this segment are shown in the table 3, and account for three quarters of the total.

This segment has a relatively high level of exports (28.9% of sales), and as such production is closely linked to domestic demand, but also to overseas sales.

In 2014, the timber sawing and planing industry (Catalan Economic Activities Classification 161) in Catalonia consisted of 91 companies with employees (two less than in 2013); only one of these had 50 or more employees. In general, they are family businesses with a long history and many of them have their own associated logging operation (OIM, 2009).

However, we have no detailed information on production in Catalonia with this level of disaggregation. Production in this segment increased by 7.9% in Spain as a whole - a very positive figure compared to 2012 and 2013. Catalan production in this segment accounted for 8.9% of the Spanish figure (IPS). Moreover, Catalan exports grew by 26.6%, while the figure for Spain was 12.8%. However, the Catalan IPI is estimated to have also shown positive growth in 2014. The sawing and planing industry is heavily threatened with replacement by imported products, which are more competitive and/or have a higher classification level (OIM, 2009).

The main reason for the good results in foreign markets are the markets within the European Union (79.6%): exports within the EU increased by 30.8% and those beyond the EU28 by 12.4%. The main destinations for these sales were France (39.1%), Italy (13.2%) and Portugal (7.7%). Imports from the EU (85.6%) increased by 3.4%, while those from outside increased by 45.7%, despite accounting for a very small proportion. The ratio therefore remained almost unchanged at 41.8%.

The production of packing and packaging (Catalan Economic Activities Classification 1624) in Spain increased by 3.4%, following the trend of 2013. No data is available for the IPI in Catalonia, but Catalan production in this segment accounts for 15.3% of Spanish output (IPS). Moreover, Catalan exports grew by 1.3%, while the figure for Spain was 14.7%. However, it is estimated that the Catalan IPI grew in 2014, albeit discreetly. The production of packing and packaging currently has low barriers to entry, but these are expected to increase in the medium term due to investment requirements. Furthermore, wooden packaging is being replaced with other packaging materials.

The improvement in exports of packaging in 2014 was due to sales within the EU, which accounted for 60.8% (Germany, 20.3%; France 12.6%; Portugal, 12.5%), and which increased by 6.7%; however, markets outside the EU declined by 6.1%. Meanwhile, imports fell by 13.9%, a trend that continued that of previous years and which contributed to improving the trade balance.

Industrial prices remained practically unchanged in the two industries within this segment of the manufacture of packaging and other wood products (0.4% in Spain).

The profitability of this segment (calculated as the profit for the financial year over turnover) was -1%, 30% lower than the overall productivity for the timber sector, as the result for the financial year was negative in this segment. The apparent labour **productivity** (GVA per hour) of this segment reached 22 euros, 27% above the timber sector (ISC).

02.02 **Wood boards and carpentry for construction manufacturing segment**

This segment includes the manufacture of veneer sheets and wood boards (Catalan Economic Activities Classification 1621), wooden flooring (Catalan Economic Activities Classification 1622), and other wood structures and pieces of carpentry and joinery for construction (Catalan Economic Activities Classification 1623). These activities employ about 4,300 employees (59% of the sector), generate a turnover of 255 million euros and GVA of 100 million euros (38% and 48%, respectively). Catalan production accounts for more than a tenth of Spain's production (ISC).

In 2013, this segment consisted of 839 companies, of which only two had more than 50 employees (ISC). The average size of the companies is small (5.1 employees per establishment), especially compared with the manufacturing industry (11.8 employees). The concentration does not differ greatly from other segments of the timber industry, as the five largest companies account for 11% of employment and 22% of turnover (ISC).

Among other products, production in this segment in Catalonia includes those listed in the table 4, which account for two thirds of the total.

This segment has relatively few exports (18.2% of sales), and as such production is closely linked to domestic demand.

There are no figures available for industrial production in Catalonia, but in Spain, the manufacture of veneer sheets and wood panels (Catalan Economic Activities Classification 1621) increased (6.3%), following the change in trend of 2013. Catalan production accounts for a very small part of Spanish production (3.5% according to the IPS), and as such it is difficult to estimate the IPI.

Catalan exports of veneer sheets and wood-panels fell by 36.7%, in addition to the decrease in 2013, while in Spain the figure increased by 5.6%. Most of the exports in this segment went outside the EU (55.9%), including those to Asia, which accounted for 19.9% of the total and those to Africa, which accounted for 16.9%. However, imports grew very considerably (18.9%).

However, in the manufacture of wooden flooring (Catalan Economic Activities Classification 1622), Spanish production fell sharply (-20.5%),

Table 3. Manufacture of packaging and other wood products (CEAC 161, 1624 and 1629.1)	% of the segment	% of Spain
Pallets, box pallets and other platforms for cargo made from wood	29.4%	18.5%
Other wood packaging and packing and components	20.3%	14.8%
Wooden frames for paintings, photographs, mirrors and similar or other objects	17.2%	21.2%
Sawn or cut timber with thickness > 6 mm; non-impregnated wooden railway sleepers	9.4%	7.6%
	76.3%	

Source: IPS, Industrial Products Survey (NSI). 2013 figures.

Taula 4. Manufacture of wooden panels and carpentry for construction	% of the segment	% of Spain
Wooden windows, balconies and frames, doors and frames and doorsills	39.7%	13.2%
Prefabricated wooden buildings	18.1%	24.2%
Wood chipboards	9.6%	3.3%
Source: EIP, Industrial Products Survey (IPS). 2013 figures.	67.3%	

unlike the previous year. In fact, there are heavy fluctuations in this segment from year to year. Catalan production accounts for a very small part of Spanish production (4.3% according to the IPS), and as such it is difficult to estimate the IPI, but given the evolution of sales abroad, very favourable developments in Catalonia are not anticipated.

Catalan exports fell substantially in 2014 (-21.4%), but this should be interpreted with caution because it is a very small segment; Spanish imports increased by 10.8%. Approximately half of the exports were destined for EU countries, while the rest went to countries outside the European Union (15.5% to America). However, imports increased by 16.8%.

Finally, in the segment of other wooden structures and pieces of carpentry and joinery for construction (Catalan Economic Activities Classification 1623), Spanish production increased by 4.3% in 2014, ending the trend of the previous six years. No data are available for the IPI in Catalonia, but Catalan production in this segment accounts for 15.2% of Spanish output (IPS). Catalan exports fell 17.6%, while in Spain they increased by 2.9%. However, it is estimated that the Catalan IPI may have grown less than the Spanish IPI in 2014 or may not have grown at all.

Only 12.3% of our exports were to sent to the EU; as regards the rest, exports went to Asia (34.8%) and America (22.8%). Meanwhile, imports increased by 23.5%, which led to a deterioration in the trade balance from 160% to 106%. The strong point of industrial carpentry (manufacture of doors, windows and wooden floors) is that it is an essential product. However, its weakness is its dependence on a single sector (construction), which means that internationalisation is necessary.

Profitability in this segment was -1.7%, as the result for the year was negative, as in the packaging and other wood products segment. The apparent labour productivity in this segment reached 14 euros, 19% below productivity in the timber sector (ISC).

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THE CATFOREST MARK
ON TIMBER PRODUCTS

Figure 1: *Catforest logotype*

CATFOREST- producte forestal de Catalunya (forestry product of Catalonia) is a quality guarantee mark that has emerged from a broad consensus in the Catalan forestry sector as a result of needs identified by its various stakeholders, and a pooling of ideas by the **Catalan Association for the Promotion of Forestry Certification (CAPFC)**.

01 What is QUALITY GUARANTEE MARK?

It is a sign used by various natural or legal persons, **under the control and use of the conferring institution**, which certifies that the products or services to which it applies meet common standards, particularly as regards their quality, geographical origin, technical conditions or the method of preparation.

The quality guarantee mark is governed primarily by Law 17/2001, of 7 December, on trademarks, and by Royal Decree 687/2002, of 12 July, approving the Regulations for the implementation of Law 17/2001 of 7 December on trademarks.

02 The importance of the institution conferring the QUALITY GUARANTEE MARK

In view of this definition of a quality guarantee mark, the mark's conferring institution is very important, since it gives it credibility, along with the process established for obtaining the mark, a process that must be endorsed by the competent authority in the relevant area, and in this case by the Government of Catalonia's General Directorate for the Environment and Biodiversity.

The applicant and the institution conferring the **Quality Guarantee Mark CATFOREST - producte forestal de Catalunya is the Catalan Association for the Promotion of Forestry Certification (CAPFC)**, a non-profit organisation, founded in 2001, whose member constitute almost all of the stakeholders in the Catalan forestry sector: public and private landowners, timber producers and dealers, research institutions, universities, consumer organisations, environmental organisations, trade unions and professional associations.

As a result, the fact that the institution granting the mark consists of or represents almost all the stakeholders involved in the value chain, from the tree or forestry product on the ground until it reaches the consumer as the final product means that the interests of all those involved in the entire chain are considered, and efforts are made to achieve an equitable and just distribution of the social and economic interests that may be affected throughout the product's value chain. This aspect is of paramount importance due to being a sign of the mark's transparency and credibility.

The main objective of the Catalan Association for the Promotion of Forestry Certification (ACPCF) was to establish a forest certification system in Catalonia appropriate for the sector,

in order not to lose market share and to provide a response to the new needs of the international timber market with an emerging demand at that time (2001) for products covered by a forestry certification system. As a result, after careful analysis of the timber production sectors (owners) and the various industries, the decision was made to use the PEFC forestry certification system. In 2004, the ACPCF became the CAPFC, representing the PEFC forestry system in Catalonia.

In 1998, the Council of the European Union adopted a Resolution on **forestry certification** based on the content of the European Union's Forestry Strategy, which stated: 'Forest certification schemes are market-based instruments which seek to improve consumer awareness of the environmental qualities of sustainable forest management and to promote the use of wood and forest products as environmentally friendly and renewable raw materials. Forest certification schemes should be voluntary, credible, transparent and freely accessible, and have a low cost-effectiveness ratio. One essential point in ensuring credibility should be the independent audit of forest management.'

As a result, after the implementation of the PEFC system, it was possible to say that in Catalonia a system was in place that was capable of endorsing and guaranteeing the sustainability of our forests in the international sphere. However, as mentioned above, several stakeholders in the forestry sector also identified the need to guarantee the proximity of forestry products at source, given that society in general and Catalan society in particular placed increasing value on locally produced products and short marketing chains, and on the values of corporate social responsibility which promote local products, since they promote local social and economic considerations and simultaneously contribute to reducing the carbon footprint – an issue which improves the vision of the product from the environmental point of view to an even greater extent.

Moreover, in addition to guaranteeing sustainability and source, it was considered necessary to guarantee a certain minimum quality of the products covered by the mark, so that it was possible to say that the sustainability, Catalan (local) origin and minimum quality standards of the forestry products with the **CATFOREST - producte forestal de Catalunya** mark are guaranteed.

CATFOREST- producte forestal de Catalunya is governed by the Regulations for use of the mark, which are freely available on the website www.catforest.cat. This regulation has been broadly agreed upon by the forestry sector in Catalonia, and the General Directorate of the Environment and Biodiversity of the Ministry of Agriculture, Livestock, Fisheries, Food and the Environment of the Government of Catalonia has issued a favourable report on it.

In addition to the Regulation and its annexes, the mark is governed by the provisions of Law 17/2001, of 7 December, concerning trademarks and the autonomous regional provisions that are approved to that end.

03 Who can use the Catalan CATFOREST - producte forestal de Catalunya mark?

Any private or public natural or legal person representing:

Owners of public or private forest estates who have a forestry management instrument and a recognised sustainable forest management certification system (PEFC; FSC; UNE Certificate; etc.).

Companies working in forestry, processing and packaging which have a recognised forestry certification system for their chain of custody (PEFC; FSC; UNE Certificate; etc.).

Companies marketing forestry products which have a recognised forestry certification system for their chain of custody (PEFC; FSC; UNE Certificate; etc.).

Responsible institutions collaborating with public and/or private end consumers of the product who wish to use the mark for informational purposes, without being subject to traceability controls, since they only handle information rather than the product, thereby justifying the lack of direct control over the product, although a series of communication commitments must be signed.

04 Which products can join the CATFOREST - producte forestal de Catalunya mark?

Initially, the products that are covered by the mark will be those listed below. It should be noted, however, that the Regulations are open, which means that if it is deemed appropriate to increase the products covered in the future, this may take place under the umbrella of the brand, in accordance with the conditions of the Regulations and the applicable legislation.

Structural timber originating within Catalonia for structural use. To obtain the mark, these products must have CE marking in accordance with Regulation 305/2011, laying down harmonised conditions for the marketing of construction products, and prove that they come from a sustainable forestry environment by means of an internationally recognised forestry certification system (PEFC, FSC, etc.) or a certificate issued by an independent third party accredited by the Spanish National Accreditation Body (ENAC).

Non-structural sawn timber and its finished products originating in the territory of Catalonia and in sustainable forestry, proven by means of an internationally recognised forest certification system (PEFC, FSC, etc.) or a certificate issued by an independent third party accredited by the Spanish National Accreditation Body (ENAC).

The quality of sawn timber must be guaranteed by identification of the standards in Table 1, which must appear in contracts and transmission documents (invoices, delivery notes, etc.).

Chips, pellets, briquettes and firewood are also covered by the quality mark. The requirements to be met by these products are listed in Table 2.

Table 1. Classification criteria for non-structural timber

CLASSIFICATION CRITERIA FOR NON-STRUCTURAL TIMBER						
WOODWORK	**For rectangular section sawn timber planks between 16 and 100 mm thick, between 50 and 225 mm wide and between 1.8 and 6 metres long. Dry wood**					
Levels	**Knots**	**Cracks**	**Gems**	**Other imperfections**	**Moisture content**	**Dimensional tolerances**
FIRST	4 healthy knots per side and 2 per edge. The size of these knots must not exceed 45 mm. 2 knots with bark around the face and one edge are accepted, with a size of 50% of the healthy knots allowed.	Tolerated in 15% of the length of the piece with a thickness of 25 mm..	Tolerated if their length does not exceed 30% of the piece.	Two 50 mm resin ducts in the poorest metre. Bark pocket of 100 mm. The deviation of the fibre must not exceed 1 cm for every 10 cm length. A fissure through the end of the length not exceeding 10% of the width of the piece. Firewood at 5% of the volume of the piece.	H%<20% in all cases exterior woodwork: H%=12-19% interior woodwork: H%=9-16%	Length: -0/+5 mm Width and thickness: <100 mm:-1/+3 mm >100 mm:-2/+4 mm
SECOND	5 healthy knots per side and 3 per edge. The size of these knots must not exceed 60 mm. Three groups of dead knots surrounded by bark or unhealthy knots around the edge will be accepted, with a size of 70% of the healthy knots allowed.	Tolerated in 25% of the length of the piece with a thickness of 25 mm.	Tolerated if their length does not exceed 40% of the piece.	Two 100 mm resin ducts in the poorest metre. Bark pocket of 200 mm. The deviation of the fibre must not exceed 1 cm for each 10 cm of length. A fissure through the end of the length not exceeding 30% of the width of the piece. Firewood at 30% of the volume of the piece. Blue colouring and pink marks equal to 30% of the volume of the piece.	H%<20% in all cases exterior woodwork: H%=12-19% interior woodwork: H%=9-16%	Length: -0/+5 mm Width and thickness: <100 mm:-1/+3 mm >100 mm:-2/+4 mm
THIRD	6 healthy knots per side and 4 per edge. The size of these knots must not exceed 75 mm. Four groups of dead knots surrounded by bark or unhealthy knots around the edge will be accepted, with a size of 90% of the healthy knots allowed.	Tolerated in 70% of the length of the piece with a thickness of 25 mm.	Tolerated if their length does not exceed 50% of the piece.	Two 150 mm resin ducts in the poorest metre. Bark pocket of 300 mm. The deviation of the fibre must not exceed 1 cm for each 2 cm of length. A fissure through the end of the length not exceeding 50% of the width of the piece. Firewood at 70% of the volume of the piece. Blue colouring and pink marks equal to 30% of the volume of the piece.	H%<20% in all cases exterior woodwork: H%=12-19% interior woodwork: H%=9-16%	Length: -0/+5 mm Width and thickness: <100 mm:-1/+3 mm >100 mm:-2/+4 mm
WOOD FOR PLANKS AND PACKAGING	**The size and quantity of the defects do not compromise the integrity of the piece**				H%<22% when mounted	According to the specific quality standard for each product

05 Basic requirements to obtain authorisation to use the CATFOREST - producte forestal de Catalunya mark

Natural or legal persons wishing to use the CATFOREST quality guarantee mark in their forestry products, or the partner organisations wishing to use it, must sign a contract requiring the fulfilment of a range of commitments, by virtue of which they acquire various rights and obligations stipulated in the regulations governing the use of the mark, and in its appendix on the instructions for the graphic representation of the mark.

06 Free of charge

The system for adherence to the mark is free of charge, and as such the **Catalan Association for the Promotion of Forestry Certification (CAPFC)**, as the institution conferring the CATFOREST - producte forestal de Catalunya mark will initially meet the costs and find the resources required to carry out the administration and processing of the checks required for granting authorisation to use the mark and its registration.

In **conclusion**, the identification of Catalan forest products in the markets by means of a label that is able to guarantee their Catalan origin (proximity and local), their sustainability and their quality,

Table 2. Requirements for adherence to the CATFOREST mark for chips, pellets, firewood and briquettes

Product	Proximity	Quality standards	Sustainability
CHIP	Forests of Catalonia	• Stamp: **DBOSQ** • If it does not have the DBOSQ mark, it must meet the following standards: - Species name in Latin and indication of grain according to the classification in: . Austrian standard ÖNORM M7133: G30, G50 and G100 . EN ISO 17225-4:2010 standard: P16S, P31S, P45S - Moisture content: indicate whether the wet basis moisture content (WBMC) is: <10%, <25% and <35%	Internationally recognised certificates such as **PEFC** and **FSC**
PELLETS	Forests of Catalonia	**ENplus**, or **DINplus**	Internationally recognised certificates such as **PEFC** o **FSC**
FIREWOOD	Forests of Catalonia	• Species (Latin name) and % of each in mixtures. A tolerance of 15% in the mixture is accepted. • Length: • Firewood cuttings: up to 30 cm • Short log: >30 cm to 40 cm • Long log: >40 cm to 50 cm • Stick firewood: >50 cm • Moisture content: indicating the maximum moisture content and/or the minimum time, in months, of storage and/or chipping prior to sale. • Absence of impurities and pathogens capable of attacking structural elements and/or wooden furniture.	Internationally recognised certificates such as **PEFC** o **FSC**
BRIQUETTES	Forests of Catalonia	• Calorific value greater than 4,700 kWh/kg • Moisture content less than 10% • Density greater than 1,000 kg/m^3 • Shape of pieces with no variations over 10%	Internationally recognised certificates such as **PEFC** o **FSC**

undoubtedly contributes to an extraordinarily important added value for the competitiveness of our products and our local economy, and also towards the sustainable forestry management of our forests.

07 Apart from the drawing...

The main role of CATFOREST is to consolidate important factors such as providing a guarantee for and trust in Catalan forestry products based on local ties through an independent body.

The brand as such not only includes an empty and meaningless symbol, but it also represents a way of doing things, and doing things well.

The quality guarantee mark is a concept used in situations with plurality, and its existence depends on the people and organisations within it. Paul Capriotti explains how the corporate brand must always be seen as a set of values. The mark is its cornerstone.

As Noberto Chaves reminds us, most companies today know that their backbone consists of intangible factors, which in the case of CATFOREST are: trust, a commitment to sustainable forest management, a commitment to the environment, the guarantee, proximity and as a primary factor, quality. As a result, companies in the sector contribute many implicit and added values to Catalan forestry products.

The CATFOREST brand brings the sum of these differential values together, and makes them into a single symbol, consisting of two main elements: the logo that represents the name of the CATFOREST brand and its symbol - eight spheres in the form of a tree. The choice of the number eight is inspired by the mathematical Fibonacci sequence (1,1,2,3,5,8, etc.) - a sequence which among other things is strikingly relevant in the natural world, and curiously, in forestry, in the growth of branches on trees.

The creation of a quality guarantee mark is and will always be necessary to ensure the future of any project. It is the cornerstone, the key factor, the starting point in promoting any product, and undoubtedly in enhancing Catalan forestry products. The more strength and quality the mark achieves among the different parties involved, the stronger this sector will be.

08 Author

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INTERVIEW

Mr Joan Josep Royo Cabanes
President, Catalan Timber Federation

"IMPROVED UNIFICATION OF PRIORITIES AND RESOURCES, AGREEING ON STRATEGIES AND ACTING TOGETHER IS ESSENTIAL"

Excerpt from the interview published in www.ruralcat.net

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Joan Josep Royo i Cabanes has worked in the wood and furniture sector all his life. He is a businessman and has represented various associations and organisations in the province of Tarragona. He has been the president of the Catalan Timber Federation since 15 June 2015.

Private and public forest owners, government, industry, society... Do we really have in-depth knowledge of the advantages and benefits that wood can bring? How can we make them a reality? The president of the Catalan Timber Federation, Joan Josep Royo, sets out his views on the current situation in the Catalan sector in this interview.

Which organisations does the Catalan Timber Federation (CTF) represent and what are its objectives and main activities?

The Federation aims to defend and promote the economic and social interests of companies in the timber and furniture sector in Catalonia by pooling the capacity for action of the associations and federations of the four provinces in Catalonia. We currently represent between 15,000 and 17,000 workers and 2,500 SMEs.

Our objectives are to represent the sector before the government, collective bargaining, to foster social dialogue, promote training in the sector and boost companies' competitiveness through measures to enhance innovation and internationalisation.

We are also currently working with each subsector, timber dealers, sawmills, carpenters, parquet flooring companies, etc. to give wood in general a value chain.

From your perspective, what is the status of the forestry sector in Catalonia and what is the most appropriate direction for forestry policy to take?

According to the figures I have seen, 60% of Catalonia is forested. We are talking about more than two million hectares, of which more than half is wooded. But despite this great potential, this sector only accounts for 1.3% of the annual turnover in the agriculture and livestock farming sector. Furthermore, the cost of forestry has increased and the price of wood has fallen... Everything suggests that the Catalan forestry sector can and must improve its situation.

It is very important that whatever policies are applied, they must be part of medium- and long-term plans, for five, ten and fifteen years in the future. Improved unification of priorities and resources, agreeing on strategies and acting together is also essential. Today, 80% of forests are privately owned and 20% are public, and both parties must be satisfied and work together.

We can use the models that have been successful elsewhere as a reference, such as those in the Basque Country, France and Austria, but we must adapt to the territory and its stakeholders.

How do you think the relationship between forestry production and the timber industries in Catalonia can be improved?

An effective arrangement of the available resources and good systematic use of natural areas is the basis for establishing a better relationship. The timber and first-stage processing companies need a structured plan for modernisation in the coming years. The timber industries want to achieve greater competitiveness in the market, and unifying criteria and objectives would be the ideal scenario.

At the Catalan Timber Federation, we aim to contribute to a wider debate and consensus between the private and public sectors and the various timber industries and subsectors.

In what circumstances and how do you think it is possible to increase industry's use of Catalan timber?

As I said, the sector's potential is very great. Greater efforts have been made in this area in recent years, with agreements signed between businesses and the government, the promotion of biomass, joint initiatives, promotion strategies ... For example, it was a very good idea to establish the CATFOREST mark, in order to allow opinion formers, consumers and society in general to identify forest products from Catalonia's forest in the market, with a guarantee of sustainability, quality and proximity.

What are your expectations for the future trends in the various subsectors?

Each timber subsector has its own particular characteristics. Although the problems with construction and the economic crisis in general have adversely affected everyone, the situation with sawmills is very different from that of furniture or parquet flooring. Each subsector is doing the best it can, but we'll see what progress they make. What is certain is that things will be much better if we are able to unify criteria, desires and actions. That is why the Catalan Timber Federation places such an emphasis on getting together and reaching agreement.

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