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Southern Hub Roadmap for Targeted Transfer of Best Practices and Innovations

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1 ROADMAPS ON HUB LEVEL

1.1 INTERREGIONAL ROADMAP FOR THE SOUTHERN HUB

1.1.1 DESCRIPTION OF THE HUB REGION

Europe is full of solutions in the forestry sector, with many of them having the potential to be shared in everyone's interest. For such a knowledge-exchange and transfer, interregional cooperation is the engine that makes this happen. In the ROSEWOOD network, the Southern Hubs consists of four partners from three countries: CNPF from Aquitaine (France), Regione Toscana from Tuscany (Italy) and Junta de Castilla y León and Cesefor from Castile and León (Spain). These three regions perform a high wood mobilisation (cf. **Table 1**), putting them in a role model position for their countries. In the three regions, the Southern Hub's aim is to find tailored strategies and solutions for increasing the wood mobilisation rate in the region. For a full picture, also non-forest sources of wood like urban greenery and non-wood forest products such as cork and chestnut are considered. The focus is on the sustainable management of wood resources and the question of how to serve both, the demands of the industry and the protection of the region's sensitive biodiversity, especially regarding the effects of climate change.

Figure 1: Geographical distribution of the partners and associates of the Southern Hub (Source: own elaboration)

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Table 1: Southern Hub forests key figures

Region	Forest surface (ha)	Standing volume (m^3)	Annual fellings (m^3)
Aquitaine (F)	2.8 mio.	383 mio.	10.1 mio.
Tuscany (I)	1.15 mio.	124 mio.	2 mio.
Castile and León (ES)	3 mio.	154 mio.	3.4 mio.

Despite a strong potential in terms of wood volume, the region faces many challenges concerning the mobilization of wood due to very fragmented forest property and the threat of serious forest fires, pests and forest diseases. The challenges of wood mobilisation also lie in the development of tools for the establishment of joint management models and in the conception of more efficient utilization systems for low-value products that allow their profitable use.

Castile and León (Spain)

The forestry sector of Castile and León is one of the most important in the national context, both in terms of production area, production and production potential, as well as in terms of variety and type of products. The regional wooded forest area amounts to 2’982’000 ha, according to the most recent National Forest Inventory. In addition to this, 1’825’000 ha are treeless forest land, resulting in a total of 4’808’000 ha of forest area. In contrast, cropland totals 3’509’000 ha, which in recent decades has been gradually decreasing as less productive land is abandoned. With respect to forest production, Castilla y León generates 675 million euros from both wood and non-wood products. Of these, industrial production generates just over 500 million euros while primary production is 171 million euros (see **Table 4**).

Table 2: Castile and León Forest production

Sub-sector	Primary production (mio. €)	Industrial production (mio. €)	Total (mio. €)	% of total forest production
Pine sawn wood	55	121	176	26.07 %
Poplar wood	26	28	54	8.00 %
Board	40	212	252	37.33 %
Biomass	15	26	41	6.07 %
Total wood products	136	387	523	77.48 %
Non-wood products	35	117	152	22.52 %
Total	171	504	675	100 %

In the region of Castile and León, decision making is performed at two levels: national and regional (Autonomous Community of Castile and León).

National Level in Spain:

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The Spanish Ministry of Agriculture, Fisheries and Food is the competent body for all the forestry issues, whose Directorate-General for Rural Development, innovation and Forestry Policy has specifically the following competencies:

- The promotion and development of the competences of the Department in matters of innovation and knowledge systems and innovation in the agrifood, forestry and forestry sectors and in rural areas.
- To develop the functions of the Department in the area of digitization, and of the digitisation agenda of the agrifood and forestry sector and the environment.
- To exercise the competences of the Department in terms of training, advice, exchange of knowledge and information for professionals in the agro-livestock, forestry, food and rural development sectors, as well as the promotion of new technologies.
- The development of the competences of the Department in rural infrastructures of general interest.
- The support for the autonomous communities in the fight against forest fires.

Regional:

The *Junta de Castilla y León (JCYL)* is the regional government. As a part of the government, the Directorate General for the Natural Environment of the Department for Development and Environment is responsible for the industrial and commercial promotion of products derived from forests, without prejudice to the powers on this matter assumed by other departments. It is also competent in the planning and programming of forest policy and in the management of forests uses. Further, it is responsible for both, the administration of forests owned by the Autonomous Community and its management in agreement with the owners. In addition, the department promotes relations between the forest production sector and the industrial specialised in the first processing of forest products. It is therefore responsible for the Registry of Forest Enterprises and Industries.

The Castilla y León regional government has developed Castilla y León Forest Plan and specifically the **Castilla y León Forest Resources Mobilization Program**. Its first objective is to increase the value of sustainable production, the productivity of the forests and the sector in the region. This would improve the main economic and employment parameters linked to the regional forestry sector. Therefore, the Forest Resources Mobilisation Programme of Castile and León is based on the following principles of action:

- Diversification and complementarity of production and forest functions. Business internationalization and opening up to the global market. Integration of the region into the commercial forestry development pole of Southwest Europe (SUDOE region) and, more specifically, into its Atlantic Arc.
- Commitment to quality and sustainability as a production strategy, seeking final productions with greater added value and ecological orientation.
- Importance of traceability links between stakeholders in the sector and integration into value-chains.
- Clarity, simplicity and strength in regulatory frameworks.
- Sectorial transparency and improvement of trade information.

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The **main actors** of the sector are the public and private entities and individuals and their organizations that have an active participation in its functioning. The main groups are the owners, the administration, the companies of the sector and the users. The owners are the first and most important protagonists, who should be more involved in the management. Forest ownership in Castilla y León is divided between the State (Ministry for Ecological Transition of Spain), the Autonomous Community, local entities -mainly municipalities and smaller local entities- and private individuals. Public management (Consejería de Medio Ambiente - Directorate General of the Natural Environment of the Department of Development and Environment in Castile and León), more or less consolidated or incipient, focuses on the Community's own land, declared Public Utility Forests and contracted areas belonging to local entities or individuals. In the rest of the forest territory, with private management and generally scarce, the administration is limited to carrying out a task of control and supervision of actions. In order to alleviate this situation, it is necessary to promote formulas for management advice and incentives. The Junta de Castilla y León, represented by the Consejería de Medio Ambiente, is the competent administration in matters of forest management and planning. On the other hand, other bodies such as Diputations, Hydrographic Confederations or other Councils participate in various matters. In this context, the role of the Ministry of Agriculture and Livestock must be highlighted here due to the frequent interconnections on the rural environment. They deal with topics such as extensive livestock management, land consolidation, etc. Other important regional actors in the forestry sector are the Public Society of Infrastructures and the Environment of Castilla y León (SOMACYL), the Intersectorial Board of the Wood of Castilla y León, the Federation of Forestry Associations of Private Owners of Castilla y León (FAFCYLE), the Confederation of Business Organisations of Castilla y León (CEMCAL), the Centre for the promotion of forestry and forest-based industries (CESEFOR), the Regional Energy Body (EREN) and the Universities. On the industry side, there are two types of companies in the sector, which account for the largest number of jobs: i) the ones in forest products processing chain, and ii) those related to the execution of work and services.

AQUITAINE

The New Aquitaine region, resulting from the fusion of Aquitaine, Limousin and Poitou-Charentes in 2016, is the largest region in France. The forest area in New Aquitaine is about 2.8 mio. Hectares (34 % of the region's surface), representing 17 % of the national forest. This forest has the uniqueness of being owned by more than 90 % of private owners (250'000 owners of more than 1 ha), representing 21 % of the national private forests' area. Private forests have to be managed according to a sustainable management document (simple management plan). New Aquitaine hosts 30% of the area managed under this management plan. The forest in New Aquitaine is very diverse in terms of species and stands: Hardwood trees (e.g. Oak, Chestnut etc.) occupy nearly 62 % (1.73 mio. Hectares) of the forest area. Coniferous trees (e.g. Pines, Spruces, Douglas fir, etc.) can be found on 38 % (1.08 mio. Hectares) of the regional forest area. The standing volume of the New Aquitaine production forest amounts to 383 mio. m^3 (excluding poplar plantations).

From upstream (forestry and logging) to downstream (finished products, retail), the wood-forest sector plays an essential role in the local economy and employment: 28'300 establishments employ 56'300 people, 31'000 of whom work in the four main segments: forestry and logging, sawmill and wood processing, paper and board industry and carpentry work.

When looking at the economic characteristics of forestry in New Aquitaine, the role of this region for the French forestry sector becomes obvious: New Aquitaine is France's leading surplus region in terms of external trade, with nearly 250 mio. € released in 2016.

In that year, the commercial harvest in the region was estimated at to be ca. 10.1 mio. m^3 of wood, representing 26.6% of the national harvest. Softwood lumber accounts for 50 % of the harvest, pulpwood and energy wood for 39% and 11%, respectively. The same year, the region' sawmills produced 1.9 mio. m^3, representing 23.5% of the national production, and softwood sawn timber represented 89 % of the volume produced. The construction sector (wood joinery, carpentry) and the timber trade each account for 20% (or 1.9 billion €) of the sector's

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turnover. The resource use and production by sector type is shown in the diagram below at the national level by representing the cash and physical flows of the forest-wood sector in 2014.

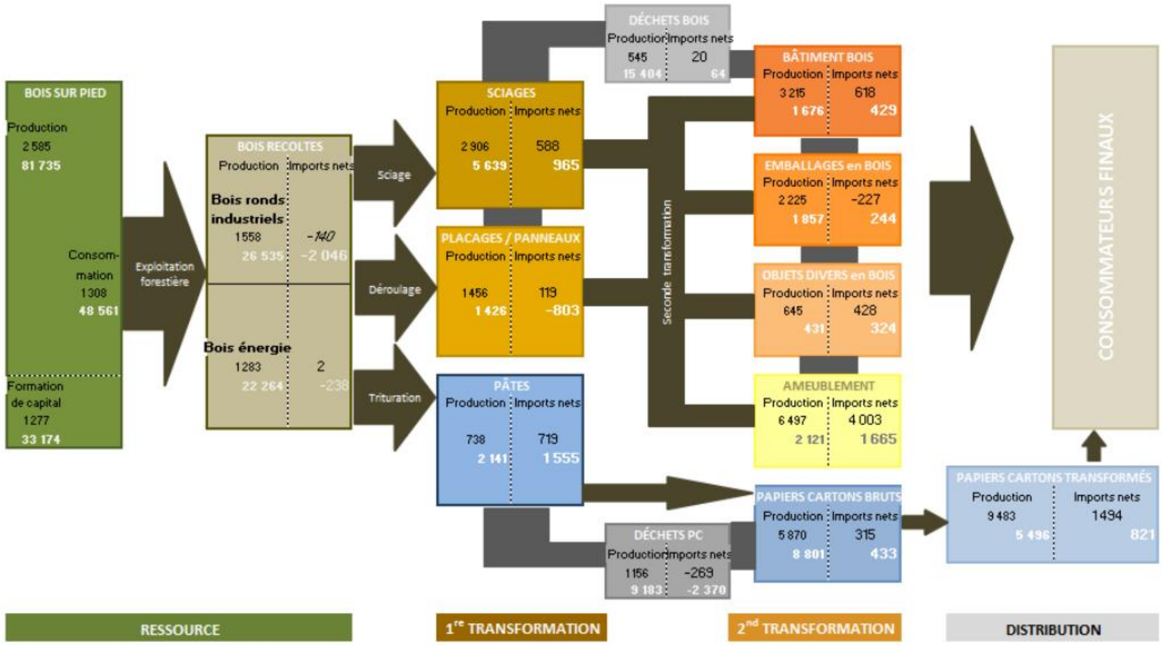

Figure 2: France resource use and production by sector type. In white : physical flow in thousands of tonnes. In black: cash flow in millions of €

The primary transformation (sawmill industries, wood-based boards and pulp) produced 11 mio. tons of goods in 2014. The secondary transformation produced more than 20 mio. tons of wood and paperboard products in 2014, 70 % of which goes to the paper industry. As with pulp, the furniture industry's resources come from both, domestic production and imports. Over the last decade, wood waste was recovered more intensively. Its consumption increased by a factor of 2.7 between 2007 and 2014. In particular, wood waste is used as supply for the wood-energy sector, which has seen rapid growth over the period peaking at 1 mio. tons of wood pellets in 2014.

The two main political axes for developing wood mobilisation further are i) strengthening the competitiveness of the sector and ii) stimulating silviculture and sustainable forest management. ***Strengthening the competitiveness of the forestry sector*** is essential to enhance the value of local wood resources and create jobs in rural areas, both upstream and downstream. Improving the competitiveness of the sector implies supporting companies in their positioning on new markets, stepping up research and development efforts upstream and downstream of the sector and encouraging partnerships between stakeholders to optimise the value-chain from forest to secondary transformation. The diversity of forest areas and species also includes a diversity of silviculture. Hardwood forests generally have a deficit in silviculture and wood mobilization, while softwood forests are managed more intensively. The stimulation of silviculture in New Aquitaine's forests is a major challenge in supplying the forest-wood sector and in renewing stands. It must be carried out within the framework of sustainable management, in order to consider the challenges of the multifunctionality of forests. This revitalization of sustainable management requires the implementation of complementary actions of various types. Significant progress shall be achieved in the areas under sustainable management plans and areas committed to certifying this sustainable management. A competitive grouping of forest management, transfer

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of research, development achievements and updating of silvicultural techniques shall go in hand with training of forest owners as well as their support for investments for the improvement and the renewal of stands.

New Aquitaines forests now contribute to two levers for mitigating climate change. On the one hand, plantation forests (maritime pine, douglas fir, poplars, representing a third of the forest area) offer a resource and substitutes for other more carbon-producing materials. On the other hand, mixed hardwood forests (more than two thirds of the surface area) are more likely to store carbon in the forest ecosystem, even if the ageing of some of these forests would limit their carbon sink. The adaptation of New Aquitaine's forests is a major concern, as they are located at the interface between the temperate and the Mediterranean zone. Their species are at the edge of their range and would therefore be particularly sensitive to climate change. In recent years, it has been observed that Mediterranean woody species such as cork oak and holm oak, as well as sub-Mediterranean species such as pubescent oak have been found to move northwards in New Aquitaine. For maritime pine, the risk of maladaptation of local stands is driven by a mismatch of their current adaptive value and that expected in the future climate. This problem was assessed and could be met by a transfer of material (seeds) from more southern stands (assisted migration). Modelling based on IPCC scenarios suggests that this risk remains low in the medium term in the Landes (region in France) context.

The structures of decision making are governed by many French laws and regulations on forest policy. Introduced by the Law on Management, Agriculture and Forestry in 2014, the National Forest and Wood Programme sets out the orientations of forestry policy in public and private forests, in metropolitan France and overseas France, for a period of ten years. It was approved by the Decree of 8 February 2017 and has 4 main objectives:

- Create value in France by mobilizing the resource in a sustainable way,
- Meet citizens' expectations and integrate them into territorial projects,
- Combine forest mitigation and adaptation to climate change,
- Develop synergies between forests and industry.

Each region must develop a Regional Forest and Wood Programme within 2 years of approval of the national plan, under the aegis of the Regional Forest and Wood Commission. The Law on Energy Transition for Green Growth will also help to mobilize more resources under sustainable conditions through the resulting framework documents: Multi-year Energy Programming, National Low Carbon Strategy, National Biomass Mobilization Strategy.

In this multi-level configuration, the regional level is increasingly becoming a framework for strategic adjustment and operational implementation of forest policy. Indeed, a significant proportion of national measures are divided into regional strategies. This includes adaptation to specific territorial characteristics, but also and above all to resonate with the competences of local authorities, and more particularly regional councils. In New Aquitaine, most of these instruments (Regional Forest and Wood Plans, Regional Biomass Scheme,…) are currently being developed and must meet the challenge of the new regional scope. The Regional Forest and Wood Programme should in principle serve as a framework for ensuring consistency between all other regional documents by laying the foundations for the forestry strategy for the next ten years.

The main actors of French forest policy are indicated in the simplified diagram below (cf. **Figure 3**). The public institutions serving the State in the region are the Regional Directorates of Food, Agriculture and Forestry (named DRAAF) and the Departmental Directorates of the Territories (named DDT), or Departmental Directorates of the Territories and the Sea (named DDTM). The organizations that implement public policies related to sustainable forest management are:

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- CNPF (Centre national de la propriété forestière): a public institution under the supervision of the Ministry of Forests in charge of developing sustainable management of private forests (some 3.5 mio. forest owners, 11 mio. hectares and about 20 % of the territory)

- ONF (Office National des Fôrets): a public industrial and commercial establishment created in 1964, which manages nearly 11 mio. hectares of public forests owned by the State and local authorities.

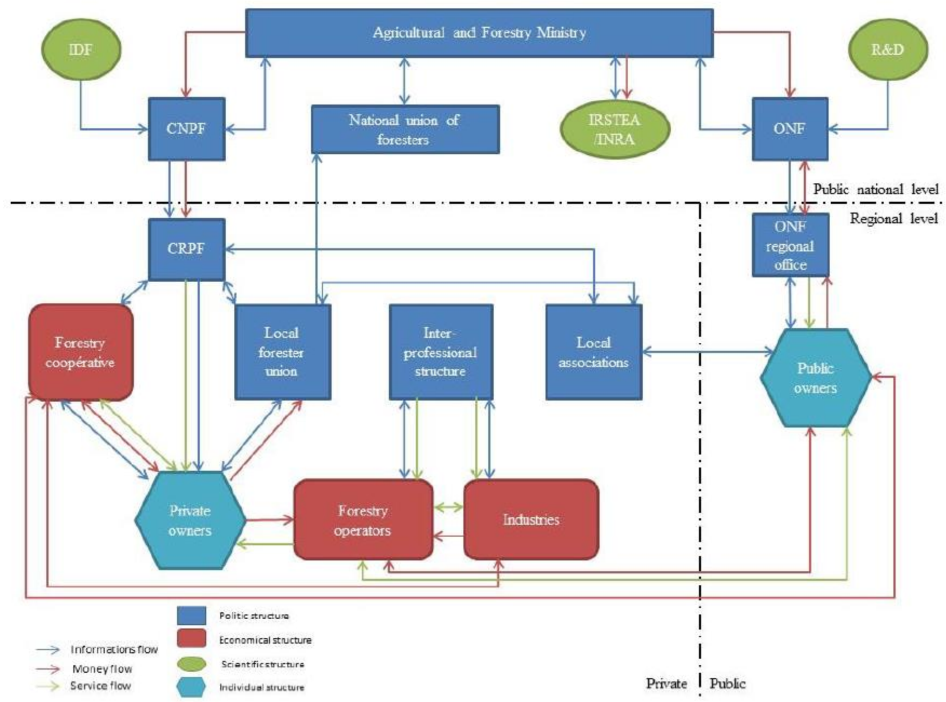

Figure 3: The main actors of French forest policy. Simplified French forest governance at national and regional levels including the private and public sector according to Sansilvestri (2015) [1].

Private owners are organized in forest development unions with 27 groups in New Aquitaine. This allows them to be active in forest development, particularly by participating in training courses. A partnership with the CRPF makes it possible to bring together skills and leverage resources for foresters. Inter-professional structures are driven by associations bringing together several economic actors in the sector. All professional sectors are represented either by their professional organisations, or by company managers. Actions and skills are shared for the common good. In New Aquitaine, there are five inter-professional structures (BoisLim, Futurobois, CODEFA, Interbois-Périgord, Interpro Forêt Bois 64).

Finally, a forestry cooperative brings together forest owners by pooling their goods and techniques. The objective is to optimize and improve forest management in order to maximize the value of the cooperative's members' forests. In New Aquitaine, there are three forestry cooperatives: Alliance Forêt Bois, Coopérative Forestière Bourgogne-Limousin and UNISYLVA.

[1] Roxane Sansilvestri. Evaluation de la capacité adaptative des socio-écosystèmes forestiers français face au changement climatique : le cas de la migration assistée. Biodiversité et Ecologie. Université Paris-Saclay, 2015.

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TUSCANY

Tuscany is an Italian region located in the center of Italy with a population of more than 3.7 mio. inhabitants. As envisaged by Italian Constitution, the Regional Government has direct legislative competences, thus allocating resources, fostering innovation and selecting innovative projects and initiatives on its own initiative. The Regional Government of Tuscany is responsible of governing a forested surface of about 1’200’000 hectares, which represents about 51 % of its territory. Moreover, Tuscany has an entrepreneurial structure for the second transformation and processing of wood of great importance, with about 7’000 companies (mainly carpenters and furniture factories). Its regional government has direct legislative competences in many policy areas related to forest and the bio economy and, as managing authority, it allocates resources, fostering innovation and selecting innovative projects and initiatives linked to forestry sector and the bio economy. Tuscany region is deeply committed to supporting forest and wood mobilization. Its Regional Plan for Agriculture and Forestry (PRAF) defines the following strategic priority objectives related to forests:

1. **Protect the environment** through the maintenance and appropriate development of the forest resources. Maintain health and vitality of forest ecosystems along with the maintenance, conservation and development of its biological diversity;

2. **Strengthen the competitiveness of the forest-wood supply chain** through the maintenance and promotion of the productive functions of forests (both of the wood products and non-wood ones) and through interventions aimed at favoring processing sector and the use of wood raw;

3. **Improve the socio-economic conditions of operators**, through a particular attention to the updating and professional qualification of the forestry workers and to the promotion of interventions for the protection and ordinary maintenance of territory capable of stimulating direct and induced employment;

4. **Promote the social use of the forest**, to be implemented through a particular attention to all the elements that can favor fruition by the population.

In order to achieve such commitments, Tuscany collaborates with several stakeholders at international, national and local level (see main actors). In order to monitor the activity of the operators of the forest-wood supply chain, Tuscany has developed and subsequently implemented the Information System for the management of forestry activities (SIGAF) since 2004. With this tool, in addition to reduced administrative burdens on the supply chain operators and an improved monitoring of the activities carried out, it has been possible to obtain updated statistics on forest activities also in relation to environmental protection. In fact, this tool was used to monitor the interventions within the Natura 2000 sites and work subsequent to damage caused by wind storm. Further, it lists areas covered by fire for all 273 municipalities of Tuscany. Another goal that Tuscany has set itself over the years has been the improvement of the skills of the operators engaged in forestry activities. Therefore, it has established two regional training centers open for both, public and private operators. The Training Center for Forest Operators in Rincine (FI) is specialized in strengthening the skills of the different professions working in the forest. The aim is to train operators capable of applying the principles of sustainable forest management, thus guaranteeing a prepared and informed human presence in the woodland. The Regional Forest Fire Fighting School "La Pineta di Tocchi" (SI), the only firefighting school in Italy, carries out basic training and updating for the various tasks. This training offer brings all the personnel together to make up the Regional Fire Fighting Organization.

In order to enhance the multi-functionality of the forest and promote sustainable development of the territories in compliance with the objectives of the regional forest policy, Tuscany is also a partner of the International Model Forest Network in the Mediterranean. This macro-regional group has the task of actively participating in the application of the Model Forest concept in its area of expertise to support the implementation of concrete cases. The model forest is an enlarged and permanent voluntary path of those subjects and organizations that,

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for a defined agro-forestry territory, share the different needs and adopt common choices with the aim of consolidating good practices towards the sustainability of economic development, through social and territorial cohesion.

The main actors of the Tuscany Region are closely cooperating within the national and regional forestry policy framework. Among these, in particular the **Italian Ministry of Agriculture** – Forest Directorate (coordination of national forest policy and the wood supply chain); **Environmental, Agrifood and Forestry Police Corp** (CUTFAA, units specialized in environmental police activities and in the agricultural and forestry protection); **National Finance police force** (GdF, police force specialized in the suppression of tax fraud -illegal work); **Fire brigades** (VVF, Department of firefighters, public rescue and civil defense) are the most relevant actors on the national level. At national level, communication and dissemination is mainly carried out by **Compagnia delle Foreste** (magazine specialized in the study, research and dissemination of forestry knowledge). With regards to the management of the regional territory, the Tuscany Region is represented by the public institutions **Union of Municipalities** (public authority that deals with forestation) and **National and Regional Parks** (public authority specialized in protection of particular natural environments). Relations with the world of work are mainly established with **Cooperatives** (private organizations of forest workers); **Spike Renewables**, **Agroils technologies spa**, **Chimica Verde, Ibionet**, **Consorzio Interuniversitario Reazioni Chimiche e Catalisi** – **CIRCC** and **Consorzio Polo Tecnologico Magona**, **DREAM**, **RDM**.

The aspects of scientific and technological research, as well as all the innovation in the forest sector, are carried out with the support of **University of Pisa** (devoted to the education and enhancement of students in agriculture); **University di Firenze** (devoted to the education and enhancement of students in agriculture and forestry); **University di Siena** (devoted to the education and enhancement of students in biology and geology); **Sant'Anna School of Advanced Studies** of University of Pisa (advanced education path for university student, graduate student and professional); **National Council of Research Pisa** area (CNR) (its main objective is to increase knowledge on the use of plant organisms for sustainable development); **CNR** Firenze area (it is the biggest Italian Institute for research in the wood forest sector); **National Council for Agricultural Research and the analysis of agro Economy** (CREA- The Center deals with sustainable forest management and forest tree farming, with main specialization in selviculture); **Accademy of Georgofili** (ancient cultural association aimed to study and dissemination of the agriculture and forestry culture); **Accademy of Forest Sciences** (association that promotes and enhances the forest sciences and their applications).

1.1.2 MAIN FINDINGS

1.1.2.1 SWOT ANALYSIS

The three regions of the Hub share several characteristics of their wood value-chain: Mediterranean forests, fragmented property (many small sized and privately-owned forests), long tradition in the mobilization of wood and forest products. At the same time, there are significant differences among the regions. In general, Aquitaine has a more developed value-chain with a really high harvesting rate (especially maritime pine). Castile and León presents a very developed public forest management, while the continuous depopulation and subsequent forest abandonment, reinforced by the economic crisis has led to a lack of management in many private forested areas and to the closure of many primary industries (sawmills). Tuscany also presents a very fragmented landscape with low private management and with owners that tend not to worry about their forests. In order to assess the regions in more detail, each region performed a SWOT analysis on wood mobilization. In joint sessions, the Hub combined all three analyses to develop a common SWOT for the Southern Hub (cf. **Figure 4**) with the most important categories that were identified for the different regions.

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STRENGTHS	WEAKNESSES
• Large forest areas including potentially productive ones in the future • Different forms of grouping of owners (France) • High mechanization for harvesting wood in softwood stands • Strong network of forest roads • Abundance of raw materials and large extension of forests (availability and diversity) • Certificated forest • Great value of biodiversity in the Mediterranean environment • Multifunctional raw material • Strong industrial network in certain areas • Tax incentive and forest investment (France)	• Fragmentation and disconnection of private forest ownership • Lack of interrelation between the different actors in the supply chain • Little mechanization for hardwood harvesting. • Difficulty of access to raw material. • Lack of demand, especially for hardwoods and quality softwoods. • Lack of management in large areas of forest • Public opinion against forest production • Lack of qualified forestry labor • Poor structuring of market • Poor development of value-chains at the local level • Lack of market transparency • Imported wood used for construction and furniture • Too many administrative constraints
OPPORTUNITIES	**THREATS**
• Tax benefits: tax credits for the purchase of plots of land • Possibility of integration with the agricultural food production (agroforestry) • Availability of new collection systems more efficient and sustainable • Very specific but very high value productions (cooperage) • New market requirements: traceability of wood, wood from sustainably managed forests • Bioeconomy in general and the growing social demand for renewable natural products that contribute to the fight against climate change • Market internationalization • Public policy for the development of wood in construction and other uses • Increase of wood demand • Development of new wood-based products	• New forest owners live far from the forest • Supply difficulties in small-scale, low-volume businesses. • Public aid not sufficient to trigger work in poor stands • Increased susceptibility of forests to natural disasters linked to intense and particularly destructive climatic events. • Increased biotic and abiotic adversities • Restrictions on wood mobilisation in protected areas. • Competition from new industrial countries • Reduction in the public budget for forestry

Figure 4: Overview of the Southern Hub SWOT analysis

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The Hub regions are characterized by large forest areas, with a high diversity of raw materials including non-wood products with a high mobilisation potential. Certification is expanding in the three regions and the Mediterranean biodiversity gives an enormous added value to these natural regions. Some areas have a long tradition of wood harvesting and strong network of roads and industries provide important incomes to these areas. Due to its long forest tradition as well as its well-developed value-chain, Aquitaine is represented by different forms of grouping of owners as well as tax incentives for forest investment. The ownership structure has been detected as the main problem common to all regions. Fragmented forests and the large number of private owners are a constraint for wood mobilization. This leads to a problem of interrelation among the wood value-chain actors that are usually disconnected, except for the most developed forests (in Aquitaine). The lack of mechanisation, qualified forestry labor and difficulties to access large areas of forests are also limiting the wood mobilization potential of the regions. In general, there are too many administrative constraints for most of the activities related to the value-chain. This, together with a lack of market transparency, leads to a shortage of interest and low investment of wood related companies. Being the main opportunity, bioeconomy is becoming a major pillar in all the Southern Hub regions' policies. Governments are developing laws and plans to increase the use of renewable natural products (including the use of wood in construction) that contribute to combat climate change. The wood demand is increasing and the R&D+I departments are developing new wood-based products that may foster its commercialization. The internationalization of the market and the possible tax benefits on the use of wood represent a great opportunity to increase wood mobilization. Climate change is considered as the most important threat to Mediterranean forests: forests have increased their susceptibility to natural disasters related to intense and particularly destructive climatic events as well as to biotic and abiotic adversities. The urbanisation of the society, with the forest owners living far from their small sized properties is causing a lack of forest management. Small-scale businesses are experiencing supply difficulties due to the impact and competitiveness of large companies.

1.1.2.2 BEST PRACTICES AND INNOVATIONS IDENTIFICATION

Once developed the SWOT analysis, the Southern Hub partners have identified 40 best practices and innovations related to wood mobilization in the represented involved countries. Forest management and the related Best Practices is probably the most active part within the wood mobilization value-chain. **Cooperation among owners** and/ or foresters, **technical developments**, **wood resources** and **sustainability** were the most common issues addressed by the best practices. Wood logistics and wood sale markets are other topics that have been researched in the Hub. On the other hand, legal framework, financing, education and training do not present significant best practices or innovations. In terms of wood source, nearly 70 % of the Southern Hub best practices are related either to stemwood as primary or complementary wood source. Most of them have been recently developed (in the 2010 decade), but it is worth highlighting that the French initiative "Groupama Forests Insurances" is in operation since 1947.

1.1.2.3 NEEDS ANALYSIS

In the needs' assessment of actors from the forestry sector, the following needs and problems have been detected as common in the three regions of the Southern Hub. The general problem of wood mobilisation could be summarized with the diagnosis "prices are still too low". To overcome this strong constraint, there are many practices addressed to improve the valorization of forest products, integrating them in the bioeconomy new production cycles. It is a priority to develop ways to increase the added value through the forest supply chains, including the biomass for energy. There is a strong need for professional agents offering forest management services (as part of a rural land management policy) addressed to owners that are increasingly absent or far from the territory. The abandonment of the rural environment leads to the evolution of series of vegetation that can cause disasters in case of fire. There is a high probability of increasing the forest area in peri-urban areas. Despite

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being forest regions due to their area, production and productivity of some species, they have great potential for growth in new areas and owners, but with little forest culture/ tradition. Thus, the regions must rely on learning about traditions from other regions in order to develop their own cultures. Organizing forest owners in associations of small forest owners is a need to this purpose. An important degree of standardization is needed regarding the offer description. It is essential that there are common European requirements for the competences of skilled forest workers to be mutually recognized. As a major market problem, the crisis of quality timber sawmills has been identified as an essential challenge for wood mobilisation. Some tax policy problems were mentioned explicitly, such as the lack of taxation on the abandonment of land or the fiscal regimes that penalize companies offering management services to forest owners. Further, funding problems are a major constraint to forest mobilization. In order to further exploit the potential, the role of CO_2 funds needs to be developed. This lack of financial resources also affects to forest research in the fields related to the mobilization of forest products. Concerning communication, there is a lack of inter-sectoral communication or joint actions, particularly in the Italian and Spanish regions. The French initiative FuturBois might be a reference to be used in the Hub.

1.1.3 DEVELOPMENT TARGETS FOR SUSTAINABLE WOOD MOBILISATION

As previously stated, the main common goals of the three regional strategies of the Hub may be summarized as follows:

- Strengthen the competitiveness of the forest-wood supply chain
- Protect the environment, through the maintenance and appropriate development of the forest resources. Commitment to quality and sustainability as a production strategy
- Stimulation of silviculture
- Improve the socio-economic conditions of operators
- Diversification and complementarity of forest production and functions

These global strategies match with most of the needs detected, but some specific measures must be taken in order to obtain results. One of the Rosewood goals is to provide the administration with tools that might help to achieve those goals. The process of evaluating and selecting best practices and innovations that are already working and giving good results in other European regions has been the first step. Therefore, the most promising ones have to be deeply analyzed in order to check if they can be replicated in the Hub regions.

One of the main problems detected is the lack of private forests' management. Subsequently, its wood mobilization has to be fostered. In this field, several best practices inside and outside the Hub (from Finland, Germany, France and Spain) have been detected and there is a strong commitment between the Hub members to put common efforts into developing one or several tools that might help forest private owners to get involved in wood mobilization management.

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1.1.4 BEST PRACTICES AND INNOVATIONS PRIORITIZATION FOR THE SOUTHERN HUB

The SWOT-analysis and the selected best practices (which are described in detail here: Analysis report) were presented to an expert rounds in a workshop in Bordeaux[2]. The following conclusions address the detected needs of the Southern Hub and their possible solutions:

- There will not be forest mobilization without **forest mechanization**. The urban social resistance is a strong constraint, so **communication strategies** to decision-makers and to the public in general must be a priority including **demonstrative** actions and participative processes in peri-urban areas.
- In front of the growing natural disasters risks, **insurances can act as an incentive** to active forest management.
- The lack of transparency in the forest products markets must be avoided by **communication tools between the different actors**.
- Other actions with positive potential could be **online auctions** that may also avoid bureaucracy and wasting times.
- Actions must be taken to improve the value-chain for the use of trees and shrubs in abandoned areas, where there is a change in land use, from agro-livestock to forestry. The objective is to favour the wooded area with the greatest fuel discontinuity in the shortest possible time, minimising risks while making use of it.

In the second phase of the workshop, experts correlated weaknesses and best practices as shown in the previous section. The following step of the roadmap targets at achieving a deeper knowledge of the most important ones and to present them to experts from all the Hub regions in order to obtain their opinion about the possible replicability or adaptation to other locations. There have been 2 workshops (first in Florence, second in Bordeaux) for this purpose. In the first workshop, the selected best practices from the project were presented and, later, a group discussion among experts was dedicated to evaluate their suitability and replicability. Among all the best practices selected, the following were identified as the most promising in order to cover the identified weaknesses of the Hub.

From the Southern Hub:

FORLOG (France) is an Innovative solution to improve the quality of silviculture and forestry operations accessible to very small, poorly computerized companies.

CIFA (France) helps improve sustainable forest management and requires owners to take out storm insurance. It promotes logging and therefore mobilisation by allowing exemption from wealth tax and transfer duties.

XYLOFOREST (France) is a research, innovation and service platform for cultivated forest systems, products and materials. Its overall objective is to contribute to the adaptation of forest resources to climate change. Its

[2] Participants at the Expert Panel of the Southern Hub: Eduardo Tolosana, University Polytechnic of Madrid; David García, AGRESTA Soc. Cooperative; Jesús Martinez, fmC forest & environment consulting; Olga González, Federation of Associations of private forest owners of Castile and León (FAFCYLE); Stefano Berti, Montagne Fiorentine Model Forest Association; Toni Ventre, Union of Municipalities Valdarno and Valdisieve; Enrico Marchi, University fo Florence; Paolo Mori, Compagnia delle Foreste; Maria Chiara Manetti, Research Center for Forestry and Wood (CREA); Dario Paletta, Consultant - wood trade mark FMMF manager; Cristiano Castaldi, Consultant - wood trade mark manager; Silvia Vannini, Montagne Fiorentine Model Forest Association; Claudio Fagarazzi, University of Florence; Marcello Miozzo, Forestry Consultant (DREAM); Giovanni Emiliani, National Research Council (CNR Ivalsa); Michele Brunetti, National Research Council (CNR Ivalsa)

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scientific objective is to improve knowledge and implement innovative solutions to increase the use of wood in construction, improve wood quality and develop green chemistry. The scope of Xyloforest covers the entire forest-wood chain from forest genetics to wood products or green chemistry.

FUTUROBOIS (France) is an inter-professional association, operating by voluntary membership whose objective is to unite professionals in the forest-wood-paper sector within an association to exchange and meet. Futurobois' main mission is to promote and inform professionals, local authorities and the general public about the use of wood products.

LA FORÊT BOUGE (France) is a project that proposes a simple tool with adapted services for the novice forest owners and allows the mobilization of wood from small private forests. Professionals in the forest and wood sector will also be able to access this tool in order to find information on the legislation and manage forest worksites by completing online procedures. The tool is used to facilitate forest management between forest owners and enterprises.

E-MONTE (Spain) was created in order to allow all the agents involved in the Galician forestry sector to carry out the tasks in a simpler way, from the application of ICT. The project works around www.eMonte.es, a new online portal that facilitates the purchase and sale of lots of wood between forest owners / communities of mountains and end companies.

SAXMEL (Spain) intends to become a novel highly systematized and protocol-based approach aimed as a solution to contribute improving current forest management practices acting at local scope. It consists of a catalogue of services composed of identified key processes considered essential to solve major problems affecting forest resource development. Also, it includes some inner processes and procedures aimed to steer the system itself functioning such as resource management, communication, financing & founding... SAXMEL has been conceptualized based on some key mainstays: participatory approach, transparency, self-sufficiency, self-governance, territorial persistency, technical criteria-based, local scope.

Forest Sharing (Italy) aims to enhance the forest heritage through the creation of an innovative platform, able to facilitate the meeting between players in the forest sector, planning an ethical and sustainable forest management. This service is mainly proposed for abandoned or unmanaged ownerships, re-launching integrated management in order to obtain an environmental and economic benefit, thanks to the use of innovative technological tools.

From the other Hubs:

Metsään.fi (Finland) provides eServices for forest owners and forestry service providers. The online application shows the silvicultural possibilities of each forest estate and their compartments: Soil and forest site type; growing stock; treatment proposals for a five-year period; environmental values (habitats of special importance); latest maps and aerial photographs with compartment borders and annual growth. It also allows forest owners to apply for subsidies for improvement of young stands and declare notifications of forest use and they can contact forest service producers via the system.

Wald-wird-mobil (Germany) offers forest owners an innovation network with a variety of information and assistance. Furthermore, it serves as a platform to exchange information between the different actors. Through an attractive and target group-oriented internet presence, all types of forest owners are addressed and motivated to sustainably manage their forest.

For all these initiatives, there was a consensus after the first workshop on the most relevant problem that could be addressed with these initiatives: private owners’ forest management. Inside this topic, the best practice with

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the greater potential of replicability together with direct interests of the Italian and Spanish partners was La Forêt Bouge, although all the other initiatives related to it were also considered as very promising (E-monte, SaxMel, Forest Sharing, Metsään.fi and Wald-wird-mobil). Thus, the second workshop has been entirely devoted to the analysis of these best practices and the similar initiatives of Germany, Finland, Spain and Italy. In this workshop, developers of these best practices and representatives of the two administrations that have shown interest in replicate them in their regions (Tuscany and Castile and León) jointly discussed about the transferability.

In this context, the Region of Castile and León has in fact announced the development of a new web platform that will include the most relevant and replicable features of the other platforms in order to address the main constraints that the private owners of the region are actually facing. The tool will be funded by the regional administration and a pilot test will be developed in the coming year. Besides, in Tuscany, there is an initiative called Forest Sharing whose aim is to help generating income from the private forest and environmental benefit for the community, thanks to innovative and sustainable management. The concept has been developed by a Start-up of the University of Florence, called "Blubiloba" (http://forestsharing.com/) that is trying to enhance the value of forests by creating a virtuous supply chain by limiting imports through the spread of forest culture. Their mission is to create a platform where forest owners can meet forest technicians and forest companies, and together manage the land in a sustainable and cost-effective way thanks to innovative techniques.

In order to cooperate among all the partners and developers that will work on the development of these initiatives, the Southern Hub has agreed to present a new Focus Group to the EIP-AGRI[3], based on the work done on the best practices analyses and related needs. This group will identify the implications for further research activities that will help to solve the problems in the wood sector mobilization and in particular, for the correct involvement of the private forest owners in decision-making.

The objectives of a new EIP-AGRI Focus Group shall be:

- Taking stock of the results of the EIP-AGRI Focus Group about Forest Biomass, started in June 2016 and finalized in February 2018, listing problems and opportunities of this sector;
- Taking stock of the state of the art of research in the field of the private forest management web tools, summarising possible solutions to the problems listed above;
- Identifying needs from practice and possible directions for further research;
- Highlighting priorities for innovative actions by suggesting potential practical Operational Groups or other project formats to test solutions and opportunities, including ways to disseminate the practical knowledge gathered.

The precedent Focus Group, developed in the framework of the H2020 SIMWOOD Project, identified in a final report success and fail factors that stimulate or limit the sustainable mobilization of forest biomass, and summarized how to address these factors and explore the role of innovation and knowledge exchange in addressing these fail factors. The new ROSEWOOD Focus Group will identify, describe with adequate examples and compare different means of improving the cooperation of small private forest owners with regard to forest exploitation. It will provide examples of best practices, and will identify barriers to implementation as well. It will also analyze supply and demand factors, and the means to provide a link between the examples identified in the Southern Hub. Finally, it will propose potential innovative actions to stimulate the knowledge and use of management practices and strategies in mobilizing forest biomass and provide ideas for Operational Groups and

[3] (EIP-AGRI Focus Groups are temporary groups of selected experts focusing on a specific subject, sharing knowledge and experience: https://ec.europa.eu/eip/agriculture/en/focus-groups

other innovative projects. This focus group will try to stimulate the participation of the administration: there is already a commitment from the government of Castilla y León and a close collaboration between the government of Tuscany and the Forest Sharing initiative.

1.1.5 CONCLUSION AND OUTLOOK

The ROSEWOOD project is proving to be a very powerful and useful platform for the Southern Hub. It has created a network that will grow and enable further exchange of experiences throughout the Southern Hub and Europe. The first steps have been very promising, due to the deep analysis of the forest situation in the three regions, the identification of the weaknesses and the best practices related to them. Initiatives dedicated to fostering forest management and timber mobilization in small private forest owners will be promoted by the Southern Hub in the coming months. Specifically, there is a commitment by the regional government of Castilla y León to develop an online platform that brings together the best features (and adapts them to their regional context) of other initiatives already in operation such as La Forêt Bouge (France), Wald-wird-mobil (Germany), SaxMel (Galicia, Spain) and Metsään.fi (Finland). In Italy, Forest Sharing is a recently created startup which, with the help of the developers of these best practices and the experience of the other partners and associates, will start its own experience in Tuscany. From small activities, they will be developing and advancing in their project. As a ROSEWOOD project associated company, they have benefited from attendance at technical events of the project, where they have been able to learn of the existence of similar initiatives and contact their developers as well as evaluate possible solutions that best suits the characteristics of the region of Tuscany. For a sustainable implementation of these tools and platforms, the partners and associates of the ROSEWOOD project will encourage collaboration between the different applications. Therefore, there is an agreement to form an operational group that will try to solve the problem of fragmentation through the joint work of private forest owners and solve the problem of mobilization with small actions: training workshops, creation of information spaces, realization of informative material, etc. It will try to change the perception that the small forest owner has: one's forest is not a problem, but an opportunity. It is necessary to convince them that without spending money they can economically take advantage of their forest. This should generate new business opportunities and stimulate collaborations and innovation potentials among all the stakeholders involved in the value-chain. All of this will be complemented with the studies on the education needs and the screening of the financing possibilities that will be developed during the second year of the project.

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