



# THE UTILISATION OF MOUNTAIN WOOD AND THE ORGANISATION OF MOUNTAIN WOOD INDUSTRIES

## EXAMPLES OF GOOD EUROPEAN PRACTICES

Research co-funded by the French Ministry of Agriculture, Food, Fisheries, Rural Affairs and Land Use Planning

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## Research Framework

This document has been produced by Euromontana (the European Association for Mountain Areas) in 2010-2012 as part of a study co-funded by the French Ministry of Agriculture, Food, Fisheries, Rural Affairs and Land Use Planning. It aims to highlight specific initiatives and companies that make significant contributions to the sustainable development of the mountain forest sector and generate policy recommendations to promote development in these sectors.

The first part of the report describes the context of the study, especially the situation of forests in mountainous areas, forest policies and private development opportunities in the timber industry.

The second part of the report introduces eleven examples of companies and projects demonstrating the dynamism of mountain stakeholders and the potential of mountain forests and the timber industry. These eleven practices were identified following a Europe-wide call for proposals launched by Euromontana. The practices presented are therefore not representative of the initiatives and the European forest sector as a whole, but are a reflection of the case study proposals received by Euromontana in response to this call. Thus the study does not aim to be exhaustive, but to present a small number of practices that have led to an increase in local forest exploitation, giving value to the wood produced in the region, thanks not only to determined local commitment and vertical integration but also innovation and taking advantage of market niches.

Finally, the third part provides an analysis of the success factors of the eleven examples of good practice presented and the environment in which they have been developed. Based on this analysis, conclusions are drawn and recommendations given to promote more wide-scale exploitation of mountain forests and to establish wood transformation industries in mountainous areas that encourage the creation of added value for the territory of production.



## SECTION 1

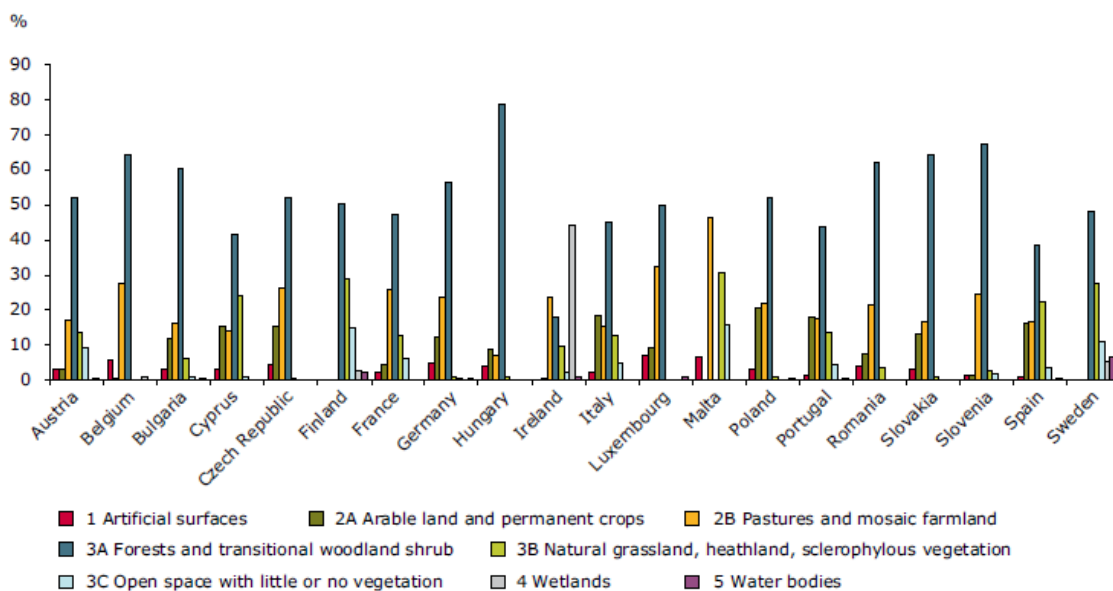
### EUROPEAN MOUNTAIN FORESTS

# 1. THE IMPORTANCE AND STRUCTURE OF FORESTS IN MOUNTAINOUS AREAS

## 1.1. LAND COVER

According to figures published by the European Environmental Agency in its study, *Europe's ecological backbone: recognising the true value of our mountains* (2010), forests are the main use of land in Europe's mountains, covering 41% of their area<sup>1</sup>. The graph below is taken from the report (page 115) and shows the area covered by forest and woodland shrub in the mountains of the 20 Member States of the European Union that have mountainous areas.

**Figure 7.2 Land cover classes in the mountain area of each country as a proportion of national area: EU-27 Member States with mountain areas**



In 17 European countries, 50% of the mountain areas is forested. Also, according to this study, grassland and farmland are the second biggest land use, with 16% of the area of Europe's mountains covered by pasture and farmland and 15% by natural grassland and heathland. The report also shows that 60% of the changes in mountain land use since the early 1990s are related to forest expansion: forests grow mostly after the withdrawal of agricultural activity.

In France, forests cover 29.4% of the area but the afforestation rate is 54.3% in uplands (600-1200 m altitude) and 39.3% in high mountains (>1200 m altitude)<sup>2</sup>.

<sup>1</sup> Europe broadly understood as the European Union, Iceland, Turkey and the Balkans. The mountain area is delineated in this study according to homogenous physical and geographical criteria for each country. Report available at: <http://www.eea.europa.eu/publications/europes-ecological-backbone>

<sup>2</sup> National Forest Inventory, The French Forest – Inventory campaign results 2005 to 2009. Brochure "Mountain forests"/p.25 Available at [http://www.ifn.fr/spip/IMG/pdf/France\\_part4-2.pdf](http://www.ifn.fr/spip/IMG/pdf/France_part4-2.pdf)

## 1.2. THE OWNERSHIP STRUCTURE

### a. European data

As regards the ownership structure of the forests, it was not possible to collect data relating solely to mountain forests. However, the data provided in the Report on the implementation of the European Union Forest Strategy<sup>1</sup> show that 60% of EU forests belong to private owners (15 million owners), and that while the average size of private forest exploitations is 13 ha, most are smaller than 3 ha. Mountain forests probably follow the same trends, albeit with an over-representation of small fragmented ownership, according to analyses by the European Commission's DG AGRI.

### b. French data and available volumes of wood

In France, a report produced by the National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA – formerly Cemagref), the National Forestry Inventory and the DGFAR of the Ministry of Agriculture<sup>2</sup> indicates that the annual volume theoretically available in 2009 for wood production was 102.7 million m<sup>3</sup> of wood: around a third is softwood lumber, 60% is wood for industrial energy and the rest is wood residue. The study also analyses the type of ownership: for softwood lumber roughly two-thirds of the available volume is under private ownership compared with a third under public property; for industrial energy wood, three-quarters of the available volume is under private forest ownership compared with a quarter under public ownership.

Of the total volume of available wood, only just over half of the wood is utilised. The study shows that the additional available volume of wood includes, depending upon the hypotheses used, 50.4 - 62.8 million m<sup>3</sup> per year (softwood lumber: 14 - 20.7 million m<sup>3</sup> per year; industrial wood/wood for energy: 28.3 - 33.3 million m<sup>3</sup> per year; wood residue: 8.1 - 8.8 million m<sup>3</sup> year). However, it was not possible to classify these volumes according to ownership type.

Likewise, the data of this study do not differentiate mountainous areas from other areas. However, the National Forestry Inventory provides figures showing that there are more public forests in mountains than in the lowlands<sup>3</sup>: 22% of French forests at an altitude lower than 600m are public compared to 27% in uplands and 54% in high mountains (>1200m altitude). As regards the volumes of wood per hectare in planted production forests, they are higher in mountains than in lowlands but lower in private than public forests.

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<sup>1</sup> Communication from the Commission to the Council of the European Parliament (2005) 84. Available at [http://ec.europa.eu/agriculture/fore/action\\_plan/com\\_en.pdf](http://ec.europa.eu/agriculture/fore/action_plan/com_en.pdf)

<sup>2</sup> GINISTY C., CHEVALIER H., VALLET P., COLIN A., 2009. Évaluation des volumes de bois mobilisables à partir des données de l'IFN "nouvelle méthode" /Evaluation on mobilisable wood volumes using data from the IFN "new method" - Updated 2009 from the study "available biomass" de 2007 – Final report. Cemagref, IFN, DGFAR. P.62. Report available on <http://agriculture.gouv.fr/actualisation-2009-de-l-etude>

Tab.53 Volume of wood per hectare in planted production forests in France			
	State-owned	Other public land	Private
<i>Altitude</i>	<i>m<sup>3</sup>/ha</i>	<i>m<sup>3</sup>/ha</i>	<i>m<sup>3</sup>/ha</i>
0 – 600m	179 ± 9	160 ± 7	143 ± 3
600 – 1200m	190 ± 27	217 ± 15	180 ± 7
Over 1200m	192 ± 32	214 ± 21	167 ± 20
France	182 ± 8	181 ± 6	151 ± 3

Source: National Forest Inventory. The French Forest – The results of the 2005 -2009 inventory campaigns. *Forêt de montagne (Forest Mountains)* brochure 25 p.

The difference in volume between private and publicly owned forests can be explained by the lack of interest of a certain number of forest owners in their forests, which results in an absence of maintenance and operations on their holdings.

### c. Differences in awareness regarding exploitation

In the current context of rising demand for wood and paper, the DG AGRI published on its website in October 2010 a study carried out by a consortium of consultants and forest organisations on *Market prospects for the supply of timber and other forest products from areas of fragmented forest ownership*<sup>11</sup>. This study identified and analysed 32 constraints in the utilisation of wood in these types of structures and different measures of wood utilisation that have been applied, their effectiveness depending on the type of ownership and the willingness of owners to participate in the timber market. It established a typology of market conditions for different regions (strong, developing or weak market) and a typology of owners, with two categories:

- Traditional owners, who show economic interest in forest exploitation and are likely to respond positively to price increases, since market conditions may allow them to exploit their property profitably.
- “Non-traditional” owners who have often inherited their forest and rarely visit it. Some have non-economic objectives as regards their forests (tourism, conservation, preserving the value of their heritage) and could be urged to utilise their wood should their objectives include exploitation. Information measures are therefore necessary. Others have no objective as regards their forest and are not easily convinced. The report then identifies legal measures limiting the further fragmentation of the property to avoid having to drastically reduce the potential for utilisation.

This study shows that our concern for the utilisation of wood in the mountains is particularly topical in Europe.

<sup>11</sup> [http://ec.europa.eu/agriculture/analysis/external/supply-wood/index\\_en.htm](http://ec.europa.eu/agriculture/analysis/external/supply-wood/index_en.htm)

### 1.3. ECOSYSTEM FUNCTIONS

As well as being important in terms of the area they cover, mountain forests are also recognised for their numerous functions. Therefore, the EU Forests Action Plan<sup>1</sup> identifies the following functions:

- Economic functions
  - Source of revenue
  - Workplace
  - Provision of renewable resources for local and individual consumption
  - Provision of raw materials for wood sector industries
  - Provision of materials for high-quality wood products
  - Supply of a local and renewable source of energy
  
- Environmental functions
  - Providing an ecosystem that is rich in biodiversity
  - Mitigating the effects of climate change through carbon sequestration
  - Protecting water resources
  - Providing stability and ecological integrity in the landscape
  - Protecting against avalanches and landslides
  - Preventing soil erosion and fighting against desertification
  - Air purification
  
- Social Functions
  - Providing leisure facilities, particularly for urban dwellers
  - Providing an environment for healthy living
  - Protecting against natural disasters
  - Making rural areas more pleasant to live in
  - Safeguarding cultural and spiritual values and preserving heritage

Forests generally perform most of these functions, but mountain forests have a more protective function. Thus, according to the Alpine Convention<sup>2</sup>, one fifth of Alpine mountain forests play a protective role, whereas 13% of Europe's forests as a whole are classed as protective (*Forestry Statistics* 2009). This role can either encourage the exploitation of the forest, where its management improves the protective nature or, in contrast, hinder it, when exploitation is prohibited or too restrictive. As protected areas cover very substantial proportions of mountain areas (see EEA report, *Europe's ecological backbone: recognising the true value of our mountains*) the entire stock of mountain wood will never be utilised.

### 1.4. MORE DIFFICULT CONDITIONS

However, this natural resource is not always well exploited in mountains because of difficult conditions that affect the competitiveness of wood from these regions. The climate (lower temperatures, wind) leads to slower growth in mountain forest stands; in certain regions, growth stops in winter. Harvesting is further complicated by steep slopes, which require the

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<sup>1</sup> DG Agri - [http://ec.europa.eu/agriculture/fore/publi/2007\\_2011/brochure\\_fr.pdf](http://ec.europa.eu/agriculture/fore/publi/2007_2011/brochure_fr.pdf)

<sup>2</sup> [http://www.alpconv.org/home/book08\\_fr.htm](http://www.alpconv.org/home/book08_fr.htm)

use of specific equipment (skidders, cables), which also make the infrastructure necessary for its exploitation more costly (forest roads).

### ***Financial Data of the exploitation costs in mountainous areas***

*A study carried out between 1987 and 1997 in Saint-Martin-la-Porten in Savoie shows the difference in exploitation costs (logging, draining and transportation) in four cases. In the "easy" case (flat or gently sloping), the cost is 182F/m<sup>3</sup> (€27.7/m<sup>3</sup>). In steep slopes with cable logging, the cost rises to 299F/m<sup>3</sup> (€45.6/m<sup>3</sup>) and reaches 436F/m<sup>3</sup> (€66.5/m<sup>3</sup>) in extreme cases when helicopter assistance is required.<sup>1</sup>*

*However, this example and the prices provided are relative, as the calculations are based on the current resources available in the given area and not on the total available resources.*

### ***Costs linked with the use of the cable logging technique***

*An interview was conducted with Frederick Mabooux, a forester based in Sallanches in the French Alps.*

*Two types of cable can be used:*

- *the cable yarder, used for lengths of a few hundred metres. Cost of use is € 25 - 50/m<sup>3</sup> of wood.*
- *long cables, used for greater lengths (500 1500m) and on steeper slopes than those of the cable yarder or on more rugged terrain. Cost of use is € 40 - 70/m<sup>3</sup> of wood.*

*Costs include logging, scaling and bucking of timber.*

*Frédéric Mabboux believes that using cable is profitable if it is possible to extract at least 0.25m<sup>3</sup> of wood per linear metre of cable installed.*

*Factors influencing use costs are:*

- *Cable length*
- *Number of pylons necessary (especially if the terrain is convex)*
- *Size of the timber to be cut (average tree)*
- *Type of cutting (clear-cutting or thinning)*
- *Location of the mast and timber deposit*

*The technique has the advantage of being implemented on difficult terrain or where other machines cannot go, to sharply limit the problems of soil compaction (little or no movement of machinery on the ground), to limit the damage to stands and to remove entire trees in order to recover branches. Therefore, cable logging is used not only in mountains but also on fragile terrain. However, the technique is still relatively infrequently used in France where few operators have the necessary equipment. According to Frédéric Mabboux, several factors hinder the development of cable operations in France:*

- *The poor image of the technique which is deemed out-dated and difficult to*

<sup>1</sup> Constantin E., Vauterin P. Les enjeux économiques d'une gestion multifonctionnelle des forêts de montagne: Le handicap montagne et ses incidences sur la gestion et l'exploitation forestières: le cas de la Maurienne (Savoie, France)/The economic issues in multifunctional mountain forest management : The mountain handicap and its effects on forest exploitation: the case of the Maurienne (Savoie/France) In: Gestion multifonctionnelle des forêts de montagne/Multifunctional management of mountain forests], Revue Forestière Française/French Forestry Review Special edition 1998: 161-180.

*implement.*

*- Some forests are not sufficiently maintained and therefore do not produce quality wood. The income from timber sales therefore does not cover the cost of harvesting. Thus owners must be convinced that it is necessary to invest in thinning and maintenance to subsequently produce quality, higher value wood. Given the time necessary for tree growth, investing in a first loss-making cut in order to foster future forest exploitation is rare.*

*- The cost of cable operations seems relatively high compared with more traditional operations as the cost of tractor/skidder operations generally does not include the construction of forest roads or the resulting loss of soil, or the financial loss caused by the damage to the remaining standing trees.*

In these conditions, small plots are even less attractive to exploit and the problem of forest plot fragmentation and lack of investment by their owners in their use (especially those who do not live nearby) will increase. In this context, the question of valuing ecosystem services arises for both mountain forestry and mountain farming activities.

However, as long as Europe wishes to reduce its CO<sub>2</sub> emissions and increase its proportion of renewable energy use by 2020, wood from mountain forests can find new markets:

- Wood construction, in combination with green building techniques to improve the thermal performance of buildings
- Wood energy

According to the DG AGRI, the document "*European forests: sustaining life*", wood and wood waste provided 47% of renewable energy supplies in Million Tonnes of Oil Equivalent (Mtoe). Data about the proportion in mountains are not available but various initiatives have been developed in mountains. The case of the thermoelectric sawdust plant in Romania was, for example, presented at a seminar on mountain energy organised by Euromontana on 1 July 2009. This facility collects the sawdust produced by sawmills to fuel two 2.6 MW thermal power boilers. The plant also has a 6MW boiler running on liquid fuel. The annual energy production will be guaranteed by the combustion of 40 000 tonnes of sawdust. The quantity of ash produced is 99% less than when wood is burned. The heat generated by the plant feeds 83 heating modules and 4 thermal points. The construction of the plant was funded by the PHARE programme. This proves that it is possible to develop future applications using wood in remote mountain regions.



Thermal power plant operating on sawdust used to power a network of local heat in Vatra Dornei, Romania



## 1.5. EXPECTED IMPACTS FROM CLIMATE CHANGE

Scientists expect that the quantity and quality of biomass available in mountain forests will change in future years. For example, a study conducted in the Canton of Valais in Switzerland showed that on the lower mountain slopes (less than 800m altitude), the predicted increase in drought will bring about a reduction in biomass production. Species that are resistant to water stress will migrate into the middle levels (between 800 and 1400m altitude). In addition, forest biomass should increase as the treeline moves higher. Finally, in addition to expected changes in species that will change the appearance of forests, pathogen attacks will increase with negative impacts on productivity.

Forest and wood industry operators must anticipate and prepare for the impacts of climate change on the quantity and quality of available wood in forests and European mountains. This is one of the points that most concern European institutions as expressed in interviews.

## 2. FOREST POLICIES

There is no common European policy for forests or specific measures for mountain forests. Certain policies cover measures on general forestry, at different levels of governance, and allow the implementation of specific procedures for mountain forests.

### 2.1. EUROPEAN POLICIES

#### a. The European Forest Strategy and the EU action plan for forests

The powers of the European Union with regard to forest policy are limited to the coordination and development of Member State as forests are not among the competences attributed to the EU by the Treaty of Lisbon. This coordination is part of the framework of the European Forestry Strategy<sup>1</sup> adopted in 1998 which led to the introduction in 2006 of the European Union Action Plan for Forests (2007-2011). This has four objectives:

- To improve long-term competitiveness
- To improve and protect the environment
- To contribute to a better quality of life
- To promote coordination and communication

Speaking at the invitation of the South Tyrol region on 2 December 2010 in Brussels, the head of the Forest Unit of the European Commission's DG AGRI expressed the need to continue this form of coordination. A review of the European forestry strategy is underway, involving in particular the Permanent Forestry Commission<sup>2</sup>. A workshop was held in Brussels on 15 April 2011 to discuss priority issues for the review and to identify how this new strategy can make a difference.

An ex-post evaluation of the EU Forestry Action Plan is underway and a report is due to be issued by the Permanent Forestry Commission in June 2012. A new Forestry Strategy is due to be published in the third quarter of 2012.

<sup>1</sup> Council Resolution of 15 December 1998 relating to a forest strategy for the European Union <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:1999:056:0001:0004:FR:PDF>

<sup>2</sup> This committee represents the forest administrations of the EU Member States.



## b. Forests and Climate Change - European Commission White Paper

Following the White Paper on Climate, on 1 March 2010 the European Commission published a "Green Paper on the protection of forests and information on forests in the European Union" which aimed to prepare forests for climate change<sup>1</sup>. The open consultation closed on 31 July 2010. The results published on the Commission's website refer to the demand for a European information system on forests, also used for communication to an uninformed public. Among the main conclusions, responses to the consultation also stressed the need to evaluate and monitor the impacts of climate change on forests and to develop measures to adapt forests to these changes.

Following the publication of this Green Paper, a European Parliament resolution was adopted<sup>2</sup>. Its framework is broad: it supports initiatives in favour of strengthening the European Forestry Strategy and for sustainable development in general, by inviting the Commission to consider climate change in the Forest Action Plan, to explore the possibility of payment for ecosystem services etc. Funding aspects for research and support for reforestation (via the second pillar of the CAP) are also included in this document.

The schedule for further actions on this topic is not yet known.

## c. Support for forests through the Common Agricultural Policy (CAP)

The Common Agricultural Policy, through its current second pillar dedicated to rural development is among the policies likely to affect forests, although forestry measures are rarely addressed with a differentiated approach from a territorial point of view, i.e., a mountain approach. The Rural Development Regulation provides support measures for afforestation and the modernisation of tools for forest exploitation. Statistics confirm the weak mobilisation of the rural development measures currently dedicated to forests (current programme). From 2007 to 2009 only 14% of the 6 billion euros from the EAFRD programmed over the 2007-2013 period were used. In particular, only 7.8% of the budget for measure 122 "Improving forest's economic value" was used. There are various reasons for this underuse: lack of knowledge by stakeholders about the existence of these measures, measures not included in national or regional programmes, amounts reallocated to other measures out of fear that absorption is insufficient, inadequate measures to local conditions, competition with other sectors for budgets etc.

The CAP is currently under review and work is being conducted by DG AGRI to improve proposals for forest measures based on the analysis of strengths and weaknesses of current measures. The legislative proposals of the European Commission were published on 12 October 2011<sup>2</sup>. These proposals will be published after a minimum of 18 months debate in the European Parliament and the European Commission over the measures to be taken. In their current versions, legislative proposals summarise all the measures already available in the 2007-2013 Forest Rural Development Regulation. The proposals also provide for the possibility of including thematic sub-programmes in the Rural Development Programme, with one designed to address the problems of mountainous areas (Article 8 of the Proposal for a

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<sup>1</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0066:FIN:FR:PDF>

<sup>2</sup> <http://www.europarl.europa.eu/oeil/FindByDocnum.do?lang=2&docnum=COM/>

Regulation on support for rural development by the EAFRD). This sub-programme is expected to bring consistency to the various measures it contains and to increase the rate of support for certain measures, in particular several measures related to forestry activities: cooperation, physical investment and the development of farms and businesses in rural areas, the establishment of agroforestry systems, knowledge transfer and information activities and the creation of producer groups.

Moreover, forest industries can receive funds from the EAFRD and the ERDF according to the relevant link in the chain. The ongoing debate on coordination in the use of European funds can be fed by proposals from wood industries. They should especially seek to contribute to the common strategic framework for the use of EU funds for regional development and future partnership agreements between Member States and the European Commission, so that ambitious guidelines and an integrated approach can be adopted for mountain forests.

The draft Common Strategic Framework was published by the European Commission on 14 March 2012. This framework provides the key actions for each fund, including ERDF, ESF and EAFRD and the thematic focus to target investments. The main issues relating to forestry problems concern:

- Innovation
- Cooperation between forest stakeholders and other rural stakeholders
- Support for the transition towards a new carbon-free economy
- Adapting to climate change and the fight against it
- Protecting biodiversity and energy efficiency
- Education and training

## 2.2. FOREST EUROPE - THE MINISTERIAL CONFERENCE ON FOREST PROTECTION IN EUROPE

Forest Europe is a Pan-European political process involving 46 countries and the European Union, aiming to develop common strategies for the protection and sustainable management of forests in Europe. Founded in 1990, Forest Europe has helped develop the cooperation of ministries responsible for forests and lead by example to defining guidelines and criteria for sustainable forest management. The current subjects of focus are strengthening the role of forests in climate change mitigation, securing water supplies, preserving forest biodiversity, and the provision of forest products.

At the last ministerial conference, held on 14-16 June 2011 in Oslo, it was concluded that a process for defining binding agreements on forests in Europe must be introduced, to strengthen cooperation and deal with challenges posed by forests, including those of sustainable forest management. Discussions and negotiations should be scheduled for the coming years to identify the content of these agreements.

## 2.3 ACTIONS FOR MAJOR EUROPEAN REGIONS

### a. Alpine Convention

The protocol of the 1991 Alpine Convention in the domain of “mountain forests”<sup>1</sup> aims to “conserve mountain forests as an ecosystem close to nature, its development and extension where necessary and improving its stability”. It is stated that “a respectful, close to nature and sustainable mountain forest management is the sine qua non condition.” These objectives are set out in France in the Forest Code as well as in the law on the forest guidelines of 9 July 2001, which places sustainable management as the central reference for forest policy<sup>1</sup>.

### b. The Carpathian Convention

Although the Carpathian Convention has not yet published any document relating to forests, it is working on these issues. The European Forest Institute in particular has instructed its Vienna centre to work specifically on mountain forests. This centre intends to work, including in partnership with the Carpathian Convention, on the subject, while gradually becoming the leading European scientific centre for mountain forests. If this is approved by the European Commission, it would represent the first concrete action on the subject.

### c. Alpine Regions

In this context, mountain stakeholders are taking action towards forest issues. Thus, several Alpine regions led by the South-Tyrol/Trentino have developed an “agenda for mountain forests” which was officially presented on 2 December, Euromontana had the opportunity to intervene to present its views<sup>2</sup>.

## 2.4. THE GUIDELINES OF THE FRENCH MINISTRY FOR AGRICULTURE, FOOD, FISHERIES, RURAL AFFAIRS AND LAND USE PLANNING (MAAPRAT) AND THE NATIONAL COUNCIL FOR FRENCH MOUNTAINS CONCERNING FOREST POLICIES

### a. Forest policy

The French policy for forests is based upon four issues:

- Valuing forests, a source of growth and employment
- Strengthening the sustainable management of forests
- Developing the exploitation of forest biomass
- Mobilising international and European efforts as regards forests

Work conducted within the framework of the National Mountain Council has led to the formulation of proposals approved by the Minister responsible for Agriculture and Land Use Planning at the meeting of the National Mountain Council on 31 January 2012. A strong focus of these proposals is “to ensure and support wood utilisation for forests in massif areas

<sup>1</sup> [http://www.cipra.org/fr/convention-alpine/protokolle-pdf-fr/protokoll\\_f\\_bergwald.pdf](http://www.cipra.org/fr/convention-alpine/protokolle-pdf-fr/protokoll_f_bergwald.pdf)

<sup>2</sup> European mountain forests: reaping full benefit of a precious asset:

[http://www.euromontana.org/images/stories/themes/foret/documents/2010-12-02\\_Mountain\\_forest\\_agenda\\_position\\_EM.pdf](http://www.euromontana.org/images/stories/themes/foret/documents/2010-12-02_Mountain_forest_agenda_position_EM.pdf)

as part of the renewal and rejuvenation of forest stands.” (Proposal 15)<sup>1</sup>. It is proposed that this takes place through financial support to the utilisation of wood in the mountains and a perpetuation of the cable circular<sup>2</sup>, which established the conditions for funding projects for the renewal and rejuvenation of mountain forests. Proposal 15 also states that the implementation of strategic tools and education on public and private forests should be made for mountain and forested massifs through their respective strategic inter-regional schemas.

Furthermore, to facilitate forest exploitation when it is of general interest or urgency, Article L151-36 paragraph 7 of the General Code for Regional Authorities provides that it is possible to prescribe or authorise “cable yarding works and the works necessary to establish intermediate areas for wood storage.” However, this disposition is not currently used. A note from Estelle WURPILLOT, Head of the Regional Service for Economy, Regions and the Environment of the France-Comte Prefecture for the attention of DGPAAT/SFDB dated 14 April 2011 suggests that the measure would have more impact if it were possible to establish a general interest declaration for “wood harvesting with cable yarding, including the prior creation of the necessary equipment (roads, wood storage areas)”.

#### b. The national plan for adapting to climate change<sup>3</sup>

France’s 2011-2015 national plan to adapt to the effects of climate change targets 20 areas that are sensitive to climate change and could play a role in reducing greenhouse gases. Several actions are defined for each area. The measures for forests are not specific to mountain forests but are still relevant to them. The actions are:

- Continue and enhance research and development on adapting forests to climate change
- Collect ecological data, promote and organise their availability, monitor impacts on their ecosystems
- Encourage the adaptive capacity of forest stands and prepare the wood industry for climate change
- Maintain biodiversity and services provided by forests in relation to natural hazards
- Anticipate and manage extreme weather events

For each action, sub-measures are defined and the manager and the partners for its implementation, the tools, result indicators and maturity are specified.

The mountain domain is also among those identified. The first of the four actions concerns agriculture and mountain forests. The sub-measures linked to mountains are:

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<sup>1</sup> National Mountain Council. Summary report of the proposals from five working groups following the meeting of the Permanent Commission of 22 June 2010.

<sup>1</sup> National Mountain Council. Summary report of the proposals from five working groups following the meeting of the Permanent Commission of 22 June 2010.

<sup>2</sup> Circular of 23 June 2009 from the Ministry of Food, Agriculture and Fishing relating to the Funding Conditions by the State general budget, for investment projects in mountain forests with a proven role against hazards in mountains in order to guarantee the sustainability of this function, via sustainable exploitation by cable.

<http://agriculture.gouv.fr/IMG/pdf/DGPAATC20093076Z.pdf>

<sup>3</sup><http://www.developpement-durable.gouv.fr/Le-Plan-national-d-adaptation,22978.html>

- Extend to the forests in mountain communities the diagnostic approach to the role of forests against natural hazards for people and property
- Continue to identify the following needs for renewing RMT (Restoration of mountain terrain) stands in forest areas at risk
- Propose action plans with regional stakeholders to facilitate the coordinated management of land resources

## 2.5. STRATEGIC GUIDELINES FOR INTER-REGIONAL SCHEMAS IN FRANCE

The forest and wood industry problem is addressed in inter-regional land use planning and development for 5 French massifs:<sup>1</sup>

### a. The Alps

Forests cover 41% of the Alps. Their development is one of the issues identified in the schema. Three aspects are discussed:

- The creation of a real wood supply from the Alps, including an organisation of the whole sector;
- The development of the local and regional market;
- The inclusion of forestry issues in general issues of land management and territorial development.

### b. The Jura Massif

Forests cover 43% of the Jura Massif. The forest and wood industries are facing difficulties concerning forest exploitation, the weak structure of the sector and the small size of processing companies. However, the production potential is high and diversified, and initiatives are springing up, for example with the establishment of the recognised brand “Jura supérieur” and the centre of rural excellence, EnerBois.

The issue identified is to find a “proactive position on timber” which involves work in three areas:

- Improving operating and recovery conditions;
- Structuring the industry;
- Developing the image of wood and industry.

The massif schema also recognises the need to take into account climate change and its possible impacts on forests.

### c. The Pyrenees Massif

The Pyrenees land use planning and development schema identifies several priority areas including:

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<sup>1</sup> Interregional patterns of land use and development of the Alps, the Jura, the Pyrenees, the Massif Central and Vosges available at <http://territoires.gouv.fr/schemas-de-massif>

- Focus 1: Aim for an exemplary environmental and heritage management. Forest management is one of the themes on which efforts must be concentrated to reach an objective.
- Focus 2: Increase the added value produced in the massif. The first and the second types of wood transformation are among the industries where potential exists to reduce operating costs upstream and develop all possible niches for downstream industries.

#### d. The Massif Central

Forests cover 36% of the Massif Central. The massif schema states that the wood industry is to be dynamised.

“Basing economic development on wood resources” while promoting a better forest exploitation and “positioning itself on two expanding markets for the wood sector” (wood energy and wood construction) are among the objectives of Focus 2 of the schema, which aims for wealth creation. The need to develop an environmental culture in the forest-wood sector, develop research in the sector, and improve wood transport possibilities are seen as the conditions for the development of the massif.

#### e. The Vosges Massif

Forests cover 60% of the Vosges Massif. The issues as regards forests are as follows:

- The management of forest resources through:
  - o Maintaining the ecological and landscape diversity of forested areas
  - o The need for increased awareness and forest monitoring
  - o New management and operations methods
- The conditions for forest exploitation;
- The reinforcement of the wood industry through:
  - o Strengthening the sawmill industry
  - o Promoting the use of wood in construction
  - o Developing the wood energy industry
  - o The rational use of wood products

The massif schema has therefore defined the strategic objective “to support the economic development of the forest-wood industry” with the priority target of supporting and developing economic activities which are dependent on the quality of the mountains’ natural and landscape resources.

### 3. MARKET, INITIATIVES AND CERTIFICATIONS

#### 3.1. THE STATE OF THE WOOD MARKET

According to the 2011 FAO report on the state of the world's forests<sup>1</sup>, 52% of European forests are destined for wood production. Between 1970 and 1990, around 700 million m<sup>3</sup> were produced annually (lumber and wood energy). After a sharp decline in production in the 1990s after the economic problems of Eastern Europe (just under 500 million m<sup>3</sup> exploited in 1995), production is rising again but has once again been impacted by the 2007-2008 economic crisis. In 2009, only 600 million m<sup>3</sup> of wood were harvested in Europe. Production in France suffered a similar decline. However, the market has since been growing. These variations are essentially due to the demand for lumber; the production of wood energy (around 150 million m<sup>3</sup>) was not affected by the 2007-2008 crisis. The specific figures are not known for mountain forests, but these regions are likely to have undergone similar variations.

The increase in demand requires an increase in wood utilisation. The study *Potential sustainable wood supply in Europe* (Hetsch et al., 2008<sup>2</sup>) indicates that the supply of European wood could be increased by 233 million m<sup>3</sup>, including 60% from European forests (the rest mainly from residue from the wood industry). Again, the analysis does not specify how much could come from the mountains.

According to the European Confederation for Woodworking industries (CEI), primary production and wood industries employ around 3 million people in the EU. Companies are mainly SMEs, although several large groups are present on a European or international scale. The CEI estimates the number of companies in the EU at 380,000, including 150,000 dedicated to furniture production.

The timber market is global, and about 10% of the wood used by EU industries comes from third countries<sup>3</sup>. In addition to the species and wood quality, which are major factors for structuring supplies, price is an essential factor, as the cost of wood accounts for more than 30% of the paper industry's total costs and 65-70% of those of the sawmill industry<sup>4</sup>. To enhance the value of locally produced timber, certification initiatives for local industries are being developed (AOC etc.), creating debate within the sector.

Within this context, mountain industries must develop strategies to improve added value and appear to have several options: reducing operating costs, improving wood quality, promoting sustainable management and associated ecosystem services, and/or steps for territorialisation.

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<sup>1</sup> FAO, 2011. State of the World's forests. Ed.: FAO. 164 p.

<sup>2</sup> [http://www.unece.org/fileadmin/DAM/timber/docs/tc-sessions/tc-66/pd-docs/Paper\\_PotentialWoodSupply\\_v18Oct.pdf](http://www.unece.org/fileadmin/DAM/timber/docs/tc-sessions/tc-66/pd-docs/Paper_PotentialWoodSupply_v18Oct.pdf)

<sup>3</sup> European Commission, 2008. Communication from the Commission to the Council and the European Parliament on innovative and sustainable forest-based industries in the EU - A contribution to the EU's Growth and Jobs Strategy, COM(2008) 113 final. 12 p.

<sup>4</sup> *Ibid.*



### 3.2. INITIATIVES AND CERTIFICATIONS

Two main types of certification currently exist worldwide to raise awareness of sustainable wood production from exploited forests.

#### **PEFC - Programme for the Endorsement of Forest Certification Schemes**

PEFC certification guarantees that wood or paper come from sustainably managed forests. It was established in 1999 at the initiative of 12 European countries. This programme, which very quickly received support from various stakeholders, has developed into an internationally recognised certification system. PEFC certification is meant to promote environmentally friendly, socially beneficial and economically viable forest management. The PEFC procedure involves all stakeholders in the wood domain: forest owners, industries, environmental organisations, scientists, and forest users.

Currently, PEFC is the largest forest certification system in the world, covering over 224 million hectares of certified forests. For example, the 100,000 ha of the Urbión model situated between the provinces of Burgos and Soria in Spain, are PEFC certified.

[www.pefc.org](http://www.pefc.org)

#### **FSC – Forest Stewardship Council**

FSC Certification aims to ensure that forest products come from sources that are verified and exploited responsibly.

FSC was founded in 1993 in response to fears about deforestation. An international, non-governmental, independent non-profit organisation was then created with the aim of promoting responsible forest management around the world. Members of the association include environmental or social organisations from the forest and wood sectors, certification organisations, and others.

FSC Certification is a voluntary commitment. The certified products are checked from the forest of origin and throughout the industry. 10 certification principles are defined, including not only aspects of management but also environmental and social demands. The FSC General Assembly sets these principles.

FSC Certification is obtained via accredited offices. It is awarded at a forest level (forestry certification) or a chain level (Chain of Custody Certification or Chain of Control, CoC).

On a worldwide level, the area of forests certified by the FSC currently exceeds 130 million hectares across all continents.

[www.fsc.org](http://www.fsc.org)



## SECTION 2

### 11 GOOD EUROPEAN PRACTICES

# TICINORO - Chestnut Wood Products (Switzerland)

## 1. CONTACT

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www.ticinoro.ch

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The company is situated in the Canton of Ticino (2,800 km<sup>2</sup>), in Switzerland.

TICINORO is a sawmill specialising particularly in chestnut products made from wood from the area's forests. This wood is intended for the production of high added value products to meet the requests of individuals or Swiss architects.

2010 revenue: CHF 1,200,000 (€994,000).



TICINORO: chestnut wood, the old mill, the new mill (source: Ticinoro, [www.ticinoro.ch](http://www.ticinoro.ch))

## 2. DESCRIPTION OF THE PRACTICE

The Ticino district (southern Alps) is densely forested. It has 140,000 ha of forests, covering 52% of its territory, much of which provides protection functions. The forest stands are characteristic of the Mediterranean climate and include, in particular, high-quality chestnut (*Castanea sativa*) and larch (*Larix decidua*) trees. However, these trees are rarely harvested. The timber, when used, is for energy production.

For more than 15 years, TICINORO has developed very high-quality products from chestnut and larch wood. It owes its success to the complementary skills of the business partners, to the specific expertise in working with these types of wood, and to the choice of working for a niche market in Ticino and the rest of Switzerland.

### 3. THE GROWTH OF THE COMPANY

#### **Creation of the Sawmill**

The TICINORO sawmill was constructed in 1981 by a group of people from German-speaking Switzerland who settled in the Onsernone Valley. The sawmill was originally to meet the needs of this group, but as it was the only sawmill in the valley<sup>1</sup>, it developed to serve local inhabitants (farmers, joiners, carpenters etc.).

#### **Specialisation in chestnut trees thanks to a political leadership**

Most of the chestnut trees in the Ticino forests are no longer sufficiently maintained. Indeed, the district has experienced a transition from a primary to a tertiary economy since the 1950s. Chestnut wood is no longer a resource for the local population (fewer farmers, labour too expensive for harvesting etc.) Projects must therefore be implemented to encourage the exploitation of chestnut forests.

The VALECAS programme (*valorizzazione del Castagno* – chestnut tree exploitation) was implemented in 1994 by the district to redevelop 20,000 ha of unmaintained chestnut trees while supporting the innovation of chestnut wood-based products. The programme also funded a new log classification, which helped to more effectively promote and facilitate the sale of timber.

U. Pfenninger, a member of the group running sawmill, had the idea of participating in this programme to develop chestnut wood-based products. Participation in this programme has since funded the process of prototyping and product definition (siding, patio, flooring).

The mill was therefore able to develop know-how to better exploit chestnut wood and get the best return while defining its product line. It was then able to develop marketable products and find a place in the Swiss chestnut wood market.

#### **Association with partners with complementary skills to develop the business**

In 2008, when approaching retirement age, U. Pfenninger chose to become a limited company by partnering with Marco Delucchi and G. Kuratle, so as to ensure the continuity of the sawmill's activity. Marco Delucchi is in charge of the technical aspects and is paid by the sawmill. G. Kuratle is a dealer in wood products. Meanwhile it provides a sales platform in German-speaking Switzerland. The partnership with TICINORO allows merchants to expand the range of products on offer.

These associates have each bought a 40% stake in the company. When U. Pfenninger retired, his shares (20%) were purchased by G. Kuratle, who now holds a 60% stake. This has not generated any conflict to date, with both partners agreeing on decisions.

The products are top-of-the-range (see the range of products on the website).

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<sup>1</sup> While there were more than 20 mills in the nineteenth century in Ticino, there remained only 6 or 7 after the second world war and only four remain today.

## 4. COMPANY MANAGEMENT

### Wood supply

TICINORO buys wood only from Ticino's forests. Ticino's chestnut forests are mainly private. Harvesting is complicated due to fragmentation, the absence of boundaries, and joint ownerships linked to inheritance. Most chestnut forests are not sufficiently well maintained, so that the wood quality is mediocre (short, twisted, burned wood etc.). Only 10-15% of the wood needed for sawmills is of the right quality. 15% of the wood is used to make logs for posts, the rest used for wood energy.

Adequate connection infrastructure is also lacking (only 4m of forest roads/ha of forest in Ticino compared with an average of 34m/ha in Switzerland). The cost of forest roads (up to CHF 3000/€ 2500 per linear metre) is high due to the topography and there are landscape problems. Private contractors carry out harvesting, usually by cable or by helicopter if the areas are inaccessible.

The total volume of timber purchased by TICINORO is about 1000 m<sup>3</sup>:

- 700 m<sup>3</sup> in log form, transformed by TICINORO;
- 300 to 400 m<sup>3</sup> sawn by third parties, as the capacity of the TICINORO sawmill is insufficient.

The purchase price is approximately CHF 300/m<sup>3</sup> (€250) plus the cost of transportation, about CHF 50 /m<sup>3</sup> (€41).

### Processing

TICINORO has a sawmill (machines for debarking, sawing, planning and kiln drying) as well as a carpenter. Processing does not require any special tools, but specific knowledge to get a good yield from the logs. Given the morphology of chestnut wood, the timber yield is only 50%.

By-products from processing are used as firewood, first to operate the wood-drying oven. The remaining wood, around 20%, is sold to individuals.

### Products

Chestnut wood products in the TICINORO standard range are as follows:

- Floors, flooring and floating floors;
- Horizontal siding, rhomboid siding, vertical siding;
- Terrace flooring
- Benches.

All standard products are detailed on the company website. In addition to these products, TICINORO works to meet customers' specific needs, including orders for products with specific dimensions.

### Revenue:

2009: CHF 1,400,000 (€1,160,000)

2010: CHF 1,200,000 (€994,000)

The decrease in revenue between 2009 and 2010 is due to a reduction in orders placed in the second half of 2010. Mr Delucchi explains this by a change in clientele in the construction market: as mortgage rates are low, people with low incomes are able to afford construction. In order to keep costs down, these people will not choose high-end products like those offered by TICINORO.

This trend continued into 2011, a year with an expected revenue similar to that of 2010.

### **Company operations**

As well as the manager, Mr Delucchi (since Mr Pfenninger's retirement in July 2008), TICINORO employs:

- 2 sawmill operators
- office manager (Mr Delucchi's daughter) 80% FTE.

The total wage bill is CHF 250,000/year (€ 207,000).

## **5. OPPORTUNITIES AND MARKETING**

### **Certification**

The flooring and garden benches are sold under the label "*marchio Ticino*"<sup>1</sup>, which certifies the origin of 100% Ticino chestnut.

Obtaining the label costs around CHF 350/year (€290) and requires the ability to justify the source of the wood used. This constraint poses no problem for TICINORO since all wood purchases and uses are documented.

### **Developing the clientele**

Until 2008, sales were about two-thirds in German-speaking Switzerland and one-third in Ticino, for a total turnover of about CHF 250 – 300,000. This division is explained by the Zurich origins of Mr. Pfenninger and his limited proficiency in Italian. The partnership with Mr Delucchi, from Ticino, increased sales in Ticino, which now account for half of the turnover. This was possible due to the good relationship Marco Delucchi formed with the people of Ticino, aided by his command of Italian. The combination of the three partners helped increase the turnover to CHF 1.2 million.

Customers in Ticino are individuals or contractors (architects, joiners, carpenters). No TICINORO products are currently commercially available in the canton. This is explained by the fact that the cost of the products is already high when leaving the sawmill. By selling through shops, the added margin makes TICINORO products much less competitive: products from neighbouring Italy are less expensive due to cheaper labour which allows lower production costs. In addition, products sold by sales platforms are generally not high-end products. Shops are not a good way to reach TICINORO's target clientele. Some of the

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<sup>1</sup> The label "Marchio ticino" was originally created to promote the food of Ticino; 50% of the raw materials for these products must come from Ticino. In the case of building materials, 100% of the raw material must come from Ticino. All the processed wood in the sawmill therefore comes from Ticino.

products are, however, sold through G. Kuratle, who then retains a 35% commission on the individual's final price (half of which is used to give customer discounts).

However, unlike wholesalers, TICINORO offers great flexibility to its customers (dimensions on request, speed due to stocks for standard thicknesses). This advantage allows the company to have a privileged position in this market segment, despite the fact that processing small orders involves higher administrative costs.

### **Marketing Strategy and Advertising**

TICINORO has a website in two languages (German and Italian) which contains a presentation video about the company and details about the company's standard products.

After thirty years in sawmilling, the company decided to invest in marketing, by placing adverts in architecture and interior design magazines (2 or 3 publications in 3 magazines for an investment of CHF 15,000/€12,400). In addition, at the request of a mutual acquaintance, a journalist working for the newspapers *Tages Anzeiger* (Zurich) and *Der Bund* (Berne) wrote an article on TICINORO. This free advertising had a more significant impact than the magazine adverts, resulting in a peak of visits to the website following the publication of the articles.

## **6. IMPACT**

The impact of the TICINORO company on local chestnut forests is positive, as the company offers an outlet for this specific type of wood. However, it is limited due to the size of the company.

TICINORO also has a direct effect on the local economy through the jobs it creates: 2 sawmill employees + 1 fashioning employee for the sawmill (20-30% FTE) + 1 part-time worker (80% FTE) for administration.

## **7. KEY FACTORS FOR THE SUCCESS AND TRANSFERABILITY OF THE PROJECT**

According to Mr Delucchi, the key factors in the company's success are:

- **Local production for a local market**, by promoting the origins of the wood. A certain clientele is ready to spend a bit more on this factor, and constitute the TICINORO clientele. The label is therefore a supplementary marketing asset.
- **The choice of high-end products**: the wood used is attractive and the products are of very high quality. This implies being very attentive to the customer and being ready to exchange products in case of problems to ensure customer satisfaction.
- **A significant investment in marketing**: it is necessary to be available to make oneself known and to take the time to talk with customers. Visits to the mill can be made, examples of products can be shown, and references presented. Mr Delucchi attributes 80% of the company's success to this aspect of his work.

Based on this, two factors are extremely important for success in this type of business:

- **Providing the company with a brand image**, by being aware that establishing a good reputation means spending time on advertising.
- Before starting, **entrepreneurs must have a clear idea of the market they are entering and the way in which they want to succeed in it**. This means not only knowing the total size of the market but also being realistic in their ambitions and establishing a marketing strategy.



Products from the TICINORO company: parquet, terrace, siding (source: M. Delucchi)



# GURNDIN - Harvesting and cable yarding (Italy)

## 1. CONTACT

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The GURNDIN company is based in the Trentino-Alto-Adige region of the Autonomous Province of Trento. However, this wood harvesting company, specialised in cable yarding, operates throughout the Alps and has gained a solid reputation thanks to an effective work organisation.

Annual revenue: €2.5 to 3 M



The GURNDIN company (source: <http://www.gurndin.com/>)

## 2. COMPANY DESCRIPTION

The GURNDIN family business was established in 1975 and operates throughout Europe in the wood harvesting, transport and marketing sectors. Their area of activity is the Alps: France, Italy, Austria, Switzerland and Germany. The main species harvested are spruce (70%), and to a lesser extent fir, pine and larch.

The company specialises in timber harvesting by cable. The trees are cut and hauled by cable to a drop zone. This is undertaken whatever the tree size and site conditions. The company also offers its services in:

- Felling and mechanised tree processing on difficult or steep terrain;
- Hauling logs;
- Cutting undergrowth and removing slash in areas affected by storms or avalanches by extracting entire trees by yarder, specializing in harvesting logs and firewood;
- Mechanised harvesting and log and firewood hauling with tree harvester and forwarders;
- Sale and supply of firewood and construction wood;
- Measuring and counting wood.

The company's success is based on modern equipment and its family management.



### 3. THE COMPANY AND ITS OPERATIONS

#### Creation

Mr Gurndin, a lumberjack, founded the company in 1975. It was then taken over and expanded by his three sons. The company soon became specialised in harvesting and cable yarding, which are now its expertise.

Sometimes, harvesting requires the use of a helicopter to build the landing platform. However, this now occurs less frequently given the high costs. Instead, the machines are designed and developed to be more easily transportable, to avoid using helicopters.

#### Human Resources

Mr. GURNDIN and his three sons are employed by the company as well as 10 to 12 employees. Every year, one or two interns are recruited to support the team.

The constant development of new technologies has had an impact on the number of people employed by the company: fewer people are required to install and operate machinery. On the other hand, universities and forest management training programmes do not provide the necessary sophisticated knowledge and techniques to their students. The GURNDIN company must therefore train its own staff. They normally leave quickly, to try to start up their own businesses.

#### Investment and equipment costs

The company invests approximately €700,000 – 800,000 annually, mainly to buy new machines. Equipment must also be renewed and regularly maintained: cables (replaced every 2-3 years), hydraulic equipment, sensors etc.

In Italy, 40% of the cost of a cable yarder can be subsidised if the total cost of the machine is over €250,000.

#### Machines used

The company owns various harvesting machines.

- Cable yarder

A method used especially in areas that are otherwise inaccessible because of steep slopes. A helicopter may be used for installation.

The equipment has a winch truck. During installation, the winch hauls itself with the help of the cable to the cable car station from which the other necessary cables are mounted. The model accepts loads of up to 5000 kg and covers distances of 200-2000 m, or more where necessary.

Equipment details:

Wyssen W40 Winch truck

Bergwald Crane trolley, Useful load 4000 kg

Bahco 160 Winch truck

Koller Crane Trolley, Useful load 2500 kg

Wyssen HY3 Crane Trolley, 4000 kg

- Mobile cable mast

Used especially for the “whole tree” harvesting system, in areas that are inaccessible to other methods such as steep hills or wetlands. Compared to the traditional cable method used mainly in the mountains, this system is more flexible.

Technical data:

Valentini Model V 1000

Reach 1000 m with 7 t traction

Average speed when empty 7 m/s

Reach 1200 m with 5 t traction

Maximum height of mast 18 m

Forwarder: ASTRA HD8 8x8.45 truck Mux Extraverstärkt

Model: Valentini V 1500 (improved version, especially suitable for long cable lengths and for faster working speeds)

Length of cable: 1500 m, traction force: 7 t

Speed when empty: 9 m/s

Length of cable: 1800 m, traction force: 4 t

Maximum height of mast: 18 m

Forwarder: camion ASTRA HD8 8x8.45 Mux supercharged

- Mechanical harvesting

A system used in the steepest terrain and in Alpine areas thanks to the technical development of its machines.

Equipment:

Timberjack 1010 forwarder; payload 11,000 kg

Timberjack 1110 forwarder ; payload 12,000 kg

Caterpillar harvester 580; cutting diameter 72 cm

Skogsjan harvester 495; cutting diameter 65 cm

#### 4. ORGANISING HARVESTING

GURNDIN works in Italy, France, Switzerland and Austria. Its clients are public or private.

##### **Planning the harvest**

Each harvest requires advance preparation and planning. Once contact is made with the client and the work area is determined, the company takes the following steps:

- Contact with the forest administration to determine if the forest to be cut is a protected forest (in which case the laws or specific regulations must be observed). Based on this and characteristics of the area, the amount of timber to be felled is estimated.
- Preparing an offer for the customer and planning the work.
- Choosing the machines depending upon the nature of the terrain. Important factors include accessibility and the distance to roads.

- Site setup: depending on the land, assembling the equipment takes one to three days (intermediate masts to be installed on convex ground). Only two – three people are needed for assembling and harvesting, thanks to technology and good staff training.
- Preparing the harvest and felling by cable, cable car or carrier. On steep or muddy land, the trees to be felled are marked individually after the line for the cable line is located. On accessible land, trees are marked and the transport route is determined accordingly. The marking is done by the forest officer or by GURNDIN. In general, 1000 to 2000 tonnes of wood are harvested with a cable.
- GURNDIN rarely sells the wood. Where applicable, the wood will be bought from the forest owner and transported and sold to a nearby sawmill.

### **Value of contracts and volumes harvested**

Stumpage contracts amount to € 50,000 – 60,000 for the smallest and go up to €250,000. Major costs incurred in construction sites, apart from the fees directly linked to the stumpage, are:

- Transportation of machinery on-site: paying tax for using roads for abnormal loads.
- Room and board for employees: the cutting sites are all over Europe, the company usually rents an apartment for the duration of the project.
- Approximately 100 – 15 m<sup>3</sup> of wood can be harvested per day, corresponding to approximately 80 – 100 m<sup>3</sup> per hectare. Harvests are organised in such a way as to have rotations of 30-40 years between cuts. On difficult terrain, more wood will be harvested so that a new harvest can take place after a longer period.

## **5. MARKETING ACTIVITIES**

No marketing activity is carried out actively. Word of mouth and a good reputation within the Alpine area are enough for developing the client base. Demand is higher than the services that GURNDIN can provide.

GURNDIN carries out a few advertising activities:

- Participating once or twice a year in fairs in the Alpine region to demonstrate how their machine works (example.g., participating in the Interforst fair [www.interforst.de](http://www.interforst.de)). They participate in these events not to promote the company but to maintain and enhance relationships with clients.
- A website in four languages (German, French, English, Italian). An external service company develops the site. The content (text and photos) was provided by GURNDIN.

GURNDIN works in the Alpine area but wishes to establish its reputation outside of Europe. However, the company is experiencing difficulties in achieving this.

## 6. COOPERATING WITH RESEARCH

GURNDIN collaborates with the CNR – Ivalsa<sup>1</sup> Institute (National Research Council – Institute for the Exploitation of Wood and Trees species) Dr. Spinelli from the institute follows and compares the work carried out by GURNDIN with that of other companies: the machines are compared, the necessary time to mount a machine is measured etc. This collaboration allows GURNDIN to see how they are positioned in terms of market efficiency. Thanks to their innovations and advanced techniques, these comparisons often show that GURNDIN is the leader, which bolsters the company's reputation.

## 7. FACTORS FOR SUCCESS AND LIMITS

### Researching Technical Excellence

The machines are constantly being developed to improve and solve technical problems which arise. GURNDIN collaborates directly with the company that supplies the machines to define new solutions that suit their needs. In this way, the equipment has been improved to reduce the need to use helicopters in inaccessible places.

### Difficulties for growth due to lack of qualified staff

Given the demand, the company could invest in more machines. However, it has difficulties in recruiting suitably qualified staff and must therefore conduct staff training itself. Then, once they are trained, the workers wish to leave to start up their own companies. GURNDIN just cannot expand beyond its current size at the moment.

### Limits of the French Market

The potential for exploiting the French market is very significant, but faces an organisational problem: the lack of cooperation in the field. With more cooperation, there would be less waste and GURNDIN estimates that the number of contracts in France could triple.



GURNDIN (source : <http://www.gurndin.com/>)



# ARPANA Formación Forestal

## Innovation in machinery and specialised training (Spain)

### 1. CONTACT AND INFORMATION

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The company ARPANA Formación Forestal is situated in the autonomous Community of Navarra. It focuses on forestry in mountainous areas and vocational training.



ARPANA FF : movable arm bulldozer; maintenance training (source: ARPANA FF)

### 2. DESCRIPTION OF THE PRACTICE

ARPANA Formación Forestal carries out forestry in mountainous areas in the Navarra Pyrenees. Its machinery is adapted for steep slopes.

The company has invested heavily in the latest generation of forestry machinery (wood processor and autoloader), which allows much of its work to be mechanised, to achieve a more efficient performance and reduce environmental impacts. ARPANA Formación Forestal

S.L. also organises specialised training programmes for employees and forestry technicians in real working conditions with highly practical training.

### 3. COMPANY CREATION AND DEVELOPMENT

#### **The forests of Navarra**

Navarra is situated in the north of the Iberian Peninsula and covers 10,400 km<sup>2</sup>, with a population of 636,924 inhabitants in 2010. 65% of Navarra is forested (650 000 ha). The sale of wood is one of the main sources of revenue for the northern towns in Navarra where around 400 companies reliably employ some 5000 people.

The forests in Navarra are 70% public, belonging to the government or the municipalities. 42 forest sites are part of the Natura 2000 network and occupy 25% of the territory. 60% of the forests have a forest management plan, and 50% are certified. The municipalities and the governments of Navarra are therefore the main stakeholders on a production level. Some municipalities work jointly to carry out wood sales. Similarly, private forest owner groups have been set up, such as FOESNA-ZURGAIA, the sector's largest forest owners' association, to better manage and exploit forest resources. Exploitation is also complicated by the lack of infrastructure: Navarra as a whole has only 1190 km of forest roads - which is clearly insufficient to adequately carry out forest exploitation – and the situation is even worse in the mountain regions.

#### **Creation of the company**

Faced with the gradual abandonment of rural areas and the increase in accident rates in the forest sector, the idea emerged of a company that would educate new professionals who would work in real working conditions with the most advanced machinery, to become the leader in the sector.

It took one year for the company to become operational. Preliminary studies began in 1999, and the following year the company was registered and carried out its first tasks. The number of employees and the acquisition of machines gradually increased.

#### **Funding and necessary resources for the creation of the company**

The company's financial resources came initially from a small capital investment from the project's partners.

The company started out with one manager, trained in forestry, and 4 employees. The team then expanded and now has 12 members (1 forest engineer, 1 technical engineer, 1 operations manager, 4 machine operators and 5 labourers).

With regard to material resources, office space is rented, and vehicles, tools (chainsaws, brush cutters, pruning saws, maintenance tools) and individual protection equipment has been purchased. When the company started, a vehicle was rented, and the machines were purchased on the condition that they would be paid for once the first jobs were paid for. Investments were made gradually in heavy machinery: autoloader, processor, with excavator with capstan, bulldozer and skidder.

Public support was requested to purchase an excavator with capstan and new machines (selfloader and processor). This support was cofunded by the Navarra government and EAFRD<sup>1</sup>. The advantage is that this support helps to acquire and renew the stock of machines. The drawback is that the investment (self-funding) to have the right to this assistance is relatively high.

### **PEFC Certification**

ARPANA Formación Forestal S.L. is certified with the PEFC<sup>1</sup> label, ensuring quality control since 2006. This means that the company carries out high-quality forest work, respecting the health and safety standards for workers and the environment. The company guarantees the traceability of its forest products up to the processing stage, so that the consumer has the guarantee that the final product has come from a sustainably managed forest.

The challenge to make certified products is seen as an opportunity to increase the added value of forest products. However, consumers are not currently well informed. There is therefore no comparative advantage vis-à-vis competitors in regard to undertaking forestry operations.

## **4. COMPANY ACTIVITIES**

### **Training activities**

The training offered includes the following areas:

- Risk prevention in the workplace
- Use of the chainsaw and brushcutter
- Using heavy forestry machinery
- Forest fires
- Non-timber forest products

All courses are practical and take place under real working conditions. In 2010, over 1400 hours of different training courses related to the forest sector were given: 842 people and 15 organisations participated.

The company is a leader in the region for training in the forest sector. Municipalities require training by the company to employ people to carry out forestry in community forests.

### **Forest Exploitation Activities**

The main species harvested are beech, mainly for firewood (fluctuating demand throughout the year), and Scots pine and Corsican pine for the production of poles (electric or telephone), packaging or paper. The demand for poles is currently high due to the relatively low prices as result in the increase in wood supply after the Klaus storm. On the other hand, demand for wood for construction purposes (formwork, roofing) has declined dramatically because of the crisis suffered by the construction industry.

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<sup>1</sup> *Programme for the Endorsement of Forest Certification* (Programme de Reconnaissance des Certifications Forestières) – see <http://www.pefc.org/>

With respect to stumpage contracts, ARPANA Formación Forestal works based on availability and market prices. The offer depends on the auction sales carried out by the majority of public owners. Prices are largely influenced by the paper industry.

The company has chosen to invest in specialised machinery so that it can work in the best possible conditions in mountain areas. The latest investments have allowed the purchase of new machinery: all-terrain 4x4 vehicles to improve adhesion to the ground and to reduce damage to it. In the steepest areas, the entire tree is pulled over to the forest road (after being felled with a chainsaw) with a capstan-equipped excavator, allowing for better handling and reducing damage to trees which are still standing. Then a processor cuts and classifies the trees according to product and quality, and the autoloader loads all the products onto the loading station.

The company has also chosen to invest in improving its production costs by mechanising some forestry work. For example, it eliminated the manual stacking of logs after cutting. This has a positive effect on workers, who have to carry fewer heavy loads.

ARPANA Formación Forestal was also one of the first companies in Navarra to take specific measures to reduce the impact of exploitation on protected areas. For example, to reduce the environmental impact caused by the chainsaw oils, the company only uses biodegradable oils in the Natural Parks. Apart from the equipment, specific practices are used in protected areas (cable).

## 5. THE ECONOMIC IMPACT OF THE COMPANY ON THE REGION

- 12 direct jobs and the impact from the purchase of supplies in the region;
- Job training attracts people from other regions in Spain, and more widely in Europe, which has positive repercussions on the area's economy.

## 6. KEY FACTORS FOR THE SUCCESS AND TRANSFERIBILITY OF THE INITIATIVE

The main factors for the company's success are the following:

- The challenge of mechanisation and the quality of forestry. This implies improving work efficiency, especially in mountain areas. One of the priority objectives of the company is the execution of work to ensure the quality of the products in the safest possible way, guaranteeing traceability in the same way as with the PEFC certification.
- **A high degree of employee professionalisation and specialised training.** Workers were trained specifically for the work that they perform and know the correct techniques which should be applied to carry out quality work. At the same time, varied courses on forest issues are offered by highly qualified professionals



- **Innovation in machinery and environmental protection** The company employs close-to-nature forest management criteria for the forest, so that the work has minimum impact and the volume of timber growth reaches the highest quality. For this, adaptations to machinery have been planned which reduce damage to the forest during exploitation, and eliminate the manual load for workers.

The development of such a company is reproducible throughout Europe with a well-organised team and the presence of a market for these products. The initiative can help create jobs in mountain areas, improve the quality of forests in terms of wood production and from an environmental point of view: enhancing biodiversity, improving the landscape etc. and also promoting the use of renewable products.

# Hallingdal Trepellets - Wood Pellet Production (Norway)

## 1. CONTACT

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The Hallingdal Trepellets company is situated in the town of Ål (1170km<sup>2</sup>) in the county of Buskerud between Oslo and Bergem. It takes its name from the valley of Hallingdal which includes six municipalities, including Ål.

Hallingdal Trepellet is a wood pellet production company that uses the heat from a neighbouring incineration plant. The raw material comes from the surrounding forests (1.000.000 ha of productive forest in the valley of Hallingdal) and waste from nearby paper pulp mills.



Hallingdal Trepellets: the plant; the raw material; pipes between the incineration plant and the Trepellets plant; wood pellets (source: Bård Strige Øyen, Gulbrand Gulsvik).

## 2. COMPANY DESCRIPTION

Hallingdal Trepellets is a wood pellet production company founded in 2005. Annual production is around 25 000 tonnes which requires around 55 000 m<sup>3</sup> of logs. Wood comes from the region's private forests in the valley of Hallingdal, situated between Oslo and Bergen. This valley has 1,000,000 ha of productive forests.

The wood comes from an area of up to 100 km around the plant. The logs are passed through a grinder. The chips are dried using the heat from the region's waste incinerator. The dry chips are then crushed and pressed into pellets. The pellets are stored in large silos until they are sold. The current time for pellets to be produced from logs is around 4 hours.

### 3. COMPANY CREATION AND DEVELOPMENT

#### **The forest in the Hallingdal region**

The Hallingdal Valley has around 1 million hectares of forest. Around 2% is preserved for the protection of flora and fauna, according to the Norwegian standard for living forests<sup>1</sup>. As Hallingdal is a very touristic region, recreation is also very important. Hunting and fishing are also practised by owners directly or people buying the rights to carry out these activities.

The region's forest is 90% private; on average, owners have 30 ha of forest. The main species are spruce (60%), Scots pine (35%) and birch (5%).

Forest exploitation results in the production of lower-quality lumber and pulpwood. Before Hallingdal Trepellets was created, there was no market for pulpwood in the region. It was necessary to export it large distances in order to sell it (190 km to the pulp mill at Follum and 230 km to Drammen/Lierstranda), resulting in high transportation costs, reducing profitability, and threatening continued operations in the forests. The creation of Hallingdal Trepellets has provided a local outlet for pulpwood and ensured the profitability of the forests.

#### **The creation of Hallingdal Trepellets**

A waste incineration plant, Hallingdal Renovasjon IKS was created in the 1980s in Hallingdal, producing a large quantity of unused heat (25 GWh/year). At this time, the forest sector was threatened by the absence of an outlet for low-quality wood. The idea of using this heat to dry rough wood chips and produce pellets from pulpwood was put into practice, the result of collaboration between Hallingdal Renovasjon IKS and local forestry companies. This project was also in line with the actions of local municipalities in the context of climate and energy plans. Strong political support has therefore enabled the project, seen as one of the main tools for achieving the plans.

A three-year pilot project was implemented between 2002 and 2005 to develop the project and the management plan. The plant was then built between 2006 and 2007.

#### **Funding and necessary resources for the creation of the company**

52 million Norwegian Krona (around € 6.8 million) were needed to create the company. Several local investors have provided resources<sup>1</sup>, many of which are public structures involving Hallingdal municipalities.

A government grant through the ENOVA programme<sup>2</sup> (national fund to promote the restructuring of Norway's energy use and production) has also provided NOK 9.5 million (around € 1.2 million), which were paid once the plant was built.

The wood pellet production plant was built and the company started by employing 5-6 people, and developed so much that now 12 are employed.

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<sup>1</sup> Viken Skog BA (cooperative owned by forest owners selling wood and related services and has an industrial policy) Miljøvarme VSEB (resulting from mutual commitments from Viken Skog and Buskerud Energi for the development of bioenergy in Buskerud), Hallingdal Kraft nett AS (companies from a local energy network owned by the Hallingdal municipalities, the Hallingdal energy, Ustekveikja Energy (power plants and electricity sales), Hallingdal Renovasjon (Waste incineration plant, owned by all the municipalities of Hallingdal),

<sup>2</sup> <http://www.enova.no/sitepageview.aspx?sitePageID=1346>

## 4. MANAGING THE INITIATIVE

### Wood supply

Wood purchased comes from forests situated within about a 100 km radius of Hallingdal. This is lower quality wood, such as wood resulting from thinning. The price varies from 140 to 200 NOK/m<sup>3</sup> (roughly 18-26 €/m<sup>3</sup>), which partly covers the cost of thinning (200-220 NOK/m<sup>3</sup>; 26-29 €/m<sup>3</sup>). Hallingdal also recovers the bark from the paper pulp plant in Sokna, 115 km away.

The timber is then converted for the production of pellets. The drying stage for wood chips uses the heat generated by the neighbouring waste incineration plant.

### Supporting the company through the development of a local heat network

Some of the factory owners (Hallingdal Kraftnett, Ustekveikja Energy and Hallingdal Renovation) created the company Hallingda Bioenergi. A production unit for supplying heat from a local network using the pellets produced by Hallingdal Trepellets was built. The heat produced is sold to network users.

## 5. THE IMPACT OF THE COMPANY ON THE HALLINGDAL REGION

### Economic impact

Hallingdal Trepellets currently employs 12 people.

In addition to this direct impact, the creation of the company has a local indirect influence by strengthening the local forest industry, by making thinning profitable and by using low-quality wood or waste wood from cutting. It is estimated that there will be an increase in employment in the forest sector within 5 years.

Furthermore, supply through a local heat network means that less of the hydroelectricity produced in the valley is used. Thus, this energy can be sold outside the valley, thereby injecting more revenue into the region.

### Environmental Impact

Establishing Hallingdal Trepellets and developing a local heating network has played an important role in implementing the climate-energy plans of local municipalities.

## 6. KEY FACTORS IN THE SUCCESS AND TRANSFERABILITY OF THE PROJECT

According to the manager of the company, three key factors have enabled the Hallingdal Trepellets project:

- **Availability of local resources**
- The opportunity **to use the heat generated in a neighbouring factory**, which would not be used otherwise.
- **Political support, involving local stakeholders and long-term prospects and commitments.** The plant owners can economically support the plant's development and have a long-term vision that prevailed during decision-making.

However, the plant has experienced two fires that affected the company's profitability. The damage was repaired, and the plant could remain in operation thanks to the support of its investors.



Hallingdal Trepellets: wood chips, wood storage, the plant (source: Bård Strige Øyen, Gulbrand Gulsvik)

# Materialbanken AS - Heavy timber use (Norway)

## 1. CONTACT INFORMATION

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Materialbanken is located in the County of Hedmark (27,397 km<sup>2</sup>).

The company is a sawmill, created to produce traditional building components from heavy timber. It then diversified to offer a wider range of products.

2011 revenue: NOK 25 million (€ 3.3 million)



Material Banken : the company's wood and products (source: <http://www.materialbanken.no>)

## 2. DESCRIPTION OF THE PRACTICE

Materialbanken (the material bank), located in the county of Hedmark in Norway, began operating in 1996. The company uses the heaviest timber from local forests (pine and birch) for the construction of new houses and farming buildings and to restore old wooden houses in the Røros region (the town is listed as a UNESCO World Heritage Site).

When the company was created, the objective was to establish a special service in the market for restoring old houses in mountainous regions. However, the company has diversified, and new construction projects make up the majority of contracts.

Collaboration with the Norwegian University of Science and Technology has encouraged the development of new housing construction techniques. Heavy logs grow very slowly, and



have very dense wood, which means that very durable houses can be built without the need for wood impregnation.

### 3. THE COMPANY AND ITS OPERATIONS

#### **The creation of MaterialBanken**

The municipality of Røros is located in the neighbouring county of Sør-Trøndelag. This mountainous region was an important mineral producer, with Røros as an important mining town. There are over 80 traditional wooden houses in the municipality listed as a UNESCO World Heritage Site. Maintaining these wooden houses requires the use of heavy timber (with a diameter exceeding 0.5 m) which grows slowly, resulting in very dense wood. The wood is also impregnated with resin. These characteristics make it a very durable material for exterior use without the need for impregnation.

In 1996, the municipality of Røros created Materialbanken (MB) to produce the wood needed for the maintenance and restoration of the buildings of Røros and its neighbouring municipalities. Prior to this, wood was imported and mainly from Russia. The creation of MB allows the municipality to have a local supplier and to have traditional products made according to regional artisanal techniques. This also created opportunities for heavy timber which, before the creation of MB, was either left unharvested or sold cheaply to processing plants.

When it was created in 1996, MB belonged to the municipality. In 1999, the local forest owners association<sup>1</sup> expressed interest in taking part in MB's activities. The local forest owners' association was already cooperating with MB to sell wood to private owners. This has allowed the participation of the association in the management of MB as the company became private.

#### **Supply of raw material**

MB uses logs and also sawn wood bought from sawmills in the Hedmark region. MB buys logs from local forests and from the county of Hedmark, up to 200 km from the sawmill.

The annual production of MB is about 17,000m<sup>3</sup> of wood, produced from 7,000m<sup>3</sup> of logs, around 6-7,000 NOK/m<sup>3</sup> purchased (€780-920/m<sup>3</sup>); and 10,000m<sup>3</sup> already sawn, around 2,000 NOK/m<sup>3</sup> purchased (around €262/m<sup>3</sup>). The wood is 95% pine. Spruce and birch respectively represent less than and 5% and 1%.

#### **Business development and investments**

When it was created, MB had only 1.5 employees and worked with a small sawmill. Although most of the wood sold is for restoring houses, new products were developed when opportunities arose, i.e. when demand was expressed locally: siding, wood terraces, roofing,

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<sup>1</sup> The association Glomenskog covers a large majority of private forest owners (there is almost no public forest in the region). It is sometimes in charge of managing the forest instead of private owners.



the possibility of buying construction components, clapboards, components for building log homes. Investments were then carried out every year to ensure diversification or increase production. The main investments made are the following:

- 2000: replacing the original saw mill with a new one;
- 2004: constructing a drying chamber, buying a planer and a clapboard production unit. The clapboard production unit was developed after a trip to Austria and thanks to a local machine supplier. This allowed a machine specifically adapted to the needs of MB;
- 2005: expanding the sawmill through the purchase of a second sawmill line;
- Investments for future planing machines.

The revenue of MB in 2011 was around NOK 25 million (€ 3.3 million), an increase compared with 2010 (NOK 21 million - €2.7 million). The prices of MB's products are generally higher than those from neighbouring Sweden. However, the company produces products of very specific quality (old wood clapboards etc.) for which demand has remained constant, despite higher prices, as well as large quantities of standard building components for houses bringing competitive prices for these products.

### **Clientele**

When MB started, Røros was the only client. The town now accounts for less than 5% of the total revenue. Customers are mainly from Norway (regionally and nationally) but also, though to a lesser extent, from Sweden, Denmark, Iceland and the Netherlands.

Advertising is only through the website and by word of mouth.

### **Certification**

All wood used is PEFC<sup>1</sup> certified. MB is also looking into the possibility of obtaining environmental certification.

### **Political and Financial support**

The initiative was first developed by the Røros municipality, which took care of the costs. Then, MB twice received financial support from the government through the "Innovation Norway project" programme" (<http://www.innovasjon Norge.no/>), which provided grants to invest in new equipment (grants of around NOK 500,000, around € 65,000).

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<sup>1</sup> Programme for the Endorsement of Forest Certification – see <http://www.pefc.org/>

## 4. SPECIFIC ORGANISATION FOR WORKING WITH HEAVY TIMBER

### Supply

About half of the production is made from heavy timber, purchased directly from private owners. The fact that MB buys and uses heavy timber is well known in the region. This is why the forest owners' association, one of the suppliers, sometimes contacts MB directly when it has a lot of wood on a plot that could interest the company. There is no size limit for the use of heavy timber.

The price of heavy timber can reach NOK 2-3,000/m<sup>3</sup> (€260-393/m<sup>3</sup>). Heavy timber is relatively more difficult to find and its price is therefore greater.

### Production

- Restoration materials: around NOK 8 – 9 million worth of products/year (€ 1-1.2 million)
- Clapboard: NOK 1 million/year (€ 130,000)
- Other products (siding, terracing etc.): NOK 7 million/year (€ 920,000)

Production is at the request of customers who specify the destination (boat or church restoration etc.), the sizes and the quantities. Based on demand, MB employees determine which logs should be used depending upon the curvature of the wood, the number of nodes etc.

### Transformation of heavy timber

In terms of equipment, the material necessary for heavy timber is not specific but needs to be adapted to suit the log size. Sawing wood, however, requires a particular expertise. It is the same for drying, which requires more time than normal wood. The temperature is kept quite low for longer and moisture retained in the drying chamber for the first week. The wood takes 3 to 4 weeks to dry instead of the usual two weeks.

There is no specific training and expertise is acquired "on the job".

## 5. COOPERATION

Developing new products is facilitated by cooperation agreements between MB and the Norwegian Wood Technology Institute and architects. Cooperation takes place at the request of MB and contracts are drawn up containing details of the product. Cooperation with architects has helped design the plans for wooden houses.

Future cooperation is planned with the Norwegian Wood Technology Institute, the town of Røros and the management organisation at the Røros World Heritage Centre in order to test the resistance of wood for water-related construction (bridges etc.). The Norwegian government funds this cooperation.

## 6. THE IMPACT OF THE INITIATIVE

### **Economic Impact**

After 15 years of existence, MB's development has created 20 jobs.

### **Impact on forest management**

MB has had positive effects on local forestry: the quantity of wood harvested, the number of owners involved and the product quality have all increased since the creation of MB. In particular, forests that were not exploited before as the wood was already too heavy and could not be used are now harvested and put into production.

### **Environmental Impact**

MB has also had a positive impact on the environment due to the reduction in transportation distances for the material used in the maintenance of houses in Røros and the wood harvested in the area that can be processed on-site.

### **Social Impact**

The company strengthens local identity, as local expertise is reinforced.

# Biomassehof Achenal

## Biomass Farm (Germany)

### 1. CONTACT

Biomassehof Achenal GmbH & Co KG (Achenal biomass farm – limited partnership)  
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The Achenal Valley is located in Bavaria. It has an area of 474 km<sup>2</sup>, with 8 municipalities and around 30,000 inhabitants.

The biomass farm is a wood pellet production plant that transforms local raw material and then supplies companies, individuals and surrounding heat networks. It is also a biomass information centre.



The Achenal Biomass Farm (source: Wolfgang Wimmer, Biomassehof)

### 2. DESCRIPTION OF THE INITIATIVE

Achenal is a valley in Bavaria with 8 municipalities. The Achenal biomass farm was created and developed by 8 local municipalities. It is a driving force in the development of local renewable energy with the motto “of the region for the region”. The biomass farm is a regional service provider for wood energy, for wholesalers and the sale of shavings, logs and wood pellets. The farm offers services and advice to municipalities, individuals, and shops on bioenergy and other issues related to renewable energy.

It provides the following services:

- Purchase and production of wood chips, pellets, briquettes, logs in large quantities and at reasonable prices;
- The collection and use of private and municipal wood waste (wood from landscape maintenance, bark etc.);
- Biomass drying and processing, logistics and storage;
- Support for the creation of equipment using biomass, especially in the field of technical assistance (for planning and construction), supply and financing;
- Public relations, environmental education and information in the visitor centre;
- Marketing of local products, information and consultancy services, improving the region's economy.

### 3. BAVARIAN FOREST AREA

#### Description of the region

The Achental valley is located in southeastern Bavaria, along the Tiroler Ache River, bordering the Bavarian Alps. The region has an area of 474 km<sup>2</sup>, with a population of around 30,000 inhabitants (a density of about 64 inhabitants/km<sup>2</sup>).

Agriculture and tourism are the region's two main economic pillars. In recent years, the Achental has thus built a solid reputation in the field of alternative tourism. Land use is dominated by agriculture and forestry, and 30% of the region is classified for the protection of nature. About half the land is forested, and is 90% public in the valley. The dominant forest species is spruce.

#### Forest Management

In Bavaria, public forests are managed by the Bayerische Staatsforsten (Forests of the State of Bavaria). This public institution was founded on 1 June 2005 in connection with the reform of forest management. The institution is responsible for managing 720,000 ha of forest and 85,000 ha of other land in the province.

Private forest owners have the chance to join a local association of forest owners or forest-farmers. These associations are grouped according to administrative districts into forest associations, and act as a platform for discussion.

On a provincial level, the federation of forest owners in Bavaria is an umbrella organisation with a political function. It includes forest owners at regional and local level, as well as the *Bayerische Staatsforsten* institution. In Bavaria, there are around 600,000 forest owners including around 150,000 who are members of forest organisations, accounting for 75% of the Bavarian forest. In Achental, 70% of forest owners are members of forest associations.

#### Wood use

The wood from Achental is mainly used for construction and energy. The main species harvested are spruce, fir and beech. Use of shavings and pellets in private and public buildings is on the rise in the Achental region. To ensure a steady supply of wood, more biomass must be generated. Consequently, grasslands have been turned over and replanted mainly with fast-growing trees (poplar) to ensure a better regional wood supply.

## 4. CREATING AND DEVELOPING THE ACHENTAL BIOMASS FARM

### **Originally: the *Ökomodell Achental* centre**

The development of the Achental region in the energy production domain began in 1999. In 1999, the Achental's eight municipalities began their cooperation within the framework of the *Ökomodell* association, with the goal of economic and environmental planning in the region. Four themes of cooperation were identified:

- Conserving the natural and cultural landscape;
- Securing agricultural activity for its role in maintaining the cultural landscape;
- Supporting and developing trade and sustainable tourism;
- Increasing the use of renewable energy using local resources.

The association aims to implement activities in sustainable development in the region, based on the four chosen themes. They are centrally coordinated by the *Ökomodell* office, where 3 employees and a large voluntary network work. *Ökomodell* began based on similar organisations in other regions, but the four themes were chosen according to the specific characteristics of Achental.

### **Development of the biomass farm thanks to the "RES Integration" European project**

The Achental region possesses conditions that favour regional expansion for renewable energy: significant energy resources, clear regional administrative divisions, and a solid history of cooperation between the municipalities and the Ache valley within the *Ökomodell* association. These strengths enabled the selection of the region as a model for the RES Integration research project.<sup>11</sup>

During the project, it was calculated that the local solar, water and biomass energy resources are sufficient to cover the total energy needs for the region's heating and electricity. Rather than spending millions of Euros importing energy, the money could be used to strengthen the regional economy and protect the climate and the environment. Moreover, it was identified that the use of shavings and pellets in public and private buildings was growing. This is to meet long-term demand by reducing transport and analysing the regional potential created by the Achental biomass farm with the support of the valley's eight regional municipalities.

### **Construction of the biomass farm**

The farm is located on rented land in the Grassau industrial area. This location was chosen for several reasons:

- It is the municipality with the valley's largest population;
- A central location in the valley;
- A ready-equipped site;
- Businesses with existing heating needs in the industrial area. For this reason, the farm was complemented by building a heat network for Grassau in 2010;
- The Grassau municipality accepted to act as a guarantor for financing the farm.

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<sup>1</sup> RES Integration (FP7 Project). Its objective is to study the implementation of innovative renewable energy and energy conservation in selected poor areas in the participating countries. <http://www.res-integration.com/>

Construction planning lasted two years (2004-2006) before the decision was made to begin building the farm. After around 9 months of construction, the biomass farm was inaugurated in 2007.

The farm includes buildings with areas for biomass storage, processing and drying as well as rooms for events, training and administration.

Construction costs: € 1,200,000

Equipment costs: € 300,000

## **Financing**

Private investors and banks funded the necessary investments, totalling 1.5 million Euros (land rental). Funding was achieved using 50% of private capital from 18 investors (including the *Ökomodell* association) and the rest from bank credits. None of the municipalities invested independently of their participation through *Ökomodell*

## **Development of the biomass farm from 2007**

From 2008, there were major successes in the production and distribution of bioenergy products. Pellet production is certified by the ISO norm. A partnership has also been established with FireStixx, a producer and consumer network for pellets which certifies the high quality of the products from the biomass farm.

A regular clientele of operators in the region using stoves or wood pellet boilers has been created; they are supplied by the biomass farm.

In 2008, the installation of a district heating system run on biomass began in Grassau, constituting an important step for the development of the biomass farm. It was decided, from the design stage of the project, that the heater should be installed at the biomass farm to best use the technical and logical synergies between the supply and the consumption of wood shavings.

Municipalities and private real estate firms, as well as shops and hotels, have taken part in the district heating system and construction began. Enough employment contracts were signed in 2009, the year the work was due to start. The district heating system is operated by a municipal company and produces 17,000 MWh of heat annually using wood shavings from the region's forests. This strengthens the regional economy and considerably decreases CO<sub>2</sub> production.

## **5. MANAGEMENT OF THE BIOMASS FARM**

### **Current consumption of biomass by the farm and regional potential**

Within a 50 km radius of the Achenal region, forest waste provides an overall potential of 942,000 m<sup>3</sup>. The residue potential from work to maintain the landscape amounts to 51,000 m<sup>3</sup> and sawmill waste is 30,600 m<sup>3</sup>. As a result, the total production potential for biomass is 1,023,600 m<sup>3</sup> per year. The consumption of wood shavings for decentralised heat network systems and heaters is currently 187,167 m<sup>3</sup>.

The biomass farm has no supply contracts with associations of forest owners or owners. Wood purchases depend on supply and evolve with the seasons.



## **Organising the wood supply chain – the participants**

The Achentel biomass farm works in collaboration with participants at different levels of the wood supply chain:

- Loggers and forest owners' associations undertaking forest exploitation;
- Private companies for processing.

## **Operation of the biomass farm**

- Staff: 10 jobs have been created in 4 years at the biomass farm. The multi-disciplinary team covers the fields of law, specialist expertise and organisation.
- Equipment: as well as the equipment for the manufacture of pellets, the farm has two trucks for delivering wood shavings and pellets, a wheel loader and a car. All other work is outsourced to other companies.

Operating budget: € 625,000/year

## **Financial support**

The Achentel biomass farm won the 2009 Bioenergy Regions award launched by the German Ministry of Food, Agriculture and Consumer Protection. The purpose of the contest is to contribute to the expansion of the bioenergy sector of the economy in Germany and to stimulate economic development in rural areas. Achentel is one of the 25 regions selected according to the following criteria:

- Regional added value;
- Creation of a bioenergy network;
- Knowledge transfer and qualification;
- Involvement of stakeholders from the public, businesses and policy makers.

In addition, in 2010, the biomass farm became a partner of the IEE (Intelligent Energy Europe) Bioregions project and has been listed as a good practice. This participation also ensures a financial contribution to support the farm's activities (€ 50,000/year for the project's activities).

The biomass farm does not receive any other subsidy.

## **6. THE IMPACT OF THE INITIATIVE**

The number of biomass plants is on the increase in the region. The Achentel biomass farm does not differ much from other biomass processing or energy production centres and competition is already a reality in certain cases (for example, regarding the supply of wood shavings).

### **Impact on wood resources**

Forest owners are gaining revenue from wood. Wood is better valued.

## The economic impact of the region outside the wood economy

Other positive effects are expected in certain areas, such as with the heating installer. No other figures are available for the moment.

## The social impact

The biomass farm and energy production from biomass is dependent on local identity and citizens' awareness. Citizens are proud of the local use of renewable energy potential and the reputation the town gains from this. Various groups of visitors from all over the world have visited the region with a view to exchanging experiences and learning about the success of Achentel.

## 7. KEY FACTORS FOR SUCCESS

Four points have been identified for success:

- **Political commitment from the start.** The municipalities must be involved from the early stages of the project. The mayors are the region's political spokespeople and their support is necessary for the success of a business like that of Achentel. One evidence of this political commitment is the financial guarantee of the project by the municipality of Grassau.
- **A leader to launch the project.** A central player is necessary to carry forward and push the project. The best-case scenario would be the appointment of a person who is already well known in the area, with a positive reputation. In the case of the Achentel biomass farm, it is Mr Wimmer, the director of the farm, who is the face of the initiative. He was already known in the region as the director of *Ökomodell*.
- **Integrating different sectors of the economy,** for example the heating installer, who advises potential clients and will be able to raise awareness of the use of biomass as an energy resource.
- **A fertile ground** upon which the initiative can develop. It is of course easier to develop an initiative like the biomass farm if there are already high-consuming companies. Starting such an initiative from scratch is a lot more difficult.

# MOVAFOREST Project

## Stimulating exploitation of private forest resources (France, Spain)

### 1. CONTACTS AND INFORMATION

[www.movaforest.eu](http://www.movaforest.eu)

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The MOVAFOREST project is located in the French and Spanish Pyrenees in the Midi-Pyrenees (940,000 ha of private forest with 350,000 owners) and in the autonomous community of Catalonia (1,578,003 ha of private forest).

The project aims to improve knowledge on the state and the production potential of private forests by collaborating and allowing the availability of information from simple management plans.

### 2. BRIEF DESCRIPTION OF THE PRACTICE

The MOVAFOREST project is located in the French and Spanish Pyrenees. It aims to contribute to the economic development of the Pyrenean wood industry via a dynamic “transborder private forest” in order to lead to:

- A concrete approach to mobilising projected volumes from private forests, using sustainable management documents.
- A dynamisation of private forest owners, thanks to the implementation of new guidance techniques aimed at private owners.

The final objective is to consolidate the knowledge of economic actors in terms of potentially utilisable forest resources and to intensify the sustainable management of private forests, ensuring sustainable utilisation of wood. This will thus contribute to the economic development of timber via a cross-border dynamic and to effectively supporting forest owners in the management and development of their forests.

### 3. CONTEXT OF THE PROJECT

#### Pyrenean Forest Ownership

Pyrenean forests are mostly private and provide around 65% of the 3.3 million m<sup>3</sup> harvested annually in the Midi-Pyrenees. On the French Pyrenees side, 55% of the forests are private, particularly in areas bordering the Massif and low-lying areas. Communal forests comprise 31% of the forests; 14% are national forests (especially in the eastern half of the chain, in particular the Pyrénées Orientales and Ariège departments). The forests are composed of 84% hardwood, used as timber and wood fuel, and 16% softwood, used as industrial wood. They also ensure protective functions, recreation and environmental services.

On the Spanish side, in Catalonia, forests occupy 55% of the territory and are 76.6% private.

#### The management of private forests

In the Midi-Pyrenees in France, there are around 1200 forests with over 25 ha per tenant, managed according to a Simple Management Plan. The Midi-Pyrenees CRPF<sup>1</sup> believes that a consolidation of the "Simple Management Plan" dynamic is possible by reconciling management forecasts of 100,000 ha of forests that have such documents.

In Catalonia, management planning for private forests is carried out using Technical Management and Forest Improvement Plans (*Planes Técnicos de Gestión y Mejora Forestal - PTGMF*), for areas over 25 ha, and a Simple Forest Management Plan (*Planes simples de Gestión Forestal - PSGF*) for areas under 25 ha. Currently, 422,101 ha (26.7% of the private forest area) of private forests have plans: 2833 PTGMF and 231 PSGF.

Therefore, on both sides of the border, it is important to ensure consistency between the different approaches concerning management documents and forest guidance, and hence to harmonise practices on private property to increase the added value of projects.

The players in private forests and the CRPF Midi-Pyrenees identify specific restrictions to the development of private forest resources, especially in mountains:

- The fragmentation of forest ownership, with an average area of 2.7 ha per property;
- The lack of forestry culture among the vast majority of forest owners;
- Lack of integration of private forest in the territories;
- Lack of access to wood, particularly in mountain areas.

There are solutions, but they can only emerge through technical analysis and consolidation on a mountain-wide level and the implementation of joint actions, a dynamic that must encourage and support Franco-Spanish cooperation.

#### Objectives of the MOVAFOREST project

The CRPF and the Midi-Pyrenees Center of Forestry Property (CPF) of Catalonia, with similar

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<sup>1</sup> Regional Centre for Forest Ownership

objectives, started their collaborations and exchanges within the framework of technical meetings consisting of presentations of their respective activities in 2005, 2006, 2007 and 2008, some of which were initiated by the FORESPIR European Association. They then wished to formalise their collaboration by establishing the MOVAFOREST cross-border project. Two years were needed to prepare the project, which has been implemented under the Operational Programme for Territorial Cooperation in France-Spain-Andorra POCTEFA<sup>1</sup> 2007-2013.

The MOVAFOREST project includes 3 actions:

- Action 1: use and develop information relating to the management of forest property in a comprehensive manner to provide stakeholders in the forest industry with new knowledge necessary to their development;
- Action 2: to propose a new innovative guidance method for forests, focused on a smaller area for greater efficiency and based on the development of a tool for decision support (3D GIS) to engage owners and local stakeholders in forest management;
- Action 3: communication.

The project spans 3 years (June 2009 to May 2012) and involves three partners: the FORESPIR European Association for the Pyrenees (Project Manager), the Regional Centre for Forest Ownership (CRPF) in the Midi-Pyrenees, and the Catalonia Forest Ownership Centre (CPF).

### **Financial resources for the project**

The MOVAFOREST project was part-funded through the European Commission's Regional Development Programme and the funds dedicated to cross-border cooperation.

French national funds (DRAAF – MAAPRAT) supporting the forest industry were also used, as well as on Midi-Pyrenees and Aquitaine regional policies linked to the timber industry and the environment, and the regional policy of Catalonia.

Total budget for project: €564,922 of which *€367,199 was European support*

Material resources: € 130,208

Human resources: € 434,714

### **Project actions**

The project partners are proposing to implement and test a new private forest guidance programme. For this, partners target their work on forest massifs of several thousand hectares of private forests in France and Spain in which the forest potentials are currently exploited, but planning of properties is currently limited (PTGMF, PSGF).

### **Phase A: Regional Diagnosis and Identification of the Operational Programmes for Priority Groups**

Analysis of the local socio-economic context and the potential to establish forest guidelines.

The results of this phase are the subject of a synthesis which can then be used to communicate with owners and stakeholders in the area.

### **Phase B: Regional Forest Guidance and General guidance for Operational Programmes of Priority Groups**

Communication work with local actors (politicians, mayors etc.) will be carried out. The aim is to closely link stakeholders in the region to CPF partners and CRPF to facilitate information dissemination to private landowners. "Outreach" meetings for private landowners and general information meetings are also scheduled with presentation of private forest stakeholders, of their activities and of the need for owners to manage their forests.

Through these meetings, based on exchanges and requests by owners, the following have been identified: different forest-related problems for which training days will be offered (management, exploitation, felling etc.); groups of motivated owners with common management objectives; personalised technical advice (an individual approach).

#### **- Specific guidance**

This includes technical and administrative forest training, individual technical visits, implementation and animation of Operational Programmes for Priority Groups (depending on the diagnosis phase), where the CRPF and the CPF will work to coordinate interventions over time to maintain the momentum of conservation and management groups.

### **Using the SIG-3D decision-making tool**

To facilitate the consolidation, the new SIG-3D decision-making tool will be used to run these programmes. The aim is to simulate, according to the wishes of owners and regional actors, developments in major forested areas in the next 10-15-20-30-50 years. With the support of the SIG-3D tool, at these meetings and field visits, the CRPF and CPF technicians encourage owners to manage their forests more sustainably and in a more concerted manner. This will result in the drafting of management documents by owners (PSG, CBPS, PTGMF etc.) or other existing documents to consolidate forest management.

This work promoting the consolidation of owners in areas with major issues will be a means to achieve significant improvements in operations and to utilise wood from smaller plots. This will also facilitate the inclusion of local environmental and landscape concerns as well as running operations in the collective interest.

The CRPF and CPF technicians will support owners in achieving their individual and collective forestry projects by bringing them into contact with professionals in the timber industry (farmers, cooperatives, experts and entrepreneurs). The implementation of these projects will serve as windows to attract new owners to the process of forest management.

### **Description of the SIG-3D tool**

The MONTE system will be used. It can produce detailed forest plans from mensuration and geographical data, in accordance with pre-established forest objectives. Once the initial data have been entered into the system, a multitude of alternatives can be analysed by adjusting the weighting of different forest objectives to achieve a forest plan with results that best match the objectives of the owners in the association.

Already available in the Catalan Spanish part, it requires several modifications in order to be used in the French side of the project. The Midi-Pyrenees CRPF will be able to directly and completely independently enter, update, add or delete the geo-spatial data and the digital terrain models.

#### 4. IMPACT OF THE PROJECT

As the project has not finished, it is not yet possible to quantify its impacts. However, many benefits are expected. In particular, the project should have a positive impact on the management of local forests, with greater involvement from private forest owners (increasing the number of management plans), thereby increasing the amount of utilised wood. Improvements in operating costs are also expected by pooling work (especially in forest exploitation) and greater volumes of usable wood and therefore medium- and long-term potentials for the private forest industry. Ultimately, the project should foster the creation of (or at least maintain) local jobs.

Furthermore, it is important to note the inclusion of the environment in the project: management documents for private forests are drawn up for a period of between 10 and 20 years and the approval of these documents guarantees the mid-term forest's sustainable management.

#### 5. KEY FACTORS FOR THE SUCCESS AND TRANSFERABILITY OF THE PROJECT

The success of the MOVAFOREST project is largely linked to the network which has implemented the project. In addition to the partners directly involved in the project, many actors are involved: local councillors, forest owners, institutional actors, actors in the timber industry.

In addition, the POCTEFA and FORESPIR networks provide an effective forum for disseminating results and making them better known.

The project's transferability is possible as long as the results are effectively communicated in order to raise interest on the approach and its impact on the pilot territory (Midi-Pyrenees and Catalonia). The mobilisation of institutional players to support the process and act as relays to different networks of local actors is also important to initiate transfer to other territories, initially in the Pyrenees.



# Qualifying the mountain pine - *Pinus uncinata* UNCI'PLUS Project (France, Spain)

## 1. IDENTIFICATION OF THE GOOD PRACTICE AND CONTACTS

[www.unciplus.eu](http://www.unciplus.eu)

Organisation in charge of project: GEIE FORESPIR  
(European Association of the Pyrenees for France and Spain)

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Mountain pine stands cover over 72,000 ha in the French and Spanish Catalan Pyrenees and have a current estimated harvest of 40 000m<sup>3</sup>.

The UNCI'PLUS project aims to improve the forest management of mountain pines and the use of their wood. In particular, a characterisation process of the species was launched. If this characterisation result allows the classification of wood as lumber, new opportunities can open up.



UNCI'PLUS: Technical tours in the forest and mountain pine sawmilling (source: <http://www.unciplus.eu>)

## 2. DESCRIPTION OF THE INITIATIVE

Although poorly represented on a European scale, there are 72,000 ha of mountain pine *pinus uncinata* stands in the French and Spanish Catalan Pyrenees, with an estimated harvest of 40,000m<sup>3</sup>. However, there is a shortage of technical information about how to manage them effectively. Likewise, local processing and exploitation of this species should be developed to provide added value and boost the sector.

The UNCI'PLUS project is therefore intended to provide specific management elements to

better understand the management of mountain pines in a cross-border context, by developing a cross-border management guide and by exploiting this species for other uses of higher added value than at present.

One component of the project is qualifying the mountain pine for construction purposes, with the objective of classifying its physical-mechanical properties (to meet European regulations, translated in France by the standard NF B 52-001 and in Spain by the standard UNE 56 544) and its resistance properties (European standard EN 408). The qualification obtained will extend the possible uses of the mountain pine, especially in the construction sector, and thus expand the potential markets for this species.

### 3. PROJECT DEVELOPMENT

#### **A locally important resource but poorly valued**

On a European scale, mountain pine stands are poorly represented formations with little interest in their production uses (cultural or environmental interest). However, these forests are important in the Pyrenees, especially the Catalan Pyrenees. In France, 46% of mountain pine forests (83,175 ha in total in France) are located in one Department, the Pyrenees Orientales. In Spain, these forests cover 90,000 ha, including 54,000 ha in Catalonia. The annual harvest of mountain pines in the Catalan Pyrenees is estimated to be 40,000 m<sup>3</sup>.

There are major issues for managing these stands: biodiversity, management for timber production, silvopastoralism, public benefit (a high number of tourists) etc. It would therefore be necessary to define suitable, refined techniques that managers are currently lacking.

In addition, the management of mountain pines is facing economic difficulties:

- Forest wood companies are in difficulty and production chains in the area of the Regional Natural Park of the French Catalan Pyrenees are incomplete: only one sawyer and one forester (compared to 30 in Spain) despite the abundance of wood resources and over 30 secondary processing companies identified as potential users;
- Undiversified opportunities, with the main markets having low added value (packaging and pallets), and sharp decrease in timber prices (from €5 to 20/m<sup>3</sup> according to quality and diameter);
- Strong competition from so-called "Nordic" wood in construction (the low lumber prices are currently absorbing transport costs).

#### **The consultation process**

A meeting involving representatives of forestry agencies and local experts on the initiative of the Regional Natural Park of the Catalan Pyrenees and the National Forests of the Eastern Pyrenees was held on 28 March 2007.

What emerged was the lack of reference on managing mountain pines and the unwillingness to work together to define consistent and homogenous management across the Catalan Pyrenees; the absence of information on the mechanical properties of mountain pinewood,

which limits its construction use (no ten-year guarantee). However, the economic exploitation of this species is a major issue in order to implement desirable forestry and ensure the future of the wood industry in the eastern part of the massif, with more and more positive economic effects on the area and the creation of employment in this sector.

### **The UNCI'PLUS project**

Technical meetings, and meetings of working groups and committees were held in 2007 and 2008 to build a project based on the multi-functional management of mountain pine stands and on the use of wood as a material. Two years were needed to prepare the project, submit the file, and finalise negotiations with the programming committee. The UNCI'PLUS project was finally approved at the POCTEFA<sup>1</sup> 2007-2013 Planning Committee on 24 June 2009 and officially launched on 1 June 2009.

The project consists of 3 parts: i) multifunctional forest management ii) exploitation of mountain pinewood iii) communication. The technological and mechanical characterisation (action 4) occurs within the "enhancement of mountain pinewood" part.

### **Project resources and political support**

The UNCI'PLUS project was part-funded through the European Regional Development Programme and funds dedicated to cross-border cooperation.

It also relied on regional funds from Languedoc-Roussillon and departmental funds from Pyrenees-Orientales for their support of the wood sector, as well as on funds deriving from Catalan regional policy. The project also contributes to the implementation of the Charter of the Regional Park of the Catalan Pyrenees, approved in 2004.

The resources for the project are as follows:

- Resources for the purchase of equipment (tools and machines, buildings, protection etc.): € 205 278
- Human resources (personnel and training): € 406,739
- Financial resources € 507,020

Specifically, for action 4 – The technological and mechanical characterisation of mountain pinewood - the budget was distributed as follows:

Consumables	Domestic capital goods	Internal human resources	Specifically-recruited human resources	Provision of services, research, expertise	Projects Travel Accommodation	General costs	TOTAL
1,600	2,700	97,326	400	28,804	11,405	4 100	146,335

65% of this funding is covered by ERDF (POCTEFA 2007-2013) and 35% is self-funded by the participating organisations (CIRAD, INCAFUST, ONF and PNR Catalan Pyrenees).

<sup>1</sup> Operational Programme for Territorial Cooperation Spain-France-Andorra - <http://www.poctefa.eu/>

## 4. STAGES OF QUALIFICATION

Before the project, no French or Spanish reference characterised the mountain pine from a mechanical point of view. The only reference was a report produced by the Technical Centre for Wood and Furniture (CTBA) in 1987, but the conclusions could not lead to the classification of mountain pinewood.

### **Standard relating to construction products**

The Construction Products Directive (CPD) 89/106/EEC No. 21-12-88 implemented in France through Decree No. 92-647 of 8-07-92, identifies six requirements to be met for construction (concrete, cement, wood, etc.) and requires EC marking for all construction products to be sold in France and other EU Member States. Since 1 August 2008 (counting the one-year period granted by the European Commission), the marking is required on all timber for structural use on the European market. French and Spanish standards of reference for EC classification are NF B 52-001 and 56-544 A "classes of resistance to the use of wood in construction."<sup>1</sup>

For outdoor use, the wood must also meet the standards UNE EN 350-1 on natural durability and UNE EN 350-2 on impregnability.

Finally, wood intended for construction of public establishments, residential buildings and tall buildings must meet the criteria for combustion resistance (depending on the intrinsic characteristics of wood, density, percentage of resin, humidity, burning rate and dimensions).

### **Mechanical tests (UNCI'PLUS action 4.1) and visual classification**

Taking into account the variables, the source, site quality and the part of the trunk under consideration, various laboratory tests on mountain pines were conducted to determine the physio-mechanical properties of wood. Performance studies for classification of standards for structural usage (UNE 56544 and NF B 52001) and mechanical characterisation were controlled jointly by CIRAD and INCAFUST using structural size bolts.

**Tests and mechanical trials** (bending strength) must be conducted as specified by the French and Spanish standards for structural wood use in order to position the species in relation to current standards and to define the classes of resistance (bending, compression, biological agents, waterproofing capacity) of mountain pine. The aim is to develop, over time, a local market with high added value (significant economic benefits for the region).

The results of the tests for the **visual classification** of wood will determine whether the

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<sup>1</sup> French standard: NF B 52-001 – visual classification according to 3 classes STI, STII, STIII.

Spanish standard: UNE 56-544 – visual classification according to 2 qualities (ME-I, ME-II)

The correspondence between these classifications is provided by the European standard EN 1912 which specifies the mechanical resistance for each national class (C18, C24, C30).

species will meet the Construction Products Directive (EC marking) according to the standard EN 14081-1.

Characterisation work will continue with the publication and dissemination of popular technical documents and by developing demonstration products in partnership with local tradespeople (in conjunction with the “communication” component).

### **Tests for natural durability and the impregnability of wood (UNCI'PLUS action 4.2)**

The natural durability of mountain pine vis-à-vis fungus and insects will be tested and analysed according to the standardised test protocols EN 350-1/XP CEN/TS 15083-1 (fungus) and EN 350-1/EN 118 (termites). These tests will be carried out by a certified wood preservation laboratory “COFRAC<sup>1</sup>” and conducted by the CIRAD.

The impregnability of the wood and its retention will be measured according to the procedure described in the standard CEN/TR 14734. The tests will be led by INCAFUST.

### **Certification**

In the domain of the Wood Construction Industry, only the FCBA<sup>1</sup> can issue certifications of CTB branded products and NF, by paying for the AFNOR Certification. The FCBA assessment time can take about two years. Conversely, it can take several dozen years before a species can be included in the standard, in fact until a new standards system comes into practice. However, with the FCBA validations, mountain pine is classified the national level for use as construction material.

In Spain, the certification stage is simpler, as INCAFUST can guarantee wood use straight away.

### **Carrying out the characterisation work**

The laboratories that carry out mechanical tests on wood on the French side are CIRAD and, on the Catalan side, INCAFUST. Sampling was controlled by the PNR of the Catalan Pyrenees. Everything is coordinated by FORESPIR via the Technical Committee.

Around two years elapsed between the first preparation meeting (presentation of the certification process, choice of selection criteria for the collection of trees) and the end of testing.

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<sup>1</sup> French industrial technical center, responsible for the sectors of Forestry, Cellulose, Wood Construction and Furniture

## 5. POSSIBLE OPPORTUNITIES AND THE FUTURE OF THE PROJECT

### **Expected benefits of certification for the local wood industry**

The restrictions that emerge for local sourcing are the quality of the products that are unavailable today (sawing, planing and drying), supply delay times, lack of knowledge about the species with preconceived ideas, and a bad press about mountain pines, apparently linked to the mediocre quality of the products rather than the resource itself.

In the first phase for guidance and meeting professionals, connecting people and ensuring the complementarity of their activities, the UNCI'PLUS project will consolidate the collective approach to exploiting mountain pinewood forests. The qualification process will enable the definition of new markets for the species (structural use, outdoor use, furniture manufacture etc.). The near absence of primary processing companies on the French side may, in the short term, be mitigated by the many Spanish companies. The processing and enhancement of this wood on-site would therefore ensure an attractive added value for the region, and would economically reinvigorate a potential job-creating industry.

The key is to develop specific markets for mountain pines by targeting the quality and the image of the wood. The positive aspect of aesthetics and rusticity of the wood are often pointed out, although it is also important to not just focus on opportunities with the "rustic" connotation, but to also value the contemporary and innovative image of certain products (such as solid wood panels).

The envisaged connection to standards of quality will be applicable in France and Spain and will also benefit other users (including in Europe). Wood classification is a long-term investment: almost unlimited test validity periods, only adjustments would be considered in case of amendments to standards.

### **Dissemination of project results**

The UNCI'PLUS project provides a large section dedicated to the communication, publication and dissemination of results. Several levels of communication are planned:

- Technical communication, to include most importantly the publication of the management guide for mountain pine stands and training sessions for user agents. The UNCI'PLUS project involves all phases of the supply chain and will communicate with all stakeholders in the sector
- Communication for a wider audience, particularly through the publication of technical brochures and the design of mountain pinewood demonstrative products (with local tradespeople).

In addition, the tools developed can be used to serve other French and Spanish zones with this species and more widely by mountain forest species. These tools will, of course, be made available to these stakeholders.

## 6. FACTORS FOR THE SUCCESS AND TRANSFERABILITY OF THE PROJECT

The success of the UNCI'PLUS project is largely related to the network that implemented the project. In fact, on one side, the project partners help ensure the transferability to other regions depending on the type of stakeholder. The network also encourages the involvement of professionals<sup>1</sup>, since the methodology is collectively a guarantee of the sustainability of exchanges between technicians, managers and companies.

In addition, the POCTEFA network offers an effective forum for disseminating results and making them better known.

### **Transferability of the project**

The initiative to characterise the mountain pine responds to the logic of a short supply chain and a local context. The quantities exploited are not significant considering the size of the Pyrenees, but are extremely concentrated in the territory of the project, which makes this opportunity interesting and consistent with local development. In other territories, it is important to consider reproducing this approach for other locally important species. Several other approaches for other Pyrenean species could be initiated, or are underway. One example is the Beech Country Oloron, which has begun a process of technological characterisation of the properties of this emblematic Pyrenean species that is seldom used in construction.

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<sup>1</sup> Similar actions have been tested on the Holm oak and Scots pine in Lozere. The success of such operations is dependent on the involvement of professionals



# Developing a wood energy industry in the Cairngorms National Park (Scotland)

## 1. CONTACT AND INFORMATION

[www.lowcarboncairngorms.org](http://www.lowcarboncairngorms.org)

Cairngorms National Park Authority

<http://www.cairngorms.co.uk>

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Other contact person:

Cairngorms National Park is located in north-east Scotland. It covers 4523 km<sup>2</sup>, with a population of around 17,000 people.

As part of the Clim-ATIC project, mainly funded by the European Commission, a wide-scale wood energy development programme has been launched. The project intends to develop all aspects of the industry, from production through to consumption, by involving all relevant stakeholders.



Low carbon Cairngorms is an initiative from Cairngorms National Park which arose from the Clim-ATIC project (source: <http://www.lowcarboncairngorms.org/>)

## 2. DESCRIPTION OF THE INITIATIVE

The good practice presented covers the development of a wood fuel industry in Scotland's Cairngorms National Park. Numerous benefits have arisen from it, including contributing to the fight against climate change, and increases in forested areas and habitat connectivity. The Woodfuel Action Plan for the Cairngorms National Park was launched in August 2010 and provides a roadmap to these goals. A key point of the plan is the balance between the production of wood energy and the broader objectives of sustainable forest management in the park. The initial action plan, implemented between 2009 and 2011 through the Clim-ATIC<sup>1</sup> project, mainly funded by the European Commission, has been a project for the promotion, education and support of wood energy in the park through events, the creation of a website, and a one-stop outlet: [www.lowcarboncairngorms.org](http://www.lowcarboncairngorms.org), and a series of training events aimed at establishing skills throughout the sector, from producers to the final users. The project has also collected data and conducted analyses on the sector.

## 3. CONTEXT

### Cairngorms National Park and its forests

Cairngorms National Park covers 4,528 km<sup>2</sup> and includes 5 of Scotland's highest mountains. 36% of its area is at more than 800 m altitude; 2% is above 1000 m. The land above 600 m altitude is the largest area of arctic mountain landscape in the British Isles. About 20% of the park is forested (753 km<sup>2</sup>), distributed almost equally between planted areas and semi-natural forests. The park includes the biggest area of Caledonian forest in Britain, with species such as Scots pine, juniper and deciduous trees.

In Scotland as a whole, around 65% of forests belong to private owners; 28% have long-term management plans. The private properties are mostly large areas with a long tradition in forest management, NGOs or forest investment groups (average area: 8000 ha). Although there is no exact figure for the park, the proportions must be similar. The species harvested are Sitka spruce, Scots pine, lodgepole pine, birch, and ash.

About 17,000 people live and work in the national park (average population density of 4.2 inhabitants/km<sup>2</sup>). In addition, the park receives 1.4 million visitors per year, putting pressure on natural resources and ecosystem services.

The park is largely a working landscape offering numerous benefits to the public: leisure,

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<sup>1</sup> Partners of the project: University of the Highlands & Islands, Inverness, Highlands and Islands (Scotland) ; Centre for Mountain Studies, Perth (Scotland); Environmental Research Institute, Thurso (Scotland) ; Municipalité de Lycksele (Sweden) ; Arctic Technology Centre (ARTEK), Sisimiut (Greenland) ; Western Norway Research Institute, Sogndal (Norway) ; The Lapland Regional Environment Centre, Rovaniemi (Finland) ; Université d'Umeå (Sweden) ; Municipalité d'Åre (Sweden); Finnish Forest Research Institute, Rovaniemi Research Unit, Rovaniemi (Finland) ; Thule Institute de l'Université d'Oulu (Finland) in collaboration with <http://www.uarctic.org/Frontpage.aspx?m=3> University of the Arctic (UArctic) ; Finnish Environment Institute (SYKE), Helsinki (Finland) ; The Arctic Centre, Rovaniemi (Finlande) ; University of Laponie, Rovaniemi (Finland); Gouvernement du Comté de Sogn og Fjordane (SFCG), Leikanger (Norway)

<sup>2</sup> See the document [Forest and Woodland Framework](http://www.cairngorms.co.uk/resource/docs/publications/08042008/CNPA.Paper.613.Forests%20of%20the%20Cairngorms.pdf) of the Cairngorms National Park  
<http://www.cairngorms.co.uk/resource/docs/publications/08042008/CNPA.Paper.613.Forests%20of%20the%20Cairngorms.pdf>

cultural heritage, and employment for land managers. National and regional forestry policies aim to support a wide range of services provided by forests, including nature conservation, the development of communities and local businesses, timber production, improving the landscape, sports, leisure, health, environmental quality, and carbon sequestration<sup>2</sup>.

### **The Woodfuel Action Plan**

Currently, the main source of heating for domestic or commercial use in the National Park is fuel oil or LPG (there is limited access to city gas). These fuels are very expensive, with a high carbon footprint, and are not sustainable. The national park, hoping to move towards sustainable land use, wants to significantly reduce dependence on fossil fuels and is therefore promoting a shift to the use, and hence the management, of locally available renewable biomass resources.

A Woodfuel Action Plan has therefore been prepared. A year was needed to develop and write this plan, although there have been many thoughts on this matter for a number of years. The main engine for the development of plan by the Cairngorms National Park Authority (CNPA) is linked to the potential for reducing carbon emissions by replacing the use of fossil fuels with biomass. It has been developed to support national commitments (Scottish Action Plan for Biomass and the Renewable Heat Strategy, launched in late 2008) and European commitments (20-20-20 European Union targets which aim for 20% of the EU's energy supply to come from biomass by 2020), and to demonstrate how these can be achieved while contributing to the priorities in the National Park Management Plan.

Through the Woodfuel Action Plan, the CNPA aims to establish firm plans by the end of 2014 to reduce CO<sub>2</sub> emissions by 16% by using biomass to produce 20% of the heat and the hot water used in the park. For this to occur, 20,000 tonnes (34,000m<sup>3</sup>) of wood will be available on a sustainable basis, without effecting other wood industries. The estimated annual value of this quantity is £1.6 m (about € 1.9 million) at £80/t (€96.6/t); investments would amount to £2.8 m (€ 3.4m) (boilers and infrastructure). The expected saving of CO<sub>2</sub> is estimated at 172,000 tonnes.

The development of skills in the industry, training, raising awareness and industrial analysis in the Clim-ATIC project took place from the end of 2008 to 2011.

### **Actions and resources needed for the project's development**

Material produced and costs:

- Promotion materials, case studies, podcasts, website, training documents. Production mainly by those working on the project. Printing and broadcast costs: around £5000 (about €5650).

Human resources:

- 1 full-time employee to coordinate the Clim-ATIC project, including the project's woodfuel activities: about 5% of a fulltime position for the woodfuel project
- 1 park employee to assist with the coordination and the activities. Total = 300 hours
- 2 employees from Forestry Commission Scotland for training and knowledge transfer.

Total = 100 hours

- Consultants: Total = £34 500 (approx. € 39 000)
  - o Writing the woodfuel action plan, £4000 (approx. € 4520)
  - o Planning and conducting training events, £20,000 (approx. € 22,600)
  - o Analysing the current wood energy industry and recommendations, 2500£ (approx. € 2800)
  - o Planning and coordinating a major public event to promote wood energy, £10,000 (approx. € 11,300)
  - o Website, case studies and podcasts, £8,000 (approx. € 9,000)

## **Funding**

Financial resources were provided by the Clim-ATIC project, funded 60% by ERDF (the Northern Periphery Programme) and 40% by the National Park and other organisations. Budget estimate for the Clim-ATIC woodfuel activity: € 85,000 (+ costs for national park and Centre for Mountain Studies staff).

## **4. PRODUCTION OF WOODFUEL**

### **Wood production**

At present, the main commercial use for the park's coniferous forests is wood production for wood pulp, planks, pallets and fencing. Deciduous forests are generally not exploited.

Most forest owners do not manage their forests with the aim of producing woodfuel. Additional operations must therefore be integrated in the routine management of forests. These operations include the use of modified specifications in harvesting, slash recovery, stacking for collection and processing for use in large boilers (>500kW), and the creation of stacking sites for drying logs that are awaiting collection.

### **Opportunities**

There are currently few outlets for pellets (2 serving the park, but located outside it) and wood shavings (three in the park). There is a growing number of smaller companies providing firewood locally in the park. However, cogeneration is not yet commercially available in the park.

The Woodfuel Action Plan, with information events organised as part of the Clim-ATIC project and current financial support from the government through the Renewable Heat Incentive and the Scottish Rural Development Programme (PDRE) has had a significant effect on the Park's supply chain by increasing demand and providing new opportunities for businesses and land owners.

The connection between the industry stakeholders is informal, based on local knowledge and contacts. The Clim-ATIC project tried to strengthen this local knowledge and to secure new contacts through networking at its training programmes and events. This process appears successful, although it is not possible to establish to what extent the project was the real catalyst for contacts.

## 5. RESULTS AND THE IMPACT OF THE INITIATIVE ON THE PARK REGION

It is difficult to ascertain and measure the impact of the initiative so soon after the implementation of activities. However, the potential benefits or those already observed are:

### **Economic activities**

- Development of new SMEs in the sector, with the creation of jobs. No figures are known. An example of a company: Community Treecycle<sup>1</sup> which sells woodfuel to individuals or cuts trees at their home/workplace.
- An increase in woodfuel in the region, exceeding the supply and driving prices upwards. Prices vary between £50 and £100/m<sup>3</sup> (€60 to €120 m<sup>3</sup>) depending on the species, quantity ordered, and delivery location. This high demand has a positive impact on forest exploitation, since more plots are exploited to meet demand.
- An increase in the installation of wood heating systems by companies and individuals to replace fuel heating. No figures are available. Growth is still slow, however, due to costs, lack of government support, and lack of certified installers.

### **Social Impact**

- Greater appreciation of the value and more interest shown in forest resources, resulting from participation in project events. This is accompanied by a revival of interest in forestry on a small scale (as opposed to large-scale mechanized logging), requiring more traditional skills.
- 
- Awareness of the problems and opportunities of wood energy:
  - o Professional education: participation of over 100 forest owners, managers, community representatives, etc. in training;
  - o Public outreach: participation of over 500 people in public events.

### **Environmental Impact**

- An increase in managed forests, promoting biodiversity;
- An increase in the number of new plantations with an emphasis on green networks;
- Decreased use of fossil fuel and a reduction in carbon emissions.

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<sup>1</sup> [www.communitytreecycle.co.uk](http://www.communitytreecycle.co.uk)

## 6. KEY FACTORS IN THE SUCCESS AND TRANSFERABILITY OF THE PROJECT

The main factors that explain the project's success are as follows:

- Political support from the Scottish Government, which resulted in the actions by the National Park and Forestry Commission Scotland (Scottish Forest Department);
- Financial support available for the development of the sector through the Scottish RDP, the Renewable Heat Incentive Scheme). The prospect of lower heating bills for end users is also an incentive;
- Examples of successful development in the sector and the use of products seen in Scandinavia and elsewhere.

Such an initiative may be reproduced provided enough time, personnel and financial resources are devoted to it. Also, the development of an industry requires the establishment of confidence. All players in the industry must have confidence in the long-term market, which depends both on them and on external influences. Both long-term political commitment and short-term financial support are necessary for building confidence. This involves effective approaches to promotion over a certain period to encourage changes in behaviour and investments.

## An example of a wood sector organisation: the Vorarlberg region (Austria)

### 1. CONTACT

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regional government

[http://www.vorarlberg.at/vorarlberg/landwirtschaft\\_forst/forst/forstwesen/weitereinformation/aufgaben\\_leistungen/aufgaben\\_leistungen.htm](http://www.vorarlberg.at/vorarlberg/landwirtschaft_forst/forst/forstwesen/weitereinformation/aufgaben_leistungen/aufgaben_leistungen.htm)

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Vorarlberg is an eastern province in Austria. It has an area of 2,600 km<sup>2</sup>, 37% of which is forested

The support service organisation for public forests is mainly based on forest associations whose scope of business is very broad, and even deals with the joint marketing of wood.

### 2. AUSTRIAN FORESTS AND THE CHARACTERISTICS OF THE VORARLBERG REGION

Forests cover 3.9 million hectares of Austria: around 47.6% of the country's area. Common spruce dominates the forest (around 50%) followed by beech (around 10%). 80% of Austria's forests are private, with 15% belonging to the federal state, and the remaining 5% publicly owned (municipal or regional). Just 1% of owners have plots on an area greater than 200 ha, but they hold 53% of the total forested area. In contrast, 47.7% of all owners own plots of less than 5 ha, but they account for less than 5% of Austria's forest area.

In the province of Vorarlberg region, forests cover 97,000 ha (37% of the province). There are 6,000 forest owners, of whom 90% are owners of small areas of land under 5 ha; the remaining 10% own larger areas, the largest being 8000 ha (*Forstbetrieb Vorarlberg*).



### 3. FOREST OWNER ASSOCIATIONS

#### **National level: National Forest Association**

This association is a technical organisation within the Chamber of Agriculture. The national association unifies 8 regional forest associations and offers a platform for shared activities.

The main task is coordinating and representing the interests of the forest association on a national level. It organises activities for production support and marketing of wood. To maintain Austria's reputation and position as a forest nation, it is important that wood is supplied to customers reliably and sustainably.

Activities include:

- Implementing a common wood marketing system;
- Forest services;
- Participating in logistics projects and implementing logistics concepts;
- Implementing PEFC certification as part of the common marketing system as a customer service;
- Supplying wood for energy and heat production;
- Activities linked to the regional sale of Christmas trees.

#### **Regional level: Vorarlberg Forest Association**

The association was founded in 1991. In Vorarlberg, heavy timber and wood of a smaller diameter were harvested. However, the region's sawmills could only work with heavy timber. It was hard to find a market in the area for smaller diameter wood. In the neighbouring province of Tyrol, there were suitable sawmills, and it was possible to organise the sale of smaller diameter wood to these sawmills. The Forest Association was created to meet this need.

Today, the Vorarlberg Forest Association has two employees trained as foresters. Contracts are made with other entities to provide the services offered by the association.

The association unites 700 members, representing a forest area of 35,000 ha (37% of the province's forests) and 45,000 m<sup>3</sup> per year of commercialised wood (including 55% sold in Vorarlberg). The wood is mainly sold as logs, but also for energy and wood shavings.

### 4. ACTIVITIES OF THE FOREST ASSOCIATION

#### **The main activities of the Vorarlberg Forest Association**

Wood marketing: the organisation sets up the best possible marketing of roundwood. Numerous advantages explain the success of this joint marketing:

- Price optimisation by grouping quantities of wood and through professional experience in the timber market;
- Grading and sorting timber in an objective manner, resulting in a lot of confidence among forest owners and customers;
- Guaranteed security for the forest owner for operations in the timber trade (payment

security, terms and conditions etc.).

Locally, the customer is loyal and varies little. Contracts with local sawmills are not written, but based on relationships of trust. In contrast, as regards the most important mills in Tyrol, for example, contracts are established for each quarter.

To provide its services, the forestry association has established several collaborations, e.g. with Maschinenring, an organisation that offers a professional forest management service. The forest owner must pay for the service provided on time.

### **Services relating to the wood market**

- Visits to plots and marking the wood to be cut;
- Developing and using the best marketing channels and price offers best suited to the wood type;
- Professional classification and sorting in an objective manner;
- Control and verification of classification in the case of business transfer;
- Supporting all organisational tasks relating to the sale of timber (transport, etc.);
- Accounting (customer billing, credit note for the forest owner).

### **Joint marketing of wood**

In 2010, around 2.52 million m<sup>3</sup> of wood was jointly marketed by forest associations, broken down as follows:

- Lumber: 1.88 million m<sup>3</sup> (75%)
- Wood for the paper industry: 370,000 m<sup>3</sup>
- Wood energy: 269,000 m<sup>3</sup>

### **Forest and wood services “Maintenance and Revenue for your forest”**

The “forest and wood service” includes, as well as the organisation and sale of wood, a complete service for the organisation and implementation of forest management. The objective is to provide forest maintenance and revenue. There are various options:

- Services tailored to meet owners’ needs, which can include wood marketing;
- Multi-year maintenance contracts for the forest;
- Option of leasing (insurance required in case of voluntary surrender);
- Operational service (Betriebsdienst) for medium enterprises.

### **Costs of membership and services**

Any forest owner from Vorarlberg can join the forestry association. An entry fee must be paid, and then there is no annual fee. The owner only pays the cost associated with service use. Thus, even a small forest owner can easily become a member.

The association is a non-profit organisation whose operating costs are covered by membership fees and a levy on the amount of timber sold (3% of the net sales price per cubic metre, with a minimum of €2 per m<sup>3</sup>).

The entry fee payable on joining the association depends on the forest area:

- 0-5 ha € 22

- 5-10 ha € 36
- 10-50 ha € 73
- 50-500 ha € 145
- Over 500 ha €220

### **Support for forest owners in the regional wood sector**

To support the regional added value chain in the forestry sector, a measure called *Holzwerbe-Cent* (forest marketing cent) is implemented in all Austrian provinces. This financial support can be paid voluntarily by forest owners for each cubic metre delivered to the sawmill. Since 1 January 2012, the *Holzwerbe-Cent* is 30 centimes per cubic metre (previously 2 cents). In Vorarlberg, this fee was paid voluntarily for 100,000 cubic metres of wood, so that 22 000 Euros were collected in 2011. The money raised is used for different measures in the region. The fee is paid and used in the region where the sawmill is located and where most wood is sold.

## **5. COMMUNICATION BY THE FOREST ASSOCIATION**

### **Communication to members of the association**

This is performed via the website, postal newsletter, and the National Forest Association newspaper which contains a page for each Austrian region. In addition, the general meeting is held once a year. However, the most important links between the owners are made when selling wood, which allows a more personal contact.

### **Communication to owners who are non-members of the association**

Communication campaigns are also organised. In Vorarlberg, two campaigns have been organised, targeting smaller-sized forest owners (up to 5 ha), and aiming to raise awareness of the advantages of forest management:

- Poster campaign "who should take care of your forest? The beetle or the forest-warden?" This campaign intends to increase knowledge about the association and the advantages for its members;
- The dissemination of a forest association information sheet "pocket money for your forest" (an insert in the newspaper).

## **6. FUNDING FOR REGIONAL FORESTS**

The objectives for forest funding in Vorarlberg are the preservation of a healthy, natural forest, risk prevention, support for 'soft' methods of forest exploitation, and encouraging reforestation in mountain areas through incentives. The allocations do not depend on the area of the forest, but on the measures.

### **Funding Possibilities**

- Measures for the preservation and improvement of protection functions, leisure and well-being. For example, improving the forest protection function (reforestation,

- car/management, cable yarding, building forest roads), developing leisure facilities;
- Measures, such as maintenance, to improve the economic and ecological functions of forests;
- Measures relating to professional training, as well as marketing for wood and wood products;
- Funding collective forest management.

In 2011, the following measures were funded:

- Construction of forest roads: € 958,000
- Forest groups: € 125,000
- Forest management plans: € 4,700
- Vorarlberg forest funds: € 1,810,000
- Restoration of protective forests: € 990,000

### **Receiving funding**

Candidates can be: forest owners, forest cooperatives, farming associations, municipalities, people who use horses for felling, etc. Applicants must contact the forest office of their regional government or the forest warden.

### **Financing forest road infrastructure**

Forest roads are opened and maintained by owners. Due to the difficult terrain, the dispersion of properties and for economic reasons, forest owners must form cooperatives for the development of road infrastructure (*Bringungsgenossenschaften*), comprising at least three forest owners. Indeed, starting a cooperative for developing road infrastructures is a pre-requisite to be able to apply for forest funding. The cooperative will then be responsible for road maintenance.

## **7. THE ROLE OF THE DISTRICT FOREST WARDEN**

Vorarlberg is divided into 4 districts (*Bezirke*). The administration of each district includes forest services which are responsible for the following, among others:

- - Application of the forest law;
- - Guidance for forest owners including which trees to cut down.

Within each district forest wardens or "*Waldaufseher*" (forest observers) are employed. Their job is to advise forest owners. They are not authorised, however, to sell wood. To do this, they must contact the forestry association or a wood merchant.

Direct contact between forest wardens and owners allows the needs of forest owners to be traced back to the decision level, for example in the case of road infrastructure.

# The Pino Soria Burgos Mark (Spain)

## 1. IDENTIFYING GOOD PRACTICE

Pino Soria Burgos Guarantee Mark  
<http://www.pinosoriaburgos.es/>

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Telephone 1: 00 34 975212453  
Fax: 00 34 975239677  
[www.cesefor.com](http://www.cesefor.com)

The guaranteed brand Pino Soria Burgos is used for pine produced in an area of 104,000 ha that straddles the provinces of Soria and Burgos in Castilla y León and Logroño in the autonomous region of La Rioja.

The mark specifies production and processing criteria for pine wood in the area. The process of creating the brand took 1.5 years.

## 2. DESCRIPTION OF THE INITIATIVE

The guarantee mark Pino Soria Burgos is used for wood products made from pine from the Soria Burgos region. It guarantees the source and the sustainable forest management. It is also a benchmark of quality.

The forests in the Urbion and Demanda de la Cebollera mountains have a long tradition of forestry and enviable ecological conditions which allow the production of high-quality materials. The Soria Burgos pine is a Scots pine which enjoys the climatic characteristics of the area, which has long summers. The forest exploitation practices in the region have been conducted by local people for generations and have been improved to move towards the production of quality wood for structural use. Soria Burgos pine is a very dense, slow-growing wood with a strong resistance.

The Soria Burgos pine has, however, suffered due to competition from Scandinavian wood. To differentiate it from other products on the market, the guarantee brand Soria Burgos pine

was developed and registered in 2004 by CESEFOR. It has 3 major focuses:

- The origin of the wood;
- The sustainability of forest exploitation;
- The quality of products.

The certified wood comes exclusively from pine forest stands in Soria and Burgos is certified under the PEFC system. The intrinsic quality of the wood, the sustainability of the stands, and their responsible management are all guaranteed. In addition, the product's correct classification and the exhaustive and rigorous quality controls to which the wood is subjected are carried out by processing industries and by Cesefor, an independent and non-profit technical organisation, guaranteeing quality for users. Finally, the guarantee mark for Soria Burgos Pine offers a unique added value product on the market, differentiated and guaranteed.

### 3. BRAND DEVELOPMENT

#### **The origin of the project: non-exploitation of local resources despite their quality**

The Soria Burgos region produces forests with high-quality pine. 80% of the forests belong to local municipalities who look after their management. Traditionally, the wood was produced, harvested and processed by local sawmills and then sold to businesses that requires it. The contact between parties was informal and no specific marketing strategy was implemented for the products sold by the sawmills (no packaging or product datasheet). In the absence of real quality control, the wood sold by the sawmills varied in quality.

Since the 1980s, the wood market has gradually globalised. Soria Burgos pine had to compete with wood mainly from Scandinavia and to a lesser extent, Germany. The quality of these imported products was controlled, and the products presented in a more attractive manner than the local wood, thanks to the use of packaging, the provision of product information concerning its characteristics and quality. The imported wood therefore gained a reputation, to the detriment of local wood, which was increasingly considered of lower quality.

#### **The reaction from local stakeholders and the decision to create the brand**

Faced with the lack of appeal of local wood, CESEFOR decided to take action to improve its image. The idea of creating a label emerged from informal discussions with local entrepreneurs.

Work to develop Soria Burgos pine was undertaken by CESEFOR, led by Miguel Broto. The label's preparation phase began in 2004 and lasted around a year and a half, from the initial consultations until the brand became officially recognised. The process included several phases of implementation:

Phase 1 – Problem diagnosis (duration: 4 - 5 months): Miguel Broto met most of the region's timber industry workers (sawyers, window and furniture manufacturers) to analyse the timber market in general and the reasons why local wood had such a bad reputation and was underselling. These meetings helped to highlight the key elements that impede effective

marketing of local wood: the issue of product presentation (lack of packaging and information) and the variations in quality. Also, these meetings increased knowledge about the market potential for pine wood.

Both public and private forest owners were also involved from the start, with information meetings and articles in local newspapers etc.

Phase 2 – Preparing a proposal: The diagnosis stage allowed the identification of the problem and the planning of possible solutions. Miguel Broto subsequently drafted a proposal for a future brand. The proposal contains all the criteria that should be respected by all parties, from the forest owner to the final processor, so that the wood may bear the mark.

Phase 3 – Discussions on establishing the brand: As all project stakeholders must agree to the use of the brand, the project proposal was discussed with each party, from the producer to the final processor. This was done in individual or group meetings. The certification involves commitments for forest owners (CFFTS certification).

Regarding the sawyers, the largest stumbling blocks concern the criteria for quality and the standardisation of the size of lumber products. As each has specific habits, discussions were necessary to reach compromises and to accept the need for common criteria. Only sawyers agreeing to comply with the regulation are able to use the brand.

As far as forest owners are concerned, discussions with the municipalities who own the vast majority of the region's forests, either during personal appointments or in meetings, were relatively simple. Most municipalities have shown great interest in the project. The EPFC certification, required for the wood product to bear the Soria Burgos pine brand, has generally been obtained, by making only minimal changes to municipal forest management.

However, it proved more difficult to make contact with private landowners and convince them to participate, in order to have the wood from their forests certified. This is explained by the following: some owners are not known; the lack of interest from owners in the management of their forest (small plots require too much time in relation to the benefit received); or because requirements to obtain PEFC certification are too great for owners who previously did not apply the minimal management regulations to their forest.

Phase 4 – Official registration of the brand: This took place around 1.5 years after the start of the project. The brand is registered at the Spanish office of trademarks and patents (Oficina Española de Patentes y Marcas<sup>1</sup>). The mark was registered there as it is a public body with high demands. The registration process requires sending a file containing the specifications and the description of control procedures. This is reviewed by the office and submitted to public consultation prior to acceptance or rejection. This first stage takes around 2-3 months. Following this, it is possible to use the mark, although the registration process can take several more months.

### **Resources required for the creation of the brand**

The preparation for the brand required the equivalent of 1.5 years of part-time work in

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<sup>1</sup> [www.oepm.es](http://www.oepm.es)



CESEFOR, with the working time not evenly distributed over the period.

The Burgos region provided a subsidy to CESEFOR for € 30,000 towards the project.

## 4. BRAND MANAGEMENT

### **Sawyers Manager and users of the brand**

The brand is managed by CESEFOR, where three employees are involved part-time in the project. To use the brand, interested stakeholders should contact CESEFOR and fulfil the brand's requirements. Monitoring visits are made by CESEFOR which grants approval. The brand is used by all the actors in the sector:

- Forest owners
- Assessors
- Vendors
- Secondary processing industries

Participating industries and owners must also contribute to the payment of the annual brand management fees: €700 per year for the industries, or €0.18/ha/year for forest owners.

### **Brand specifications<sup>1</sup>**

The specifications were drafted in 2004 and subsequently revised. The current version was written in 2006. The main requirements to fulfil to obtain the right to use the brand are as follows:

- Scots pine wood from the forests in the Urbión and Demanda de la Cebollera mountains
- PEFC certified forests
- Classified processed products
  - o Four categories for structural timber. The categorisation of the wood structure is made according to Spanish standard UNE 56.544 which defines two classes (ME-1 and ME-2) and the standard UNE EN 1912 which defines two classes of resistance (C 27 and C 18).

The label on the batches must contain the following:

- Components of the batch and the dimensions
- Product category
- Date
- Protective treatment received
- Total volume
- Batch number

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<sup>1</sup> See the brand's specifications on <http://www.pinosoriaburgos.es/reglamento.pdf> (in Spanish)

- 5 categories for wood for making furniture (cabinet making, select carpentry, carpentry, formwork, rustic woodwork and packaging). It is recommended to cut the boards with a width of 150, 180, 205 or 230 mm, a thickness of 52, 65, 76 or 105 mm for 20% moisture. Size corrections are applied according to variations in humidity.

Categories are based depending on the appearance criteria of the wood (straight or twisted fibres, size and number of nodes, pitch pockets etc.). The label must contain the following:

- Product category
  - Number and size of boards
  - Date
  - Total volume
  - Batch identification number
- Respect for traceability. The actors responsible for each step of the chain must be certified and hold a current register showing the purchases and sales of certified wood.

### **Advertising the brand**

- Guaranteed participation in conventions, fairs, and exhibitions when the brand was created to make it known. This is less important now that the brand has gained sufficient visibility;
- Advertisements in magazines ;
- Participation in training for architects.

### **Volumes sold**

When it was created in 2004, around 4,000m<sup>3</sup> of wood was sold under the brand. The volume then quickly increased, reaching 80,000 m<sup>3</sup> from the third year. The volume sold has since stabilised.

Soria Burgos pine is sold in the province and also throughout Spain (mainly northern Spain).

CESEFOR's current objective is not to increase pine volumes but to consolidate achievements and work to offer new products, such as structural joints, to combine solid and laminated wood.

## **5. THE IMPACT OF THE BRAND**

It seems that the main interest of the brand is not wood exploitation but the development of a "team spirit" around the brand, its products as well as an invested interest in innovation. The brand has created customer loyalty and reached people who were not previously interested in changing the image of Soria Burgos pine, which has since gained a better reputation. The brand has also increased the stability of the industry: despite the economic crisis, the volumes of wood sold under the Soria Burgos pine brand were maintained while

most companies, which do not sell this brand, seem to be facing more difficulties.

## 6. KEY FACTORS IN THE SUCCESS AND TRANSFERABILITY OF THE BRAND

The factors that have contributed to the creation and the development of Soria Burgos pine are essentially teamwork and product identification. Indeed, the long preparatory period allowed wide consultation and commitment to the project. Product identification was made possible thanks to research into possible opportunities.

Replication of such an experiment requires four key factors: creating a group involved in the project, setting clear objectives, developing a technical programme, and finally collaborating with an experienced professional.

## SECTION 3

### CONCLUSIONS AND RECOMMENDATIONS

## A summary of the 11 good practices

This report presents 11 examples of **solutions implemented in the mountainous areas of Europe to more effectively utilise and exploit the wood in mountain forests**. They have been chosen by the steering committee of the project from proposals received by Euromontana in response to the call launched during the summer of 2011, and reflect the diversity of these proposals. The proposals essentially contained examples of the use of pine; hardwoods received little mention. The problems of climate change and the adaptation of forests, management of fire hazards, and the problem of disease were also not addressed in the proposals of good practice. However, all participants generally take the question of environmental protection into account. Finally, no proposal described practices implemented in Mediterranean forests. The cases come mainly from areas where the forest sector is very dynamic. They are intended to serve as an inspiration to other European countries and regions.

The 11 cases are as follows (see their locations on the map on the following page):

- Companies:

- Ticinoro, focusing on larch and chestnut products
- Gurndin, specialised in harvesting with cable yarding
- ARPANA Formacion Forestal, offering services of timber harvesting and specialised training in mountain forest exploitation
- Hallingdal Trepellets, recovering the heat from a nearby incinerator to produce wood pellets
- Material Banken, which specialises particularly in the use of heavy timber
- Achentel biomass farm, offering services of timber harvesting and specialized training

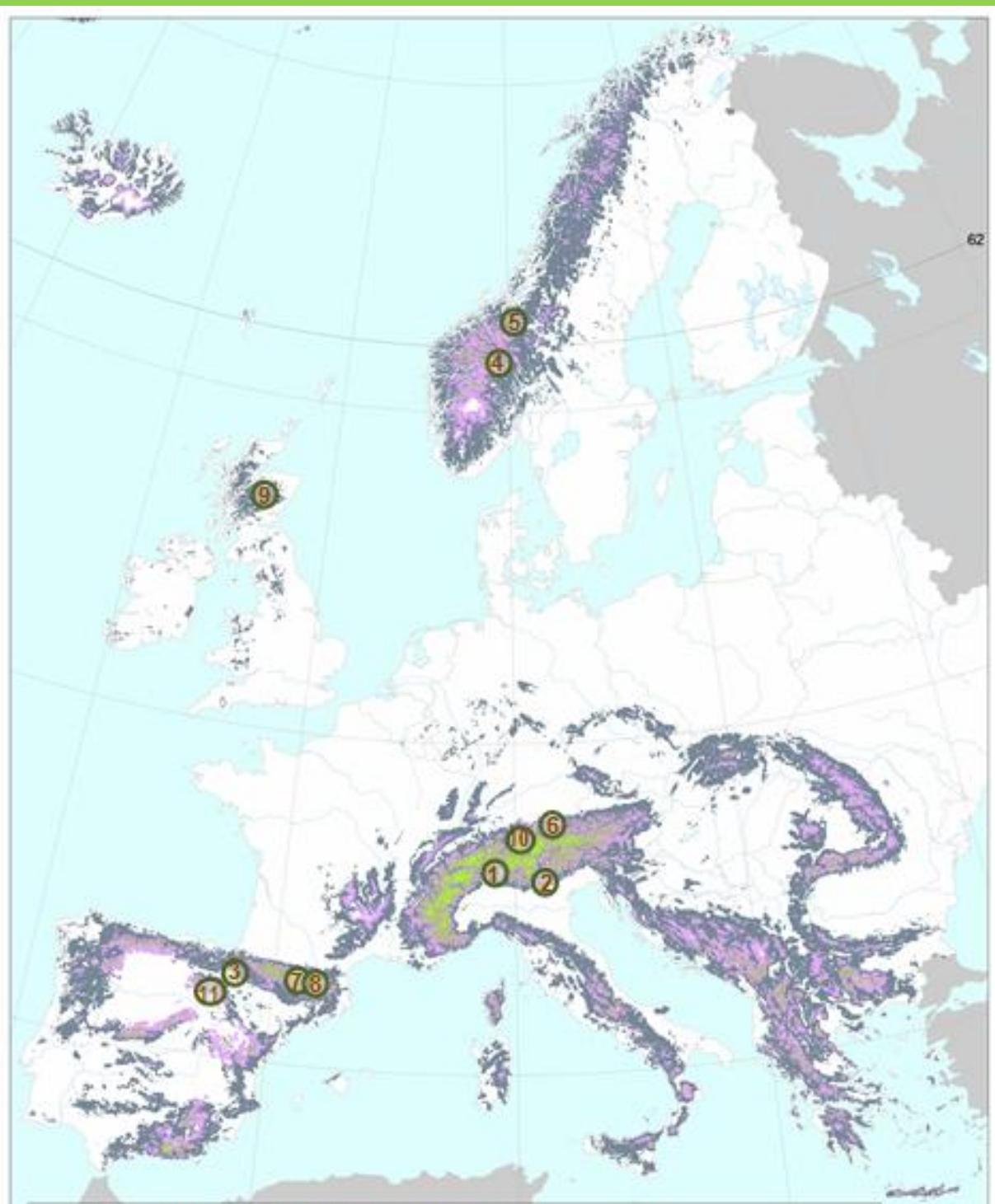
It should be noted that Hallingdal Trepellets and Material Banken were founded as public companies, and became private following participation from private stakeholders.

- Cooperation projects

- MOVAFOREST to improve private forest management
- UNCI'PLUS to exploit mountain pine species
- Cairngorms National Park and the Clim-ATIC project to develop a wood energy sector

- Method of industry organisation

- Organisation of the forest sector in the province of Vorarlberg
- Private brand Pino Soria Burgos to exploit the pine species



- Localisation of the examples of enterprises and initiatives
- 1/ TICINORO, Switzerland
  - 2/ GURNDIN, Italy
  - 3/ ARPANA *Formación Forestal*, Spain
  - 4/ Hellingdal, Trepellets, Norway
  - 5/ Material Backer, Norway
  - 6/ *Achteral biomass* farm, Germany
  - 7/ MOVAFOREST, France-Spain
  - 8/ UNCIPLUS, France-Spain
  - 9/ Cairngorms Park and *and* *Clim-ATIC* project, Scotland
  - 10/ Voralberg, Austria
  - 11/ Marque Pina Soria Burgos, Spain

Mountain.org created by:



## Analysis of practices and recommendations

Although the practices presented are very diverse, certain common factors explain their success and the difficulties encountered.

### 1. PROJECTS INTEGRATED INTO TERRITORIAL DYNAMICS

#### Valuing the local context

Most of the projects form part of a local setting and use a local resource hitherto undervalued and for which market potential exists. Knowledge of the field and the players who can take part in the project are of great importance. It is because companies were already using wood pellets that the Achental biomass farm was able to develop its potential. In the case of the Clim-ATIC project, there was not a pre-existing demand for local biomass, so the project had to take this constraint into account by working on both supply and demand. It should be noted that the exploited markets are not necessarily local: quite the opposite as some companies lean towards exporting.


The presence of downstream companies or an existing market helps to foster the growth of upstream companies. Indeed, the demand for the raw material generated by the downstream company is a potential local market for upstream companies which are created, thus facilitating their development. The geographical proximity between upstream and downstream companies then decreases the need for transportation, which has a positive effect on the environment and on the competitiveness of companies since transport costs are reduced. The mobilisation of resources is itself facilitated thanks to the better knowledge of stakeholders and local policies and to well-identified regional spin-off effects.

Knowledge of the field is also a prerequisite to be able to take full advantage of the synergies between companies. The organisation of the company Hallingal Trepellets, which recovers heat from an incineration plant to produce wood pellets, is therefore a good example of industrial ecology developed through proper observation of the industrial area and possible energy flows between companies.

 Recommendation 1.1. The development of the forest sector must begin with the observation of the local context and the involvement of initiatives within this context.

#### Preparing upstream projects

The cases illustrate the importance of guidance in the field, upstream project preparation and planning (MOVAFOREST, UNCI'PLUS, the Soria Burgos pine mark, Clim-ATIC). These stages required a consultation time of at least 1.5/2 years.

 Recommendation 1.2. Support and guidance in activities throughout and at the start of the project are necessary to create a dynamic environment and, where applicable, to unite stakeholders around a common and shared approach.



## Establishing a multi-stakeholder governance within an integrated approach

The capacity for stakeholders, especially forest owners, to talk together and organise themselves is important in the implementation of their actions. The opportunity for owners to plan for wood marketing therefore has a strong impact in many cases. Finally, the owners are also involved financially, sometimes bringing a significant proportion of investment funding (funding forest roads in the Vorarlberg region).

Public sector involvement is very common. It may come in many ways, especially the form of direct or indirect financial support (direct funding, public bodies as project partners, loan guarantees). The different levels of the public sector are involved (State, regional authorities, etc.)

The practices presented show the usefulness of integrated projects, with no segmentation between upstream and downstream. The introduction of exchanges between all actors involved in the timber industry is a key factor for success. And discussions should take place not only between different levels within the sector, but also with the stakeholders of territorial development.

→ Recommendation 1.3. To promote integrated approaches, development tools such as massif plans must be involved. Similarly, national and regional parks may also have a role in strategic orientation. In general, a succession of discussions on the sector must be held.

→ Recommendation 1.4. The implementation of integrated approaches requires the creation (or maintenance) of tools, especially on a community level, and funding to promote governance and project integration.

## Developing complete industries for more added value for the region

As regards regional development, it is essential not just to stop at primary production, but to also aim for the development of complete industries, since the secondary processing companies create most of the added value. This is therefore the direction taken by the French mountains in their development plans for massif development<sup>1</sup>.

→ Recommendation 1.5. For mountain wood industries to experience a real boom, forest development strategies must not limit themselves to hotspots, but cover the whole sector.

## Political support for the duration

The need for political support with a long-term vision is repeated several times in the case studies. This is particularly important when developing a new industry, in which several types of stakeholders should be involved, but also to deal with the unexpected (such as the problem of the fires at Hallingdal Trepellets where the reconstruction of the company would not have been possible without the constant support of its mayors).

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<sup>1</sup> See section 1 part 2.5.


## 2. FINANCIAL SUPPORT FOR INDUSTRIES

### Public support from various sources

Most of the solutions presented have benefited from public financial support. The 11 practices have identified:

- Support from ERDF in the case of Interreg III A cooperation projects (MOVAFOREST, UNCI'PLUS) or III B (Clim-ATIC). This funding allows activities on a regional scale. The Interreg projects can also play a key role in spreading inspiring ideas for other territories, as was the case with Clim-ATIC.
- Support from EAFRD via rural development programmes to fund investment in equipment (Gurndin). These are timely, targeted subsidies.
- Support from communities or local authorities
  - o Regions/townships: ARPANA FF, Soria Burgos pine mark (operational funding), TICINORO
  - o Municipalities: Achental, Material Banken, Hallingdal Trepellets
  - o Regional parks: Cairngorms

Subsidies and equity participation from the public sector are very common and can take be important in financial terms, especially when creating the project or company (less frequently for operations). The different funds have a complementary role: production is supported by EAFRD, processing by FEDER. Although it was not cited in the 11 examples of the study, the ESF can also be used to finance the stakeholders, notably through the funding of training activities.

 Recommendation 2.1. The complementarity between the different funds (ERDF, EAFRD, ESF) means the support of a wide range of possible actions for the development of truly integrated projects. This is to be maintained and encouraged. The Common Strategic Framework and Partnership contracts must contribute to clarifying this coordination.

### The role of the CAP

The draft Rural Development Regulation 2014-2020<sup>1</sup> includes a forestry component in the continuity of the Rural Development Regulation 2007-2013: although measures to support forestry are not drawn up in the same way, all the measures already available for 2007-2013 are reflected in the new draft regulations. Several measures can be used and should be taken into account in the Rural Development Plans of Member States and European regions. It goes without saying that sufficient budget should be allocated for their implementation.

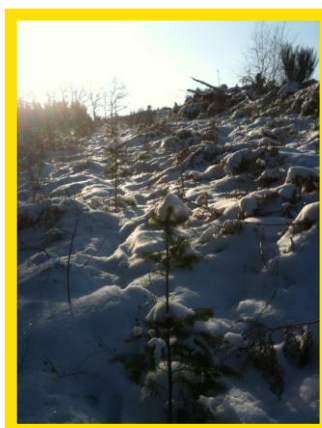
The definition of specific "mountain" sub-programmes, which is possible under the current legislative proposals of the 2014-2020 Rural Development Regulation published in October 2011, offers even more ways to better support the mountain forests<sup>2</sup>.

<sup>1</sup> Proposal for a Regulation of the European Parliament and Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), 2011.

<sup>2</sup> See p. 17 section 1, paragraph 2.1.c.

➔ Recommendation 2.2. The support for forest investments must be maintained in the second pillar. The measures provided for in the 2014-2020 Rural Development Regulation will be used to their full potential and optimized for the mountains by establishing mountain sub-programmes.

➔ Recommendation 2.3. Support for replanting should be continued. Financing could be through leveraging the capabilities of the European Carbon Fund<sup>1</sup>. This private fund consists of 14 financial institutions from 8 countries and funds projects to reduce emissions of greenhouse gases under the Clean Development Mechanism (CDM) of the Kyoto Protocol. Currently, all funded projects are located in developing or emerging countries. The opportunity of a second type of non-targeted project for emerging or developing countries and aiming actions or financing positive measures to reduce emissions of greenhouse gases should be studied. In this case, this fund could particularly be used to finance activities such as forest replanting.



Replantation after exploitation (source: O. Bertrand)

### Various forms of support

The financial support provided by communities/local authorities plays a complementary role to the funds available through the ERDF and EAFRD and can take several forms:

- Operating subsidies (Pino Soria Burgos mark)
- Construction funding (Hallingdal Trepellets)
- Guarantee/bond to obtain funding (Achtental biomass farm)

➔ Recommendation 2.4. The territorial projects funded by the European Structural Funds and the EAFRD require co-financing by regional authorities. Local authorities can also provide additional funding or financial solutions.

➔ Recommendation 2.5. Financial solutions are required for investment. These solutions can take different forms and should not only be in the form of direct subsidies (loan guarantee, for example).

NB: Compensation for extra production costs is not mentioned in the examples of good practice presented in the study.

<sup>1</sup> <http://www.europeancarbonfund.com/>

### 3. THE ROLE OF BRANDS AND CERTIFICATIONS

The examples of good practice show several examples of the use of certifications or marks:

- PEFC certification is mentioned in several cases: the company ARPANA FF is PEFC certified, Materialbanken uses certified wood, the Vorarlberg forest association provides a service for this certification, PEFC certification is one of the criteria for use of the Pino Soria Burgos mark.
- Pino Soria Burgos mark identifies the wood from the forest to its secondary processing.
- The "marchio Ticino" brand is not specific to wood since it can be used for food products. However, it can be used to certify the source of wood and brings added value thanks to the notion of quality which is attached to it.

The use of brands and certification can complement each other, as in the case of Pino Soria Burgos pine and the PEFC certification.

Obtaining additional income is therefore not always the main goal of these certifications: the primary interest of marks and certifications for loggers and processors is to segment the market. They can also be a criterion for access to certain markets. This is particularly the case of PEFC or FSC certifications, which are sometimes required by buyers.

### 4. INNOVATION AND PERFORMANCE

Several forms of innovation are demonstrated in the cases of good practice:

- Adapting machine to the needs of industries
- Developing local industries
- Integration with pre-existing activities

Innovation is used by companies to improve productivity or quality of production. Research performance is indeed a constant in the examples presented.

The Lillehammer declaration "Exploiting the innovation potential of European mountains" published during the Euromontana 7th European Mountain Convention on the theme of innovation<sup>1</sup> emphasizes the innovative capacity of mountain regions and the need to strengthen it. In particular, this will require cooperation between mountain stakeholders who can be encouraged by through long-term networks or short-term cooperation projects within Cohesion Policy. The Scottish case and that of Material Banken in Norway illustrate the merits of facilitating the input of ideas from other regions.

The declaration also stresses the role that research institutions and education play and encourages them to develop exchanges and partnerships with companies and stakeholders

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<sup>1</sup> The European Mountain Regions – A breath of innovation. 7th European Mountain Convention. 15-17 September 2010, Lillehammer, Norway  
See <http://www.euromontana.org/agenda/assises-europeennes-de-la-montagne/assises-europeennes-de-la-montagne-de-lillehammer-norvege.html>

in the field. The Gurndin and Material Banken companies are good examples of this type of action.

## 5. DIFFICULTIES LINKED TO ACCESSIBILITY AND FRAGMENTATION

The problem of the lack of road infrastructure in forests was cited several times in the case studies. In addition, there is the problem of forest fragmentation. Addressing this particular problem is crucial for the maintenance of mountain forests. Pertinent solutions must be provided to these two problems in order to develop mountain forest economies.

Activities for the communal management of plots are a possible response to the problem of fragmentation of ownership. For the 2007-2013 period, measure 142 in the Rural Development Programme envisaged the possibility of funding producer groups. However, this measure was not implemented in France.

Still on the problem of fragmentation of ownership, tools of a varied nature can be used: land grants, preferential rights of neighbours when plots come on the market, land associations, paying agency fees, are a few possible examples. Their implementation, however, must be accompanied by adequate publicity so that they are actually used.

➔ Recommendation 5.1. Specific financial support could be considered to allow access to land subject to management plans.

➔ Recommendation 5.2. There is a great need for opportunities to fund infrastructure, which should come from the ERDF. The complementarity between forest roads and other road infrastructure, especially farm roads, should be researched further.

➔ Recommendation 5.3. Funding for the implementation of a forest producer group, currently provided for in Article 28 of the 2014-2020 draft Rural Development Regulation, should be implemented in Member States to facilitate the common management of private forest holdings.

➔ Recommendation 5.4. Defining and mobilising specific funds for property guidance activities and the mobilisation of owners could be a relevant driver to combat fragmentation.



Mountain forest road (source: O. Bertrand)



## 6. TRAINING STAKEHOLDERS

Several cases demonstrate the need for appropriate training, especially for forest owners. For forest owners, particular needs concern awareness of the need for, and the acquisition of skills in, forest management. In this regard, the role of forest owner associations in the implementation of management plans is to be highlighted and encouraged.

For companies and industries, the skills used, often acquired through experience (e.g., use of heavy timber, chestnut) or training, are not sufficiently adapted to the needs of businesses (GURNDIN). Finally, it is often the companies themselves who train their employees. This niche is exploited by ARPANAFF, specialised in training workers for harvesting mountain timber.

➔ Recommendation 6.1. Training and information for forest owners and managers are required for the maintenance and exploitation of forests. Management plans are relevant tools for developing the wood supply and should be promoted to the owners.

➔ Recommendation 6.2. A better match between existing training and the real needs of companies must be found. The principle of on-the-job training could become standard by encouraging sandwich training courses, internships or practical in-company training sessions. In particular, it might be interesting to include training in the knowledge and the practice of specific and advanced techniques such as cable yarding.



Forest exploitation in mountainous areas (source: O. Bertrand)

## General Conclusion

Above all, the limitations of the study should be remembered: the objective was not to present all the types of business activities in the wood sector in mountainous zones. The sole aim was to present a selection of interesting examples which can serve as inspiration to develop new initiatives to promote increased wood exploitation and the development of processing companies in mountainous regions.

Despite these limitations, the case studies were analysed and used to make recommendations based on six aspects of the development in the mountain forest sector:

- The integration of forestry project in regional dynamics
- Financial support to the sector
- The role of marks and certifications
- The research of innovation and performance
- Difficulties linked to accessibility and fragmentation
- The need to train stakeholders

In addition to these six points, the study brings up the relevance of funding projects at the expense of the direct subsidies system (per hectare or per m<sup>3</sup> of wood). Indeed, measures and actions taken should aim to develop all of the wood industry, from operation through to processing. This is why guidance (between stakeholders at the same level in the sector, including forest owners, but also between different levels of the sector) has an essential role in development approaches. However, despite some needs, funding opportunities for guidance are almost non-existent in current programmes (EAFRD, ERDF).

Moreover, the need to integrate defining, consistent strategies across forests was emphasized, and a better contribution to forest industries in the development of mountain territories must be sought.

Finally, the study highlights the value of guidance activities and joint management of forest holdings. It therefore appears appropriate to promote them by using the available measures in the Rural Development Regulation. While measure 142 of the Rural Development Programme relating to groups of producers was not open in the French Rural Development Programmes for the 2007-2013 period, it may make sense to implement it for the 2014-2020 period.



## ANNEX

### A SELECTION OF PROJECTS OF INTEREST FOR THE DEVELOPMENT OF MOUNTAIN FOREST INDUSTRIES

The list presented below has been made thanks to information provided during meetings for the project. These projects emphasize better solutions for utilising wood or exploiting forests and forest products. While all efforts are not located in mountain areas, their example may be inspiring for the development of mountain forests.

This list is obviously not exhaustive.

### **Inventory of good practices on the sustainable utilisation of wood (March 2010):**

A study was conducted in partnership between Forest Europe, the FAO and DG AGRI on this important issue for all Member States. A 75-page document in English, produced in March 2010 brings together more than 20 good practices, some of which are in the mountains or relevant to the issues of cooperation between the sectors. The paper highlights two particularly large problems for mountains: the logistical issue of accessibility to mountain forests; and the issue of fragmentation of forest ownership, which increases the difficulty of organising the offer and the relationship between owners, operators and industries. The documents provided do not detail all the economic components, namely the return on added value for mountain stakeholders, but the contracts identified could provide a basis for further study.

The most interesting initiatives given for mountainous areas in the document include:

- A.2. Improving the organisation of forest owners
- B.2. Improving accessibility to forests, especially in mountains
- C.3. Establishing long-term partnerships between owners, public forest services and industries
- C.5. Establishing a sustainable wood energy sector

### **ROBIN WOOD Project (INTERREG IVC)**

March 2010, 48 months until the end of 2013. Budget: €3 million

Objective: The main objective of the project is the promotion of the multifunctional role of forests as a motor for economic development, environmental protection, and the improvement of the quality of life in rural zones.

Partners: Limousine (FR), Liguria (IT), Harghita (RO), Kainuu (FI), Calabria (IT).

The project has sub-projects including themed projects, such as:

- Renewable biomass energy
- The management of forest resources
- Information/education on forests
- Protection of natural wooded areas
- Forest tourism
- Timber/non-timber products
- Use of local wood

<http://www.robinwoodplus.eu/index.php?v=fr>

The last two are of particular interest for mountain forests.

## **EFORWOOD Project (FP6)**

Nov. 2005 to Oct. 2009, budget: € 20 million

Objective: Impact study on wood sector sustainability

Partners: 38 organisations in 21 countries: in France, INRA, FCBA and CIRAD.

Results: prospective analysis, indicators, methodologies for the analysis of sustainability, scientific literature.

<http://www.eforewood.com/>

## **INTERREG Protective Forests Project (IFP)**

2003-2006 and 2009-2012 projects

INTERREG "Protective forests: management and innovation techniques in the Eastern Alps" 2009-2012, a pilot project to:

- Developing zoning with a protection function with priorities for action, according to diversified types of issues
- Developing technical and budgetary references to the size of forest management construction sites with the purpose of protection and to establish better public policies on this theme
- Consider the respective responsibilities of local stakeholders, and the legal means available and suited to the context
- Integrate an econometric approach to the interest of forest management, with the objective of protecting against other types of interventions to reduce hazards (particularly construction)

The results of these projects will allow Alpine communities at local and regional levels to:

- identify the protective role of forests and their capacity to mitigate risks
- to plan interventions on the territory depending on their priority issues
- to mobilise assistance procedures to communities for their action plans in the area of risk prevention

The INTERREG III A Alcotra n°66 project "Sustainable management in protective mountain forests" (2003-2006) led to the creation and popularisation of technical tools to optimise forestry, related particularly to hazards.

France, Italy and Switzerland each have a manual for mountain forest management, two of which result from the Interreg III A Project "Sustainable management in protective mountain forests." :

- The NaiS (Sustainable management in protective forests, 2nd edition, 2005) for Switzerland
- The GSM (Mountain forestry guide. The Northern French Alps – 2006) for France,
- The SFP (Selvicoltura nelle foreste di protezione, 2006) for the Aosta Valley and the Piedmont, Italy

<http://www.interreg-forets-protection.eu/>

### **Regiowood Project (INTERREG IV A)**

Nov. 2008 to Oct. 2011

Interreg IV A Large regions Programme (Wallonia, Grand Duchy of Luxembourg, Lorraine and Rhine-Palatinate)

This project has two work components: better utilisation of forest resources and economic development of businesses in the timber industry. Although not conducted in mountain areas, initiatives in the project are also relevant to mountain areas, including initiatives related to the utilisation of forest resources in fragmented private forests and to improving dialogue between stakeholders at all levels in the sector.

[www.regiowood.eu](http://www.regiowood.eu)

### ***Forest based sector Technology Platform (FTP) – technology platform the forest industry***

The Forests Technology Platform has defined a roadmap for research and development in the European forest sector which it is in the process of implementing. It also makes proposals to direct research funded by the European Union. Many in the forestry sector and wood industry support the platform. It works in three sectors: forest, paper and wood.

<http://www.forestplatform.org/>









**Euromontana** is the European multi-sectoral association for the cooperation and development of mountain territories. It brings together national and regional organisations in different countries of Europe: regional development agencies, local governments, agricultural organisations, environmental agencies, forestry organisations and research institutes.

Euromontana's mission is to promote living mountains by working for overall sustainable development and improving the quality of life.

To do this, Euromontana facilitates the exchange of information and experiences among these areas by organising seminars and conferences, implementing and supervising studies and European projects through good cooperation with European institutions on mountain related issues.



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