Wood clusters in the Alps: an overview on selected regions

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CONTENT

This report gives a general overview on the wood clusters in the participating regions of the CaSCo project. In addition, it shows detectable gaps in the value added chain wood and proposes approaches for solutions. The report builds on the results of other project activities on the topics “Development of tools”, “Policy development” and “Capacity building and empowerment”. The “Wood clusters in the Alps” report presents in a condensed way the regional situations and particularly focuses on the existing challenges. The report wants to show the diversity of the frame conditions in order to contribute to improving the regional value added chains and to thereby make an important contribution to the reduction of CO₂ emissions.

As a basis for this report, the CaSCo partners analysed the wood clusters in their regions. They checked literature and got additional information from main timber stakeholders. The results are summarised in the so-called “regional cluster study reports” that are available on the project website in the national languages. The summaries of these reports are given in this overview document (ordered by country). The chapter “Synopsis” summarizes the findings and extract of the several regional cluster study reports.

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Synopsis

Frame conditions

The regional cluster study reports reflect the different regional situations and frame conditions to the forest and wood sector.

Forest sector

In this sector a number of differences and regional peculiarities but above all also important commonalities can be seen. An essential common feature is the special importance of the forest in the participating regions. In the project areas, the forest area usually accounts for a large proportion of the land area, with the largest shares being in the smaller, more centrally located project regions. This ranges from France with 35%, southern Germany with 36% and Vorarlberg with 37% to Piedmont (39%), Slovenia (44%), Joglland with 61% and Unione Montana Valsesia with 62%.

Notwithstanding these high forest area shares, the importance of the forest is not reflected in the economic importance or the regional added value due to different frame conditions. An aspect that is present in almost all regions is a strong fragmentation of the forest area, so that a large part of the forest is in the hands of private forest owners with very small areas, which makes it difficult to manage the forest economically and to supply raw wood reliably and in line with the needs of the timber industry. The situation in southern Germany is perhaps the most relaxed in this respect, since Baden-Württemberg has a high proportion of municipal forest and many private forest owners in Bavaria are well integrated in marketing organisations. Overall, however, the fragmentation still poses a problem which hampers the smooth functioning of the processing chain and the supply of the regional sawmills, so that a good part of the potential cannot be exploited. In many places, strong efforts have also been made to improve the situation, although short-term successes are not to be expected.

In addition, particularly in the more centrally located areas, considerable parts of the forest area are poorly accessible due to orography and timber extraction is very costly here. This increases prices and complicates a regional value chain. This applies above all to Italy, France, Austria and Slovenia.

Finally, there are also some restrictions due to the gap between the assortments of roundwood and the requested assortments of wood buyers. In Italy, for example, a high proportion of hardwoods in the forests is faced with a demand for mainly softwoods on the part of wood buyers, which has led to the fact that wood buyers in the past have oriented themselves towards imports.

Value Chain

The side of the first processing stage, i.e. the buyers of raw wood, is quite differently positioned in the various project regions involved, both in terms of the type of plants or assortments and the size structure. Italy (Piedmont, 23,400 km²) ranks first with approx. 200 sawmills and approx. 3,400 second-stage processing plants, followed by Germany (South, 46,000 km²) with 300 sawmills, approx. 2,000 timber construction companies and approx. 3,000 joineries and France (70,000 km²) with 440 sawmills, 400 timber construction companies and 200 timber production
plants. Due to their small size, Slovenia and Vorarlberg cannot be directly compared, but they rank in proportion to Italy (in the case of Vorarlberg, 2,600 km² with 35 sawmills, approx. 100 timber construction companies and approx. 220 joineries) and Germany (in the case of Slovenia (5,600 km²) with 50 sawmills, 72 wood crafts enterprises and 53 furniture industry enterprises). The number of companies offers good potential for establishing regional value chains. Nevertheless, obstacles can also be found in the processing chains which contribute to the fact that the potential of regionally closed processing chains is not sufficiently exploited.

There is also a discrepancy between the supply of raw wood and demand on the customer side. In Slovenia, for example, the sawmill industry is very small. There are hardly any larger companies that have the capacity to purchase the round timber available in the region in sufficient quantities and with sufficient reliability for the forest owners. Slovenia is therefore characterised by a high export share of roundwood (which is then imported back into the country via refined intermediate products). Depending on the geographical scope of the term ‘region’, this is also the case in other regions (e.g. Joglland).

In several regions, a certain division of the customer side into a few large companies dominating the market and a broad mass of small to micro-enterprises can be observed. For example in Slovenia, but also in Piedmont. Over the past decades, wood processing and the ‘supply side’ for raw wood have developed somewhat apart. This has led to an increase in foreign trade flows and transport distances. In Slovenia, Italy (Piedmont, Unione Montana Valsesia) and France (Auvergne Rhone-Alpes), for example, a high proportion of sawn timber has been imported, however this is not necessarily due to terms of capacity. But also in Germany there is a proportion of foreign trade in many assortments which could be reduced quantitatively and technically and which could be available for regional added value. The fact that spatially very limited regions such as Vorarlberg and Joglland, especially in connection with the border location with two neighbouring countries, link many goods flows with foreign countries is primarily a economies of scale effect, although this share has increased sharply in the past.

The actors in the processing chain are not sufficiently connected and coordinated with each other in cooperation. The individual sub-sectors (within regions) see themselves less as a network that supports each other via regionally closed cycles but are more outward-looking. If each individual only decides for himself, this constitutes an additional obstacle to regional value creation. Here a common goal is still missing for long stretches.

Other frame conditions

As the initial situation and obstacles in the field of forestry are still comparatively similar and already vary more in the field of wood processing, there are very large differences with regard to the general, social and political environment. In some regions, wood as a material is already attracting a great deal of attention, especially on the political side, e.g. in southern Germany with its strong, mainly politically supported wood clusters or a special wood construction promotion programme such as in Baden-Württemberg. The situation is also similar in France and even more so in Vorarlberg, which plays a pioneering role in the Alpine region when it comes to wood. The general importance of wood, for example in Italy and above all in Slovenia, is considerably weaker. Here are only recently some activities implemented to strengthen the wood sector. When in the past, the use of (local) wood was a formative tradition in the entire Alpine region, this has most likely continued through time in the German, French and Austrian project regions.
While in some regions (e.g. Auvergne Rhone-Alpes or Vorarlberg) special political emphasis is placed especially on local wood, this is not the case in other regions to the same extent. Awareness of the importance of regional processing chains for regional added value is often low, and even in regions that strongly promote the topic of wood, the origin of the wood often plays a subordinate role. This is also the case, for example, in Germany; despite all political statements to appreciate local wood, it usually fails because of the consequences in practical action. In some cases even the opinion is represented, that modern wood application cannot be realised with regional processing chains.

Overall, various obstacles to regional cycles add up to high "frictional losses". A common 'lubricant' that reduces these friction losses and connects the actors with each other is lacking.

**Action fields**

In view of the complex and sometimes strongly varying problem constellations in the various regions, the starting points in the participating regions are also characterised by different focal points, especially with regard to longer-term measures. At the same time, however, there is a range of strategies that shall be pursued equally in different regions.

On the demand side, the focus here is on strengthening awareness and appreciation of and demand for regional timber. This applies in particular to Italy and Slovenia, but it is also important in strong timber regions such as Germany and Austria.

Another important common point is the creation of additional incentive systems for regional climate-friendly wood, especially on the part of the public sector. This was considered to be particularly important in Italy, Germany and Austria. The main options here are sustainable public procurement as a driving force and targeted support programmes.

Within the timber chain, approaches are needed for increased cooperation. This applies not only to countries in which very few companies are organised in wood-related working groups or clusters, such as Slovenia or Italy, but also to regions that already have a strong organisational culture, such as Austria or Germany (Forst & Holz cluster, ProHOLZ) and France (FIBOIS, Communes Forêtières...).

Especially in Italy and Slovenia an important field of action is seen in product innovations and technical advancements, which on the one hand should increase the efficiency of the participating companies (e.g. Slovenian sawmills) or on the other hand should provide interesting new products from domestic woods (e.g. Italy).

Although some of the identified strands of action are more likely to be successful in the long term and are designed to the specific characteristics of the regions, there are also measures to be implemented in the short term which are common to most of the participating regions. The targeted introduction of the eco-label HOLZ VON HIER© or LOW CARBON TIMBER© as part of the toolkit developed in the project is an important connecting step, especially in Germany, Austria, Italy and partly also in Slovenia. On the one hand, this stimulates cooperation along the value chain and, on the other hand, the demand side is promoted by instruments for controlling, public relations and sensitisation.
SUMMARY OF CLUSTER STUDY REPORT VORARLBERG

The Regional Cluster Study Report “Wood cluster Vorarlberg” describes the situation in Vorarlberg and shows approaches for closing existing gaps in the regional value-added chain.

Vorarlberg is the westernmost and second smallest federal state of Austria with a surface of 260.184 hectares and 390.000 inhabitants, living in 96 municipalities. 3.500 persons are working full-time in the forest and timber sectors, creating a yearly economic performance of approx. 290 million Euros.

More than one third of the surface is covered with forests. One third of the forest grows on steep slopes with an inclination of more than 60 percent. About half of the forests are protective forests. In average, two thirds of the yearly annual growth of wood are used. Without harming sustainability, much more wood could be used.

Timber as a construction material has a long tradition in Vorarlberg. In the past decades, timber construction in Vorarlberg has been revitalised on a high architectural level. Many public buildings such as community centres, schools and kindergartens are built with wood. Today, timber construction in Vorarlberg is well renowned worldwide. Nevertheless, more than 60 percent of the timber used for timber construction does not come from Vorarlberg. Compared to other federal states in Austria, the value added from the forestry and timber sectors has been decreasing in the last years.

The value-added chain wood in Vorarlberg consists of 6.000 forest owners of which 65% own small forests, several wood chip heating plants, 1 paper company, 35 small sawmills and moulding plants, 1 major producer of solid structural timber / laminated timber / cross laminated timber (which is not interested in the use of regional resources), 92 timber construction companies and 222 carpenters. Among the almost 500 companies in the timber sector, 41 are members of the Vorarlbergholz association, showing their commitment for the use of regional wood. In general, timber construction companies are requested to work faster, with more precision, new and modern designs and high demands on static safety. To comply with these requests, they use more and more industrially prefabricated timber components.

Regarding export and import (only numbers on a national level were available in this context); both have increased related to fuel wood, resulting in increased transport volumes. The log sector is relatively constant. Imports of sawn timber have increased due to a higher share of timber used in the construction sector. The import of veneers (including laminated timber) has also increased.

In Vorarlberg, logging is relatively constant with approx. 360.000 solid cubic metres per year. Sawmills are using less regional logs, while buying timber from other areas. At the same time, logs are sold to other regions, causing increased transport volumes. Especially timber grown in forests in higher altitudes has a higher quality and can be used for special purposes. It is therefore requested by foreign buyers and the high-quality timber is missing in the regional value-added chain. In the timber construction sector, less regional sawn timber is being used. This is mainly due to an increased use of laminated and cross laminated timber.

The most important gaps which could be detected in the value-added chain wood in Vorarlberg are the missing readiness for delivery of regional timber, the acquisition of semi-finished timber
products (laminated and cross laminated timber), an image of regionality which does not correspond to reality, and altered demands. The acquisition of semi-finished timber products creates a potential for value-added of more than 30 million euros per year which is not used, and it causes additional CO2 emissions through increased transport distances. Timber companies are not interested in making the foreign source of timber known. In the same time, timber products which have been transported over long distances lose their CO2 advantage for example compared with concrete. Technological progress is the main reason for altered production processes and markets. More products are available and there is a request for pre-fabricated products (among others to reduce on-site construction times) which cannot be satisfied by regional companies. From the point of view of the sawmills, an extended product range increases the storage space requirements (and related costs) and a higher degree of pre-fabrication entails major investments.

Possible solutions to increase regional value-added are: public relations work with a focus on transparency, clarification of legal framework, creation of incentives in the subsidy system, joint efforts of timber companies in favour of short transport distances and efficient processes. A new virtual central timber storage could be a key for increasing the missing readiness for delivery. In the context of the CaSCo project, Regio-V will communicate this idea and start the discussions on it. In the course of the project, an even better lever has been identified: the feasibility study for a production plant for massive laminated wood. A concept for the organisation, technology, finances and location will be elaborated. The basis for negotiations on a possible location will be laid and first clarifications on finances will be done.
SUMMARY OF CLUSTER STUDY REPORT JOGLLAND

Austria is located in the middle of Europe and is known as a very woody country. Austria has a long tradition of harvesting of wood. Austria covers a total area of 8.4 million hectares. About 4 million hectares are forest. This forest consists of 82% economic forest and only 12.5% of protected forest without yield. 53% of harvested wood are used in the saw industry, 18% in the paper and pulp industry as well as 29% are used energetically. Austria is also a country with very strong foreign trade, so the export rate of 66% is also no surprise. The strongest trade partners abroad are the close countries of Germany and Italy.

The LAG Kraftspendörfer Joglland is located in the north-east of Styria. The province of Styria has an area of 16,401.04 km² and the largest share (61.4%) is forest. That is why this state is often called the "Green Mark". Next to tourism, the timber industry is the largest economic factor in the province. Over 10,000 km² of Styria are covered with forest. In Styria annually more wood grows, than it is used. Every 4 seconds in Styria one reserve meter grows.

The local action group Kraftspendedörfer Joglland is an association of 12 municipalities from the districts of Hartberg-Fuerstenfeld and Weiz, with the centers of Grafendorf, Vorau and Birkfeld. The Joglland is a structurally weak region in which the emigration is a big factor. Within the next 40 years a further decline in the population of up to 26% is forecasted. The big problem is that only slightly more than half of the workers find a job in Joglland. Therefore the majority of the workers are forced to commute.

The long-standing initiative "TANNO - Innovation from fir wood" is based on the above-average of fir in the region (20% share with more than 2/3 of forestry in the region). The aim of TANNO is to secure the fir in the local forest stock and to strengthen the value chain of fir. This fir wood is very special and is not perceived so strongly in the other parts of Austria, since the occurrence is limited to 3% of the Austrian forest share. In general, the entire forestry and timber industry in Joglland is characterized by micro-enterprises (under 10 employees). There is no medium-sized (50 or more employees) or large company (more than 250 employees) in the region. The forest is almost exclusively private-owned or small-scale structured. The wood harvesting takes place when the weather is suitable for working in the peasant forest and not when the price is high.

The Joglland has more than 27,700 hectares of forest. At the moment, 154.3 GWh or more than 74,000 bank meter of wood is used for energy in the region. The sustainable potential for energetic purposes is significantly higher (473.6 GWh). This results in a surplus of over 226,000 blank meter for energetic purposes which could be used energetically (e.g. for pellets, wood chips or logs) outside the region. In the Joglland over 300,000 blank meter of firewood and over 128,000 blank meter of timber are harvested per year. In sum, more than 428,000 blank meters are harvested each year for material and energetic purposes.

Weaknesses of the WOOD ADDED CHAIN with project reference:

In Austria, 81% of the forest is privately owned, whereas most of this share is cultivated by small forest owners. The problem is that small forest owners are not really flexible and harvest their wood either at high wood prices or when they have time. Thus, the supply of regional produced wood is very unsteady. The smaller the regional level, the more unsteady the local wood supply occurs. However, the wood construction and furniture sector in Austria needs reliable quantities in a relative short time frame. These circumstances makes it very difficult to use regional wood.
On the basis of the analyses in the value chain, it has become clear that there is currently hardly any knowledge about the actual flows of wood, especially at the regional level, and that this survey is very complex and inaccurate or can only be done through estimates and balances. Actual quantities and flows can hardly be fixed. It is also unclear where the system boundary is objectively and demonstrably used. It is also unclear how a processing company can present its CO2 emissions in a practical manner. Currently there is no experience with CO2 certification in the local value chain.

There is a lack of templates and support for the construction industry for the use of regional wood. The problem with public customers in particular is that they are still under-sensitized to the use of regional wood, and therefore any additional costs are less likely to be accepted. In general, however, awareness of the use of regional wood is not yet known or widespread. The definition of tendering standards is likely to cause additional costs, which may not be affordable, especially for small businesses. The CaSCo approach should only be used for certain products which are to be found:

- Furniture: Certain furniture, customers, distributors ...
- Lumber: certain assortments, customers, distributors ...

Also, the question is still unclear who pays such certificates in the value chain.

**Improvement suggestions:**

**Make the HvH or CaSCo tools practical**

- The label "Holz von Hier" should be implemented in practice in Joglland.
- The HvH certificate should only use products that exist in the region. For example, there are no large dimensions of timber in the region. The certificate should therefore only include products that can be produced in the region.
- It requires a corresponding automated or digitally supported collection of timber flows at the regional level, which is also practicable.

**Increase awareness**

Any type of certificate makes sense for the region because it creates awareness among the customer (e.g., Bio-Observer). As many regional raw material suppliers or forest farmers as possible should be involved in the project (broad investment approach). Furthermore, trainings can assist with regional stakeholders.

**Address specific products and target groups**

As a target group environmentally conscious actors are addressed, because then the price does not play such a big factor. Since public customers are still little sensitized to the use of regional wood and thus any additional costs (be it financially or organizationally), the primary target group would be "tourism, gastronomy and the hotel industry", where a higher price may be available. Regionality and health care marketing can be passed on to end customers or a unique selling point of these companies can arise as a result.
Private individuals, who have an affinity for ecology, are also considered as a further target group. Linked to this, the approach could also be used for certain products (e.g., Bio-Babsorber from Hutter) in order to demonstrably confirm the CO2 emissions.

The certification tool could be useful for certain operations, such as Perfect Wood.

**Network**

You need flexible and fast-producing partner companies, which you need to find and network (ideally via the forest association). Stakeholders should be made aware of the use of regional wood or already be a flexible commodity producer. According to the stakeholders in the region, it is not possible to generate large dimensions of timber from the region because the micro-forest owners are unable to provide adequate quantities in due time. Stakeholders and organizations are therefore to be more closely networked along the value chain.

**Implement the "Holz von Hier" label**

- Presentation of the label "Holz von Hier"

The label "Holz von Hier" is presented to the stakeholders of the region and a possible implementation is checked (e.g., with the Waldverband or the Chamber of Agriculture).

- Test certification in selected companies

In selected companies, the implementation is tested and based on their experience, it is checked whether the label "Holz von Hier" is perceived as suitable or needs to be adapted.

- Implementation in public procurement procedures

It is checked whether the label "Holz von Hier" can also be implemented in the public procurement process.

**Conduct trainings with stakeholders in the region**

Stakeholders of the region should be invited to a training in the form of a workshop. The implementation of the label "Holz von Hier" will be shown and the results will be presented. In addition, a focus should be placed on implementation in the public procurement process.

**Networking the projects TANNO, CaSCo and the organisation Waldverband**

The aim is to make sure that the TANNO and CaSCo projects are more closely networked. The meaningfulness is absolute given that there are some similar contents. In addition, the organisation Waldverband should be consulted, since here the small and micro forest owners of the region converge. In addition, a lot of public relations work should be carried out. With the help of an award, the project CaSCo and its contents are to be advertised in the region. In addition, the pilot company will be accompanied by an attempt to accelerate regional timber and to minimize CO2 emissions through logistics. With the help of the best case examples, the contents and topics of the CaSCo project should be made explicit again.
SUMMARY OF CLUSTER STUDY REPORT AUVERGNE RHONE-ALPES

Low carbon wood in our region is relevant because local authorities are well interested in this topic and forest and wood is a real opportunity in Auvergne-Rhône-Alpes.

The Auvergne-Rhône-Alpes region is strong:

- 70 000 km². 450 km from the border Est to the West and 400 km between North and Sud.
- 8 000 000 inhabitants, 4 200 local authorities
- With a gross Domestic Product (GDP) near than 240 billion Euros,
- Auvergne-Rhône-Alpes is the second french economical region, like Denmark economy, up to Irland, Portugal, or Finland, with 770 000 companies and industries, 62 700 farms on 2.9 million ha.
- There are 3 mountains: the massif Central, the Jura and Alps, where we can find most of the regional forest.
- The wood chain is represented by 20 200 companies with 63 700 jobs with a turnover of 6 billion Euros.
- The regional forest is covering 2 475 000 ha. It is 35% of the region. 2/3 are located in mountain, 54% of this part has strong constrains for harvesting: slope, away from roads. Slope up to 30%, preventing any mechanization, are representing 1.2 M ha.

Forest represents 469 M of m³ of standing timber, 46% are coniferous. The biological growth is estimated to 14 M of m³/y but the taking in forest is around 5.1 M of m³/y, 3.8 M of m³/y are timber.

The wood chain is represented by 438 sawmills production 1.8 M m³/y of sawn woods. 16 companies are representing 50% of the volume that show a gap between small scale companies and bigger one.

The wood chain is also 400 companies involved in wood building generating 375 M€ of turnover that represents 22% of the French activity. In 2016, 2280 houses, 1880 collective housings and 1475 extension/elevation were built in wood in our region.

Concerning wood energy, the 200 local companies are producing 1 M of tons of wood chips and 350 000 tons of pellets in 2016.

There is no industry of panel for OSB and MDF, paper and furniture are also in deficit

**Strength:**

- The standing volume of the regional forest is very important, the growth is up of the harvest
- The coniferous timber is the more dynamic with an harvest of 3 M m³/y
- The wood energy sector is very dynamic and in growth
- The building sector is important and is exporting is experience in France especially in Paris area.
- There is sectors very specialized that is developing innovative product for building
Weakness:

- The harvest of deciduous trees is lower than potential
- Harvest in accessible zones could break down to over exploitation
- Fragmented ownership in forest prevent a good process and slopes are increasing prices
- Sawn wood: this activity is in deficit, sawn woods are imported from Germany, and North of Europe. The local production offer is smaller quantities and delivery times upper than foreign offer.
- Due to a lack of optimization of wood production in forest, timber has knots and it is a handicap for raw material optimization especially for sawn wood. The local wood recovery is lower than foreign wood. The professional of building are asking an upper quality for local wood than for North wood, due to a lack of trust in the technical qualities in local wood.
- There is no factory of panel like OSB or MDF, and factory of massive wooden panel (sign) plywood.
- Paper and furniture are also in deficit

Those difficulties are well identify in our region and local associations are developing trainings, tools, prices, exhibitions, communications to develop local wood valorization like the label Bois des Alpes or the last one Bois des Territoires du Massif Central to promote technical specificities of mountain timber.
SUMMARY OF CLUSTER STUDY REPORT GERMANY

In the timber industry in Germany and in the program region, an increase in transport and a growing gap between the wood-processing trades on the one hand and the first processing stage (especially the sawmills) on the other can be observed. While timber construction is booming, more and more SME sawmills are closing or having to change their production and sales markets. The processing chain has therefore broken down on many levels at the regional level and is diverging. However, such regionally closed processing chains are fundamental in order to be able to offer regionally fabricated products also in the future and thus to preserve the excellent climate balance of wood as construction material.

These observations are particularly surprising as there is still a diverse structure and high density of woodworking and processing companies in the program region - especially in comparison to the national average. Moreover, the use of wood in the German program region has a long tradition and a special meaning. Although a sufficient number of companies are located in the program region in the sawmill industry and the wood-based materials industry, the manufacturers of engineering wood products, solid wood panels, veneers and floors, and especially in among crafting companies, the material flows are often significant further than the operating density would prompt. This shows that the mere promoting of demand for wood products alone is not a guarantee for strengthening regional networks or regional value added.

Even if from the perspective of forestry as a raw material producer, a mainly regional sales market seems to prevail, the material flows from the first processing stage onwards splits up very sharply and there is a buoyant and uncontrollable cross-border flow of material out of the region or even out of the country and at the same time back into the region resp. country. This contrasts with many politically motivated statements and agendas that automatically equate the promotion of timber use with climate protection and creation of regional value.

Although there is a large number of professionals and organizations in the area of the Forest & Wood Cluster in the region, these, with a few exceptions, do not deal with the issue of regionally closed processing chains. Besides a few regional initiatives that are strongly focused on specific sub-regions, Holz von Hier is the only player in the program region who explicitly pursues this objective and develops appropriate activities or provides instruments.

In view of the potentially sufficiently abundant structural diversity in the program region, the previous obstacles to regionally closed process chains are mainly due to a shift from classic timber to semi-finished goods, which are cheap to obtain on the global market, as well as to information deficits also within the industry, to pretended or suggested regionality and to changed demands of customers as well as companies on products and services. However, these barriers are surmountable and will be tackled in the CaSCo project with appropriate tools and measures. An essential instrument for this goal is the implementation of the proof of origin and the environmental footprint of Holz von Hier within the entire processing chain as an incentive instrument, with which the companies possibly compensate for the existing advantages of transregional to global purchases of raw materials and materials.
SUMMARY OF CLUSTER STUDY REPORT PIEDMONT

The forest-wood supply chain of the Piedmont region has a significant potential for using local resources, which due to different factors is actually only minimally exploited. Despite the fact that the forest-wood-building-furniture system is a sector in significant growth, and the size of regional forestry is growing, in the regional context the positive trend of wood construction is not yet connected to an increase in the use of wood coming from regional forests. The wood harvesting and processing sector (Interbois project data, 2006) is structured as follows:

- Forest utilization companies (about 500 companies for a total of about 115 million euros of turnover / year)
- First processing companies (195 companies, with a turnover of about 360 million Euro / year)
- Second processing companies (3400 companies, for a total of about 10,000 employees)

The total forest area of Piedmont in 2016 is 976,953 ha, equal to 38.5% of the regional territorial area. Compared with the 1980 data, the forest area increased by 38%. 75% of the area is represented by 5 forest categories: chestnut (22%, CA), beech (15%, FA), robinia (12%, RB), larch and cembreti (10%, LC) and invading woods (8%, BS). Poplar cultivation decreased by 27% in terms of area compared to the year 2000, for reasons that could be summarized in the decrease of its profitability in a globalized context and increasingly characterized by delocalization phenomena. This crisis has led to a significant reduction in the amount of work wood coming from Piedmont’s forests. The certification rate of sustainable forest management of forest properties (GFS), compared with other European regions, is still rather low (just over 2% of the total). The forest area harvested is about 3,300 ha per year, with an average size of cuts of about 1 ha. The division of the volumes taken according to the assortments confirms the poor technological quality of the raw material. Almost 70% of the assortments are destined for energy purposes, compared to only 20% of the assortments destined for the production of poles or work timber with higher added value. The area used is less than 10% of the approximately 36,000 hectares available per year. It is possible to estimate that Piedmontese forest utilization companies use and commercialize around 900,000 m³ / year, of which about 700,000 m³ / year from regional forests. In Piedmont (data Unioncamere 2017) around 3,600 first and second woodworking companies are operating (including trade, furnishings and the construction sector), mainly concentrated in the provinces of Turin and Cuneo.

The sawmills in Piedmont (source: Interbois project, 2006) work approximately 2,000,000 m³ / year of equivalent round timber, of which approximately 550,000 m³ are made up of regional wood. The high land fragmentation of private properties, as we know, combined in many cases with the poor quality of retractable assortments, makes it difficult to intervene on forest surfaces. This aspect generates difficulties in feeding the first processing companies and supporting the local supply chain without resorting to the importation of semi-finished products. The same structure of the first processing companies is affected by the scarce organization of the upstream supply chain, with the presence of relatively few medium-small sized companies and plant equipment (eg industrial drying plants) insufficient to guarantee significant volumes. Nevertheless, the territory does not lack the possibility of triggering in the short-medium term the processes of valorisation of valuable species able to guarantee quality assortments, working on the one hand on the sensitization of demand (end users and large-scale retail distribution / public administration) and on the other, on the offer, developing innovative and effective forms of exploitation of the forest properties that allow to overcome the historic barriers. Thanks to CaSCo project, 440 subjects...
have been identified that are considered to be particularly significant for size, territorial relevance, demonstrated commitment to the valorisation of the re- gional wood resource, stimulating action in relation to the private and public market and in the training and sensitization of the op- erators of the chain. These "key players" potentially represent the elements on which to build the supply chains and trigger the territorial processes of valorisation of the regional wood, to favour the replicability and transferability of the model to the entire terri- tory. The valorization of the regional wood suffers from a series of problems that are reflected in the transversal lack, on all the links in the supply chain, of sufficient quantities of material of techno- logical quality suitable for a series of uses for which the foreign wood instead it is often more ap- propriate. The main critical issues concern the following aspects:

- Quantitative issues: The absence of active forest planning and management, which also involves those capable of generating the highest value ranges, is reflected in the low level of use of the resource. If for the private properties the cause is attributable to the high level of fragmentation, for public properties are to be noted the low number of allocations to cutting by the municipali- ties, not subject to any programming, and the limited volumes of timber harvest compared to the usable potential. This phenomenon is reflected in an in- crease in the cost of raw materials and above all in the impossibility of organizing a supply chain based on a certain and constant supply of the assortments necessary for the first processing companies. - Qualitative issues: The regional wooded areas are characterized by a significant percentage of forest categories governed by cop- pice, affected by technological defects or by the recolonization of pastures and non-wooded areas (newly formed forests), from which it is problematic to collect assortments suitable for uses in construction, furnishing and construction. - Use of local resources: The possibilities of using re- gional wood are still affected by a partly incomplete regulatory framework, as for example for the technical certification of round hardwood lumber for structural uses.

- Dissemination of the environmental value of regional wood: There is a very low level of aware- ness of the environmental value of wood, which is not yet communicated and certified properly. The% of forests certified for sustainable forest management according to the PEFC and FSC schemes, even in the presence of very clear regional guidelines on the subject and of financing measures under the Rural Development Plan, is only around 2%, with a peak of around 7.5% in the province of Turin. Commercialization must identify the most attentive channels to meet the growing environmental sensitivity of the private market, which is not currently intercepted by large-scale retail trade. Even if it is not possible to plan to change supply chains in a short time, the analyses show that it is possible to make greater use of certain types of assets by developing existing or experimental sup- ply chains, working both on the public and private demand front (including marketing and retail) that on the qualification of the offer of semi-finished and finished products through innovative solutions (both solid wood and engineered products) for new appli- cations. The proposed approach, starting from the CaSCo project, can be based on the following categories of actions:

- Actions for the valorisation and certification of the environmental value of the regional wood, through the testing of the CaSCo tool and of the traceability and certification system on a signifi- cant group of regional companies - Training of private operators, with a specific focus on oppor- tunities for the innovative use of wood from a short supply chain (Low Carbon Timber) from re- gional forests and the dissemination of products and achievements developed - Support to public administrations in the use of the Holz Von Hier traceability system in pub- lic procurement proce-
dures and in the integration of CasCo instruments in their procurement processes, also in response to the Minimum Environmental Criteria (CAM) defined at ministerial level.

In a medium to long-term perspective, actions for the promotion and organization of a supply chain capable of enhancing the regional wood could be coordinated by a "cluster manager", equipped with technical skills and territorial animation, able to offer services consistent with the general objective of enhancing the wood resource and the fabric of companies that on the territory today express specific competence and professionalism in the transformation activities.
SUMMARY OF CLUSTER STUDY REPORT UNIONE MONTANA VALSESIA

This Report describes the situation in the territory of Unione Montana Valsesia and shows approaches for closing existing gaps in the regional value-added chain. The Italian official database about the wood sector is very poor and little specific, so the most important information had to be collected by directly interviewing the actors (not only the key actors).

The area is 772 km² wide and includes a large proportion of forest land (48.792 ha, 62%). The main species of forestal interest are beech, chestnut, and secondly, fir, spruce and larch.

The total roundwood production of Valsesia is nearly 26,000 m³:

- Construction timber and carpentry 6,500
- Package and pallets 4,200
- Tannin extraction 2,100
- Firewood 9,200
- Woodchips 3,000

Major timber products (roundwood):

- firewood (mostly beech) and woodchips (mostly chestnut),
- coniferous construction wood (fir, larch, spruce),
- coniferous wood packaging material (Weymouth pine, spruce, fir, larch),
- chestnut wood for tannin extraction.

Minor timber products (roundwood):

- Hardwood for carpentry and woodwork (chestnut, ash tree, oak, maple, cherry, linden)
- Chestnut (and larch) woodpoles
- Pellets (little amount produced by the main sawmill)

The local timber production is low quality and not sufficient to supply the sawmills and the first and second transformation companies, which need nearly 12,000 m³ timber per year, almost all imported from Austria, France, Germany, Russia, Switzerland and Finland.

Some positive facts are:

- Decent cable crane spread, important to face a rocky and difficult orography
- Presence of a forest management institution (Monte Rosa Foreste Association) which is in charge of the following tasks:
  - Acting as land owners’ proxy and managing the forestry resources
  - Providing technical support to all the supply chain actors
  - Developing and suggesting strategies for action at a local level
Encouraging networking among all the actors of the supply chain. Cooperating and interacting with public authorities, both local (UMV, Gal Terre del Sesia, business associations) and regional (Regione Piemonte)

- Presence of 8-9 wood-fired biomass power plants (wood chips) with nearly 4 MW total power
- Some public demand of timber for low-impact environmental engineering and external furniture

The main problems are:

- Environment: difficult and rocky orography, poor vehicles access (access is possible on 1/3 of the forested area only)
- 70% of the forest is property of a massive number of landowners;
- Planning: unified management was never adopted; resources were managed without plan; a wide area forest plan is lacking; a forest management plan for public properties is now being implemented by Monte Rosa Foreste;
- Predominance of coppice forests over high forests: lack of construction timber assortments;
- Consequences of mountain abandonment: aging of coppice (beech, chestnut, oak), high presence of deadwood;
- Severe situation of chestnut coppices: current age is higher than normal rotation age, high presence of ring shake, parasite attacks (chestnut blight, Asian chestnut gall wasp), drought, high propensity for collapsing;
- Small and unstructured businesses, plenty of individual enterprises;
- Significant presence of black economy, particularly in the firewood market;
- Production is fragmented and uneven; the market transparency is poor; general wood industry and primary and secondary processing companies rely mostly on imports; very small interest in local timber;
- Effects of 2008's downfall: many sawmills were forced to shut down, undeclared activities concerning wood harvesting rocketed.

Main opportunities are:

- Wood chips: this product could virtually be increasingly used for small heating systems (private customers, apartment buildings); product certification and traceability;
- Firewood: any potential for quality improvements (product certification, traceability, volume sales (nowadays firewood is sold by weight));
- There is still room for improving the exploitation of high and middle quality assortments, even if they are not so frequent;
- Existing projects: aggregation of private properties and exploitation of collective ownership (EU funds – RDP);
- Existing projects: drawing up PianiForestaliAziendali (local forest management plans are fostered by Regione Piemonte) about public and private property (UE funds – RDP);
- Existing projects: EU research and funding projects to exploit a selection of broadleaf trees: “CastagnoPiù” (UE funds – RDP)
The main gap concerns the critical separation between the demand of high-quality assortments and the local timber supply, which is heavily insufficient. This situation is a deeply structural issue and cannot be changed in a short time. However, some realistic approaches are feasible to get effective outcomes, taking into account the starting point.

Basically, a general approach aims to influence the demand by creating an exigence of LCT in GPP and in the private sector, on one hand, and qualify the supply of local products by making them recognizable, on the other.

CaSCo approaches will be:

- Empowering existing use of local construction timber by promoting the use of solid wood (small production of laminated wood in Italy).
- Promoting GPP by experimenting templates and the tools outputted by the project. Particularly the tenders will concern external furniture and environmental engineering. Also private use of external furniture will be involved in the project.
- Tightening commercial relationships between local sawmills and roundwood producers from Valsesia and from Piedmont.
- Encouraging local second transformation companies in using local wood by qualifying private demand.
The Regional Cluster Study Report describes the situation in the forest wood industry in three Slovenian regions: Gorenjska, Podravje, and Pomurje and provides approaches for closing gaps in the regional value chains. Due to the lack of information on the wood industry on the regional level, some information is relevant for Slovenia.

Slovenia is the third most forested country in the EU for Finland and Sweden, with an annual growth of more than 9 million m³ of wood. Wood represents an important strategic raw material of Slovenia, and the Slovenian wood processing industry is the only Slovenian industry with a home-grown and high-quality raw material. In the 1980s and 1990s, the wood processing industry was one of the most export-oriented branches of Slovenia. In the period since the independence of Slovenia, however, it has shrunk to a quarter of its former volume.

The analyses carried out so far show that the main reasons for the decline are mainly the slower adaptation to global changes, insufficient investment in development and an unfavourable macro-economic environment for labour-intensive industries. The recent economic and financial crisis further hit the wood processing industry and revealed all the weaknesses and shortcomings of past operations.

The performance indicators in recent years show a gradual improvement in the situation in the wood processing industry. Since 2012, there are trends in the growth of the number of companies in the industry, labour productivity and gross value added per employee. Investment activity is also intensifying. However, the gross value added per employee is still lagging behind the average gross value added per employee in manufacturing. The number of fast-growing companies in the industry showing the dynamics of the industry is relatively low, which is in with 92% dominating micro enterprises in the sector, unfavourable for a long term performance of the sector. The general situation in the forest wood value chain in Slovenia also applies to Gorenjska, Podravje and Pomurje regions.

Gorenjska lies in the north western part of Slovenia and borders to the west to Italy and to the north to Austria. The surface of the region is 2,137 km². 203,654 inhabitants live in the region. Gorenjska is an Alpine region with a distinctive mountain landscape. The forests cover 65% of the territory. Over 45% of the region comprises protected areas of nature. Forests in Gorenjska represent 12.3% of all forest areas in Slovenia. 68% of forests are conifers, especially spruce. Regarding the ownership, 85% are private forests, 14% are state forests and 1% are owned by municipalities. Wood is used in various areas. In addition to the rising traditional use of wood as an energy source, it has become important again in the last period as a healthy, energy efficient and high-quality raw material in the construction industry and furniture production. Despite the increase in logging in recent years to 250,000 m³ per year, due to the wind and the appearance of bark, the logging reaches only half of the possible annual logging.

The value-added chain in Gorenjska consists of 191 forestry and wood processing enterprises, of which 80 in the field of forestry and 111 in the field of wood processing and furniture industries. In addition, 75 persons are registered to work in forestry as their supplementary activity. These are mostly farmers. Most of the companies in the wood processing industry are furniture producers (28 or 25%), followed by carpenters (26 or. 24%) and sawmills (23 or. 21%). 10 companies in the furniture industry are specialized for the production of furniture for business and retail premises, and 3 for the production of kitchen furniture. 3 companies produce bed slats, 6 wood pack-
aging, and 7 different wood products. 1 company produces wooden panels. In the forestry sector, most of the companies are dealing with logging. Only 1 logging company is a middle sized company. The others are small sized companies.

In 2017, 1548 persons worked full-time in the forest and timber industry, which generated 51,5 million Euros added value. Wood processing and furniture industry generated 145,1 million Euros revenue in the year 2017, of which 45,6% on the foreign markets. This shows a fairly large export orientation of companies. However, the largest share of revenues on the foreign market, almost 86%, was achieved by only one, wood panels production company.

The forest wood value chain in the Gorenjska region is dominated by small businesses. However, in all parts of the value chain, there are several larger companies, which provide a good basis for the further development of the wood processing industry in the region. The only exception to this is primary wood processing, where only small sawmills operate. Due to the lack of storage capacities and, in particular, due to the lack of sufficient working capital to finance the purchase of large stocks of wood, small sawmills represent an obstacle for processing more local timber in the region. This weakness could be eliminated by strengthening cooperation between the sawmilling companies themselves and by linking them with other companies in the forest wood value chain in the region, which are the main buyers of primarily processed timber.

Podravje region lies in the north-eastern part of Slovenia and borders in the west to the Koroška and Savinjska regions, and in the east to the Pomurje region. In the north, it borders to Austria and in the south to Croatia. It has 321,493 inhabitants. The region's surface is 2,170 km2. In Podravje, there are around 8% of Slovenian forests. In the structure of the forest, almost 56% are deciduous and 44% are conifers. 78.6% of the forests are privately owned. 21.2% are owned by the state. The forests owned by local communities represent less than 1%. The annual logging is 478,794 m3, which is around half of the possible.

In the Podravje region are 122 forestry and wood processing companies. 49 companies are in the field of forestry and 73 in the wood processing and furniture industry. There are also 22 registered persons, who have a forestry activity registered as a supplementary activity. In the forestry, there are 15 logging companies and 31 companies, which provide various forestry services. The majority of companies in the wood processing industry (26 companies or 36%) work in the field of joinery and carpentry. 13 companies are sawmills. 7 companies produce various wood products. In the furniture industry, there are 9 companies that are specialized in the production of furniture for business and retail premises, 4 companies are specialized in the manufacture of kitchen furniture and 7 companies produce various furniture. 6 companies are engaged in the production of wooden packaging, and 1 company in the production of wooden panels.

In 2017, 730 persons worked full-time in the forest and timber industry, which generated 21,6 million Euros added value. Wood processing and furniture industry generated 84,2 million Euros revenue in the year 2017, of which 38% on the foreign markets. The most export-oriented is the production of furniture for business and retail premises. In 2017, these companies generated 65% of revenues in foreign markets. In the Podravje region, the most active part of the forest wood value chain is carpentry, followed by the production of wood chips, wooden packaging and the production of furniture. However, in all mentioned parts only a few leading companies contribute to success. In the field of sawing, only one company stands out. All other sawmills are small. This points to the conclusion that it would be necessary to modernize and equip the sawmills in the region.
This would enable them to process more local timber and consequently more semi-finished wood products, needed for further production of high value-added products.

Among the pilot regions, Pomurje is the least forested region, where only 3.4% of Slovenian forests are found. This region is the most north-eastern, flatland and agricultural region of Slovenia bordering Austria, Hungary and Croatia and the Podravje region. It has 115,818 inhabitants. The area is 1,337 km². The total area of forests in the Pomurje region is 39,777 ha, of which 78.6% are private forests, 20.6% are state-owned forests and less than 1% of forests owned by local communities. Unlike Gorenjska and Podravje, Pomurje is dominated by deciduous trees (75%). Even in this region, the annual logging of 133,699 m³ of wood reaches only half of the potential.

In the Pomurje region 107 forestry and timber processing companies are active, of which 12 are in the field of forestry and 95 in the field of wood processing and furniture industries. In addition to companies, 6 people are registered for forestry as a supplementary activity. Forestry is dominated by companies engaged in the provision of a variety of forestry services (8), followed by logging companies (3). In the wood processing industry, most of the companies operate in the field of joinery and carpentry and manufacture of various furniture (20 companies or 21%). These are followed by the companies which produce furniture for business and retail premises (16 companies or 17%), and sawmills companies (13 companies or 14%). 11 companies (12%) produce a variety of wood products. 3 companies produce kitchen furniture, 2 veneer, wood panels, and wood package. 1 company produces composite parquet and 1 wooden bed slats.

In 2017, 480 persons worked full-time in the forest and timber industry. They generated nearly 13 million Euros added value. Wood processing and furniture industry generated 24.6 million Euros revenue in the year 2017, of which 40% on the foreign markets. The largest share of revenues in the foreign market, namely 93%, is achieved by companies in the production of various wood products. In the year 2017, 63% of revenues on foreign markets was also generated by sawmills.

A brief analysis of the state of the forest wood value chain in the Pomurje region shows the relatively weak composition of the forest wood value chain. The most active and most developed part of the forest wood value chain is the furniture industry, where 3 companies are predominant. The furniture industry employs 73% of all employees in the wood processing industry in the region and creates as much as 85% of the added value of the wood processing part of the chain in the region. The more active parts of the forest wood value chain are also joinery, carpentry, and sawmilling. However, these parts of the value chain consist of small companies, which do not have sufficient material and financial sources for major development breakthroughs. Unlike the other two pilot regions, the Pomurje region is characterized by the relatively poor developed forestry. The number of companies in the forestry is small. There is no large company among them that could take the lead. Added value per employee in forestry is extremely low. Like in the Podravje region, it would be necessary to strengthen the primary wood processing in order to process more local timber and consequently more semi-finished wood products, needed for further production of high value-added products. Given the fact that in the region deciduous forest is predominant, it is reasonable to focus the activities primarily on promoting the production of wood products from deciduous trees.

It should be noted, that cooperation between companies in the forest wood value chains in all three pilot regions is weak. With the exception of the Development Center for the Creative Furniture Industry - RC31, Železniki in Gorenjska region, no forest wood cluster or association exist. Only a few of the largest and most active companies in the wood processing and furniture indus-
try are members of the wood processing industry associations and clusters at the national level. Therefore, promoting cooperation among stakeholders in the forest wood value chain in all three regions seems to be an important measure to stimulate the use of local timber in the regions. The relatively low added value of the wood processing and furniture industries points to the need to find new, innovative, high-quality products from local timber to stimulate demand in the domestic market. In this regard, local communities can play an important role by introducing innovative approaches for promoting the use of wood in the public sector.

In recent years, the production of logs in Slovenia has grown rapidly, mainly due to the higher log of conifers, which has been affected by the appearance of bark. Due to the increased quantity of logs on the market, the export of logs rapidly increases, whereby exports of high-quality logs are dominated by 70%. A quarter of exports are exports of wood pulp, particleboard, and fibreboard. Export of firewood accounts for 12% of exported logs. Regarding the structure of timber imports, imports of wood for mechanical pulp, for the production of fibreboard and chipboard, and imports of firewood have dominated by around 43% in recent years. Import of logs and veneer accounts for 17% of all imported timber, with the dominance of imports of deciduous trees (83%), in particular, beech wood used for the production of veneer. Since 2005, imports of timber in Slovenia has been lower than exports. This difference in the trade balance of timber has increased over the years. Thus, in 2016, timber exports were seven times higher than imports. Slovenia is a large exporter of timber, mainly logs.

The high growth in the production of logs shows that the forest value chain to the sawmills is relatively well functioning. The problem occurs at the level of sawmills, which due to their small size, poor technological equipment, lack of storage facilities and working capital for purchasing larger stocks of logs, are not able to process the available quantity of logs by themselves. Therefore, logs producers look for the market abroad, especially in neighbouring Austria, where the bulk of coniferous logs, mainly from Gorenjska, is exported. The second market is neighbouring Italy, where mainly low-quality wood and firewood are exported.

The key obstacles and the challenges of the forest wood value chain in Slovenia and in all three pilot regions are: dispersed ownership of private forests that makes difficulties by logging and contribute much to less annual logging than possible; the discordance of timber supply with the demand of the wood processing industry; the weak cooperation among the stakeholders in the forest wood value chains in the regions, and insufficient demand for wood products as a result of poor awareness of the possibilities of using wood in the public. The brief analysis of the forest wood value chains in all three regions has shown that no region achieves possible logging. This is directly related to the extremely unfavourable ownership structure of Slovenian forests, where about 80% of all forests are privately owned, with the owners largely small and owning less than 2 ha of forests. This greatly hinders the efficient management and exploitation of timber from private forests, as small private forest owners in most cases do not recognize the value of forests and forest stocks, and also lack the knowledge for successful forest management. Further on, sawmills in all three regions represent the weakest part of the forest wood value chain. They are too small to be able to keep up with the increased supply of wood on the one hand. On the other side, their products are mainly not in line with the demand of the wood processing industry, as they do not have adequate storage capacities, nor have sufficient working capital, which would enable them to create sufficient stocks to ensure smooth supply to the wood processing industry. Further on, small sawmills often do not have enough financial resources for technological upgrading of production, which would enable them to produce quality products demanded by the wood
processing industry. A significant part of unprocessed timber is therefore exported and imported in the form of wooden construction elements, which are needed by the otherwise competitive production of wooden prefabricated buildings and construction industry. Many small entrepreneurs remain unconnected, thereby losing potential synergies that can be achieved through networking and collaboration not only in optimizing their daily business but also in developing innovative high added value new products.

Possible solutions for the improvement of the situation go towards: a) increasing demand for local timber by organizing promotional events and campaigns on the use of local timber, b) strengthening of primary wood processing, where the first step could be preparation of a model for optimizing the process of primary wood processing in dispersed small sawmills by setting up virtual storage facilities and setting up a model of working capital financing at the regional level, c) promoting the cooperation of the forest wood value chains stakeholders in regions by using several promotional measures and tools, and d) promoting the development of innovative, high-quality wood products, made from local wood by organizing a consulting/mentoring group for small companies, rewarding the most innovative solutions to the use of local timber and involving students for developing new innovative solutions in this field.