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## **Governance and innovation in rural territories: a network analysis**

### **Abstract**

Rural Territories are central in the search of responses to the current societal and economic challenges such as the economic crisis, desertification, climatic changes, and food security. *Europe 2020* and the proposals related to CAP refer the need to deal with those problems through innovative and inclusive approaches. Thus, the knowledge of rural territories, namely governance forms regarding the development of innovation and the improvement of economic development constitute a priority. This paper addresses the governance aspects relate in the production and transformation of a Mediterranean product – cork in the so-called World Capital of Cork (Coruche), using a network analysis.

**Keywords:** Rural territories, governance, networks, cork.

### **1. INTRODUCTION**

The paper presents an exploratory analysis of the governance of innovation associated with a particular raw material- cork - with strong presence in Coruche, a ‘predominantly rural region’ adjacent to the Lisbon Metropolitan Area. The identification of the institutional tissue, that is socioeconomic and political actors, their main interactions, scale of action and innovation dynamics correspond to the first steps of an approach focused on the governance of an economic activity with (multidimensional) impacts in the development of territory.

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The governance of rural territories has been highlighted by rural studies (Cloke & Little, 1990; Goodwin, 1998; Godwin, Jones & Jones, 2006; Winter, 2006; Marsden, 2004; Little et al, 2012). Scholars also stress the interactions between territory and innovation processes (e.g., Maillat, 1997, 1998; Camagni, 1995; Camagni, Maillat, Matteaccioli, 2004) and the relevance of ‘institutional thickness’ (Amin and Thrift, 1994), that is the consideration of norms and rules, as well as the actors involved in their implementation, that influence the relation between territory, economy and society in a particular case. Additionally, recent studies show the relevance of innovation and governance for the development of rural territories (Torre & Wallet, 2013).

Portugal contains about 32% of the world’s area of cork woodland or *montados* and Coruche (denominated world capital of cork) represents a large share of this area: 69% of the county is covered by *montado* providing an excellent example of a innovation ecosystem based on the value-chain of cork. In fact, *montado* corresponds to a multi-dimensional system allowing the creation of employment, the preservation of cultural identity and ecological values in Mediterranean countries (Rives, Fernandez-Rodriguez, Rieradevall, Gabarrel, 2012, 2013; González-García, Dias, Arroja, 2013). Our research shows that several actors are engaged in this innovation ecosystem, namely firms, local and regional government, associations and education and research entities.

The paper considers the following specific issues: section 2 presents a conceptualization of governance and innovation and the reference of this analytical framework in territorial terms; section 3 presents some of the main current trends of rural territories; section 4 characterizes the case study – Coruche; section 5 presents an exploratory analysis of the governance system of cork-related activities including the identification of the main players, their interactions (using a network analysis), and attachment to territory; the most important innovations and their impact in territory development is also considered in this section; concluding remarks are presented in section 6.

## **2. GOVERNANCE, TERRITORY AND INNOVATION**

Governance corresponds to an increasingly used concept in innovation studies. In fact, the term has been used in several contexts and definitions proliferate. From the several definitions we take two central elements: the role of institutions and the role of interaction between actors.

According to Lindberg et al. (1991), the concept is closely related to the institutions that govern economic activity. The Systems of Innovation (SI) approach, which has emerged as a major stream of research in innovation studies in the early 1990's, stresses both the role of institutions and the role of networks in innovation processes. In fact, according to this approach, innovation has to be considered as an interactive process, involving networks of actors (e.g., firms, users, universities), acting within a particular context of institutions and policies that influence knowledge production, technological development, adoption behavior and performance, bringing new products, processes and organization structures into economic use (Jacobsson and Bergek, 2012; Carlsson and Stankiewicz, 1991). Then, we can argue that to understand how innovation systems work we have to analyze their governance.

Even though the SI approach was first developed at national level (Freeman, 1987; Lundvall, 1992; Nelson, 1993), it became soon clear that the infra-national level plays a key role both in the formation of networks as well as in their regulation. As it is suggested by Asheim and Gertler (2005), the regional innovation system can be thought as the institutional infrastructure supporting innovation within the production structure of a region, whose effectiveness depends critically on a set of attitudes, values, norms, routines and expectations influencing firms' behavior in the region. Consequently, a large body of research addressing regional systems of innovation, their characteristics and challenges has emerged and gained increasing popularity within both scholarly and policy circles from the end of the 1990s (Braczyk, et al, 1998; Cooke et al, 2000; Asheim and Isaksen 2002).

Many studies on regional innovation address the conditions leading to the emergence and development of regional systems. They stress the role of several anchor factors, such as natural conditions, physical and technological infrastructure, universities and availability of qualified workforce, highlighting also the role of institutions that regulate the linkages between the several actors present in the regional innovation system, including the informal regulations of behavior (Camagni, 1991; Storper, 1997). These institutional mechanisms contribute to reduce uncertainty and support both coordination and collective action favorable to innovation processes. (Torre and Wallet, 2013)

Scholars also refer the importance of proximity between actors for innovation, both in geographic and non-geographic terms (Kirat and Lung, 1999; Boschma, 2005; Fontes and Sousa, 2012; Nooteboom, 2000; Torre, 2008; Jensen et al., 2007; Tödting and Trippel, 2012). In its essence lies the conception of innovation as the result of a process of collective

knowledge exchange and learning which demands proximity and commercial and non-commercial interactions.

However, rural territories have been neglected by most of the scholars addressing innovation within a territorial based approach. Asheim and Gertler (2005) refer such type of territories by suggesting the existence of regionalized national innovation systems, substantially different from the territorially embedded innovation system and regionally networked innovation system because the innovation activity takes place primarily in co-operation with actors outside the region. More recently, Torre and Wallet (2013) mention that these territories present specificities and often correspond to incomplete innovation systems (Camagni, 1995).

### **3. RURAL TERRITORIES IN A CONTEXT OF CRISIS: FACTS, CHALLENGES AND POLICIES**

Rural areas<sup>d</sup> correspond to around 80% of Portuguese territory with an important presence of agricultural and forestry activities (70%). There are strong demographic asymmetries in the country with a concentration in coastal regions and human and physical desertification of a significant part of inland regions which present several fragilities and risks like, for instance, population ageing, low economic diversity and employment opportunities, and occurrence of forestry fires. Some of these problems correspond to political goals of National and EU Rural Development Policies (Ferreiro and Lagoa, 2013).

Territorial innovation taking place in rural areas have not been a priority in political and scientific agenda so far. However, the *Europe 2020* and the European Policy of Territorial Cohesion draw attention to the importance of innovation, including the innovation in rural territories, regarding the promotion of inclusiveness and sustainability of Europe's territory.

Besides their quantitative impact, agriculture and forestry have an important role in the conservation of environment and rural landscape (Ferreiro and Lagoa, 2013). This is the case of forest and the related ecosystem considered in this paper: cork. In fact, cork oak (*Quercus suber*) forests make a substantial contribution to the economy and ecology of several Mediterranean countries, and cover a worldwide area of 2,139,942 hectares. Portugal concentrates 34% of the world's area, which corresponds to an area of 736 thousand hectares (23% of the national forest), the territorial expression of the second most dominant forest specie in Portugal.

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<sup>d</sup> According to OECD definition.

World cork production rose to 201,000 tonnes, highlighting Portugal as a leader in production (49.6 %) and exports (64.7%) (APCOR, 2013). The number of Portuguese companies in cork industry has declined over the years (28% from 2000 to 2009). Currently the sector accounts for approximately 600 companies operating in Portugal, which produce roughly 40 million cork stoppers (the main product) per day and employ about nine thousand workers (APCOR, 2013).

Innovation and sustainable management of forest contribute to the decarbonizing of economy, the increase of renewable resources use, but also to employment creation and the development of territory. These goals integrate the *EU 2020 Strategy* and its “three mutually reinforcing priorities”: i) “smart growth: developing an economy based on knowledge and innovation”; ii) “sustainable growth: promoting a more resource efficient, greener and more competitive economy”; iii) “inclusive growth: fostering a high-employment economy delivering social and territorial cohesion” (COM (2010) 2020). Therefore, and in a context of economic crisis, rural territories present an opportunity of economic development and job creation. To this, it is important to highlight the preservation of an ancient agro-forest-livestock system, the *montado*, where the presence of cork oak tree plays a central role.

The second pillar of Common Agricultural Policy (CAP) - Rural Development Policy - corresponds to an important political tool in the development of forest and forest related products: the co-financing of forestry measures under the Rural Development Regulation has been and will remain the main intervention area of EU-level funding. Among the challenges of CAP post-2013 one should highlight the ‘Sustainable management of natural resources and climatic changes’ (sustainable production practices; green growth increase through innovation; mitigation measures of climatic changes), and the ‘Balanced development of territory’ (e.g., support rural employment and preserve the social tissue of rural areas; improve rural economy) (Cordovil, 2013).

European Agricultural Fund for Rural Development (EAFRD) provides knowledge and innovation transfer to agriculture, forestry and rural areas within Community Support Framework 2014-2020. The European Program of Rural Development reflects *Europe Strategy 2020* and considers other funds (e.g., Cohesion Fund, Regional Development Fund, and European Social Fund) in the achievement of important actions related to innovation, environment and climatic changes (*Idem*). The findings of the *Study on Employment, Growth*

*and Innovation in Rural Areas* (SEGIRA)<sup>e</sup> remit precisely to natural resources and environmental quality, diversity of sectoral structure of the economy and the level of quality of life as the most important drivers for growth in rural areas. Among the major barriers to the achievement of these goals are negative demographic trends, low levels of skills, knowledge, entrepreneurship and innovation, and undeveloped social and institutional capital (COM, SWP (2012) 44 final).

The strengthening of the primary sector through innovation and research activities, life-learning and professional training (*Idem*) are related with the importance of the institutional networking in the governance of territories (Oliveira, 2013).

#### **4. MEDITERRANEAN RURAL ECOSYSTEMS AND DEVELOPMENT: THE CASE OF CORUCHE**

Coruche belongs to a predominantly rural area, Tagus Valley, contiguous to the Lisbon Metropolitan Area, which is sub-divided into two NUTS 3 statistical regions<sup>f</sup>: Tagus Wetland and Middle Tagus. The municipality is located 38.5 km from the regional capital (Santarém, a medium sized city with around 30,000 inhabitants<sup>g</sup>) and integrates Tagus Wetland - Figures 1 and 2.

With a population density below the national average - 17.8 inhabitants per square kilometre versus 114.3<sup>h</sup> – such municipality is characterized as a low-density territory, even though it is less than 1 hour from Lisbon traveling by car. Such huge disparity is even more evident considering the area of Coruche: 1115.7 square kilometres, the most extensive county of the district and one of the largest nationwide.

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<sup>e</sup> [http://ec.europa.eu.agriculture/analysis/external/employment/index\\_en.htm#ia](http://ec.europa.eu.agriculture/analysis/external/employment/index_en.htm#ia)

<sup>f</sup> The acronym refers to the nomenclature of territorial units for statistical purposes (in French language) adopted since 2010 by Member States of the European Union. The level 3 applies to groupings of municipalities included in the same territorial unit (level 2). In our case, the Tagus Wetland is part of Alentejo (a NUTS 2 Portuguese region located at south), while the Middle Tagus belongs to Centro (another NUTS 2 Portuguese region, at the centre of the country).

<sup>g</sup> Census 2011.

<sup>h</sup> *Idem*.

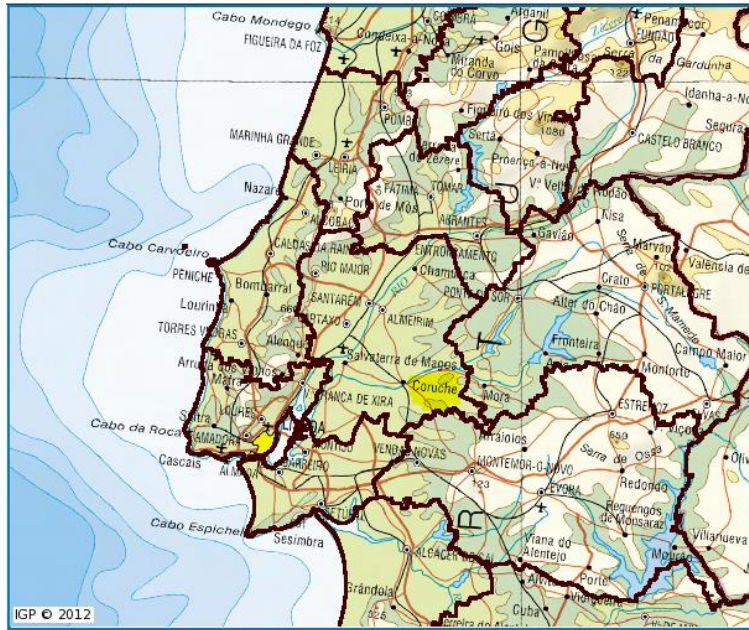


Fig.1: Coruche location in the framework of the Portuguese NUTS 3.

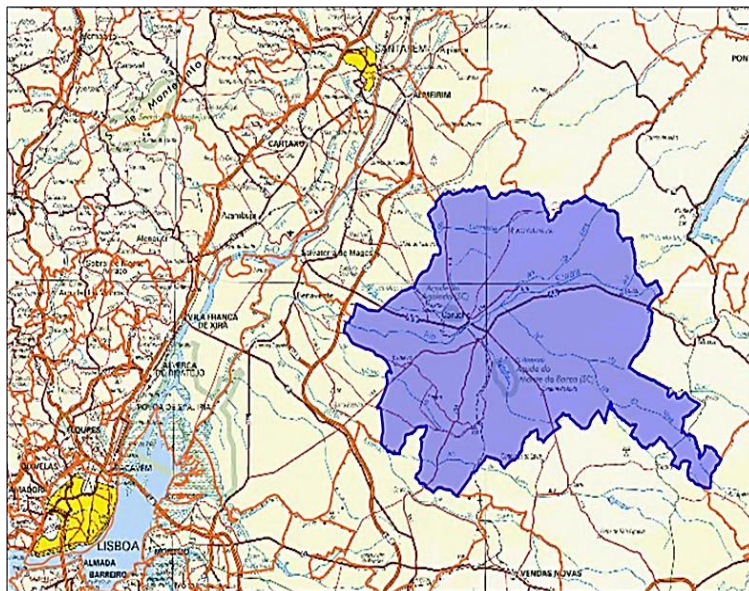


Fig.2: the municipality of Coruche vis-à-vis Lisbon and Santarém.

In the past 3 decades Portugal experienced a tremendous exodus and a pronounced ageing in rural territories. The data provided by Census 2011 reveals the dimension of this demographic trend in the municipality of Coruche compared with the whole Portuguese territory: its ageing ratio nearly doubles the national average (245.5 versus 131.1)<sup>i</sup>.

Coruche economic base is characterized by a strong specialisation in agriculture and forest activities, especially rice and cork. The economic weight of such activities (in terms of gross

<sup>i</sup> It means the ratio of the number of elderly persons of an age when they are generally economically inactive (aged 65 and over) to the number of young persons (from 0 to 14), within the resident population.

value added of enterprises<sup>j</sup>) was 7.5 % at the municipal level. The Portuguese entrepreneurial tissue represents 0.7 %.

The high level of land's productivity, associated to a high abundance of fertile soil and water for irrigation (reserved by the dams built in Sorraia River - figure 3), as well as management and agronomy expertise, are territorialised assets of the agroforest complex located at Coruche. In fact, this exhibits impressive competitiveness dynamics that clearly goes beyond the traditional model of subsistence and/or family farming and forestry, common in municipalities of inland Portugal. Several market oriented large farms are placed at Coruche.

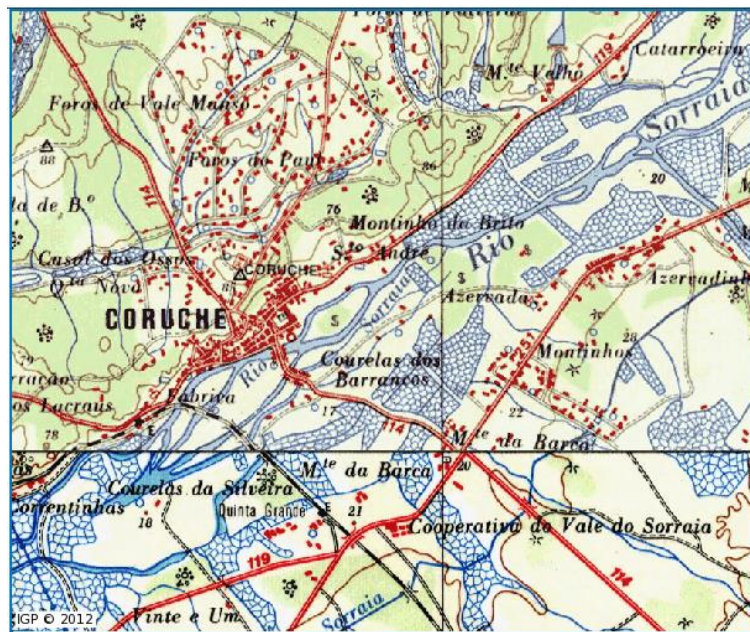


Fig.3: Basin of Sorraia River, near Coruche.

In terms of regional development orientated public policies, there is a clear direction in the context of so-called "collective efficiency strategies" within the Community Support Framework of the European Union and, particularly, the Portuguese Rural Development Programme, already mentioned. Among the various sub-programs and axes, and considering the case under analysis, one should highlight the modernization of farms, supply concentration, diversification of economic activities in rural areas and the overall commitment of local business and political actors to a greener economy through technological innovation aiming efficiency in terms of carbon sequestration and water and energy use. The Observatory of Cork and Oak is a remarkable example of such commitment not only for its eco-friendly construction techniques, but also because it is a centre for research and development aiming innovations in cork sector.

<sup>j</sup> According to Statistics Portugal (2012).

## 5. GOVERNANCE AND INNOVATION IN A MEDITERRANEAN TERRITORY

The characterization of the governance system associated with innovation dynamics related with cork-based activities considers the identification of actors involved in this system, their interactions, territorial scale of activity, and innovation processes. The analysis of this institutional tissue is based on primary data collected through interviews. These were applied to the following typology of actors:

- Enterprises: forest producers, companies and a cooperative financial institution focused in rural business.
- Regional and local associations focused on territory development.
- Public planners and local public administration involved in different public policy areas with influence on the socio-economy of cork based activities.
- Education and research entities, with relevant competences and skills related with cork in all value chain.

The information collected with the interviews was complemented by secondary data<sup>k</sup>. The analysis developed is predominantly qualitative and exploratory considering the results achieved so far and the dimension of the sample if we consider the more extensive universe of the actors involved in the sector, namely forest producers. The semi-directed interviews were applied between January and September of 2014. The following table presents the actors interviewed according to the typology previously presented.

Table I - Local and Regional actors involved in the governance of cork based activities (Coruche)

<b>Enterprises</b>
Corticeira Amorim
Grupo Piedade
Farm 1 (cork and rice)
Farm 2 (cork, rice and tourism)
Crédito Agrícola (Cooperative Financial Institution)
<b>Associations</b>
Association of Coruche Forest Producers
Association of Irrigators and Beneficiaries of Sorraia's Valley
Development Association of Ribatejo Country
Association of Coruche and Sorraia Valley Farmers
RETECORK – European Network of Cork Production Territories (France, Italy, Portugal and Spain)
<b>Education and Research Entities</b>
Polytechnic Institute of Santarém
High School of Agriculture (Santarém)
INIAV (National Institute of Veterinary and Vegetable Research)

<sup>k</sup> Reports, websites, newsletters.



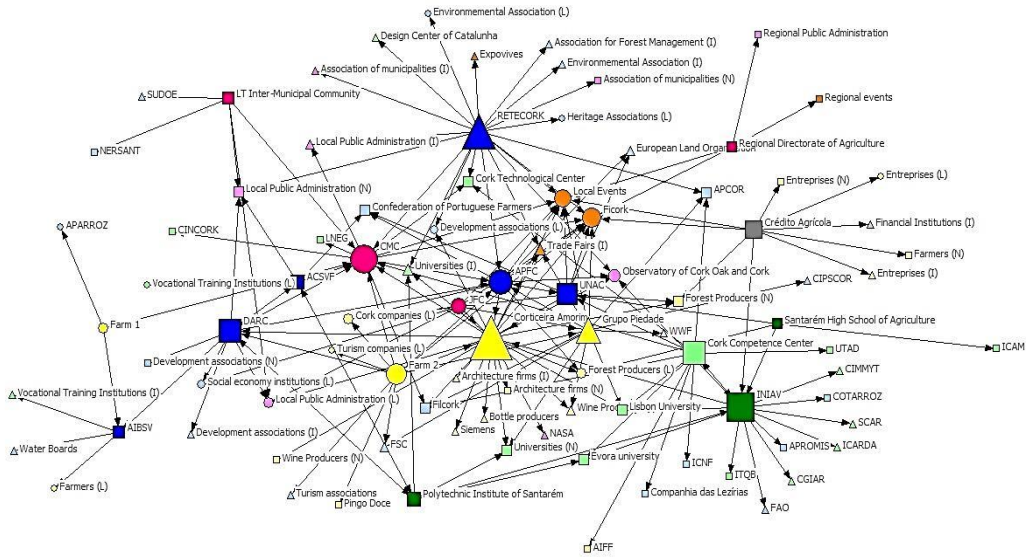


Fig.5: Governance of cork-based activities (degree)

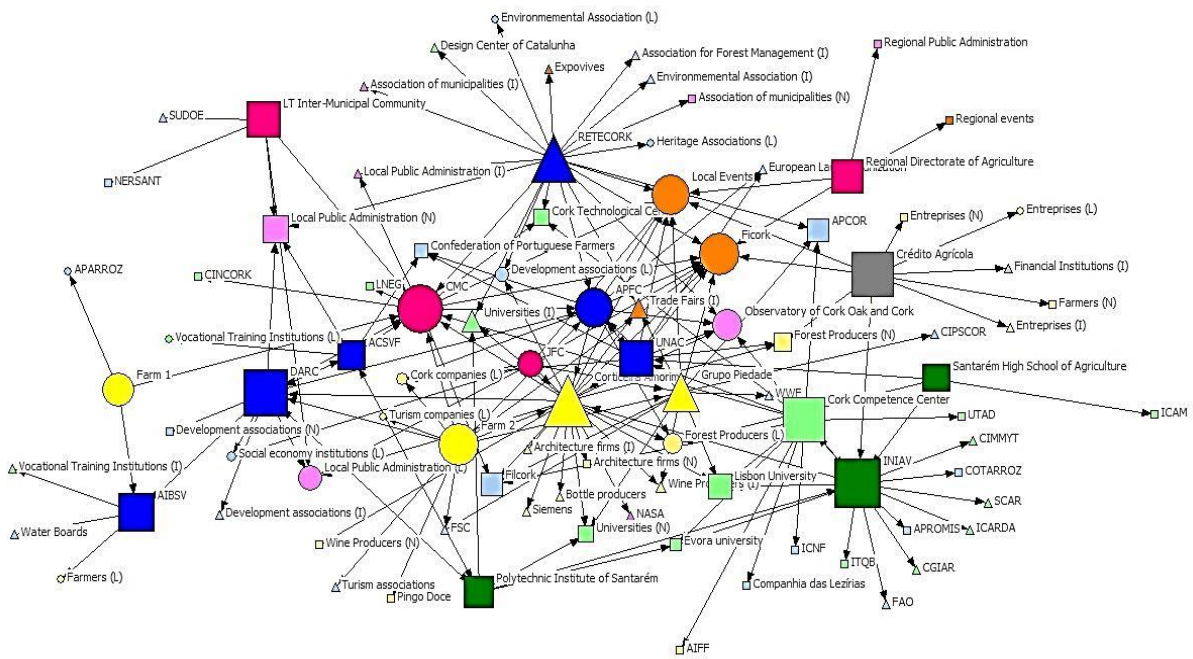


Fig.6: Governance of cork-based activities (betweenness)

Figure 4 reveals a multi-actor and multi-level system. From its analysis the following aspects should be highlighted: i) the presence of multinational enterprises, namely Corticeira Amorim; ii) the role of international and national associations related with cork production (e.g., Association of Coruche Forest Producers, RETECORK); iii) the importance of national research entities (INIAV); and iv) local public administration, namely Coruche municipality.

The attachment of cork production and transformation activities to territory differs: the production and extraction of raw material (forest producers) is territory based; the transformation (e.g., Corticeira Amorim, Grupo Pieldade) is multinational and its presence in Coruche is recent. The separation between the territory of raw material (cork), located mostly in the South of the country, and the territory of localization (North) of the headquarters of the biggest enterprise of the sector (Corticeira Amorim) has historical roots related with the presence of wine industry (Porto wine) in the most ancient wine demarcated region of the world (Douro wine region).

Stoppers correspond to the main cork product and, therefore, the development of a local knowledge involved in the transformation of cork in the North of Portugal took place. However, in the 1980' the company decided to locate some industrial units in Coruche, a territory with a strong presence of raw material, as mentioned before. The industry in Coruche is related with the first phase of cork transformation and the production of stoppers. The proximity of raw material does not seem to be the critical reason to this decision. Diversely, and according to the interview to the company, there were incentives provided by Coruche to this localization. The installations of the industrial units in the municipality involved local political power and financial incentives. The enterprise received also financial support from Portuguese Rural Development Programme.

In fact, regional and local administrative and political entities have been engaged in the increase of territory world visibility (territory marketing) through the valorisation and promotion of local resources, including cork. The so-called world capital of cork is based in partnerships involving private economic agents related with cork production and transformation, local infrastructures (e.g., Observatory of Cork and cork Oak), and initiatives with important national and international players in the sector. This is the case of Ficor, the annual fair for exhibition of novelties in the sector. This event involves researchers, entrepreneurs and sector associations (like, for instance, Coruche Association of Forest

Producers), Retecork (network of cork territories), the Cork Technology Centre, Filcork (inter-professional association of cork industry), and Cincork (professional training centre of Cork industry).

Figure 5 refers to the degree of connections established by actors. Degree is a measure of network centrality that reflects the number of connections each actor has, thus reflecting its activity in the network. Between most central actors, one should mention those directly involved in cork chain (enterprises and professional associations), and, among these, highlight forest producers, represented by Coruche Association of Forest Producers, and cork industry, namely Corticeira Amorim. Both of them correspond to strong gravitational forces in cork-based activities.

Figure 6 captures the betweenness centrality of actors, capturing their role as brokers in the network, that is, actors that frequently lay between other pairs of organizations. It is visible the importance of enterprises, associations, research entities, and public administration entities. Besides the importance of multinational enterprises (e.g., Corticeira Amorim), the national and local actors appear as determinant elements in the connection of the diversity of actors associated with cork.

The specificities of actors involved in cork production, transformation and sector political and administrative framework, as well as their attachment to Coruche, the territory under analysis, is also visible in the dynamics and governance of innovation in the sector. The following table presents information related with innovation, including the main actors and the partnerships involved in innovation process.

**Table II – Innovation in cork-based activities: actors and roles**

<b>Actors</b>	<b>Role</b>	<b>Innovation</b>
Corticeira Amorim	Leader Knowledge transference	<ul style="list-style-type: none"> <li>• Cork certification</li> <li>• Preventive and curative techniques (e.g., CONVEX, ROSA, INOS)</li> <li>• Solutions TPS - Thermal Protection Systems- NASA and European Spatial Agency</li> <li>• Terrestrial transports: Metro <i>Inspiro</i> (with Siemens); <i>EcoTrain</i></li> <li>• ‘Transports of the future’: <i>IBUS</i>, <i>ISEAT</i> and <i>Life</i> (‘Crystal Cabine Awards’)</li> <li>• Buildings: <i>Wallinblock</i>, <i>CORKwall</i><sup>m</sup></li> <li>• Cork composite for sports (e.g. surf- <i>CORECORK – Inspired Surf</i>)</li> <li>• Stoppers (Twin Top®, Spark®, Champagne,</li> </ul>

<sup>m</sup> Award of Innovation Tektónica 2011

		<ul style="list-style-type: none"> <li>Top Series®, luxury stoppers)</li> <li>• CORKSORB- innovative natural absorber</li> <li>• Pavilion of Portugal in Hannover and Xangai<sup>n</sup></li> <li>• Expanded cork agglomerate<sup>o</sup></li> <li>• Use of cork agglomerate in the furniture of Serpentine Gallery Pavilion (Herzog &amp; de Meuron and Ai Weiwei)</li> </ul>
Sá e Sobrinhos-Grupo Piedade	Leader	<ul style="list-style-type: none"> <li>• Stoppers (sparkling wines)</li> </ul>
Farm 1 (cork and rice)	Leader	<ul style="list-style-type: none"> <li>• Process (dimension of rice fields and management of water resources - optimization)</li> </ul>
Farm 2 (cork, rice and tourism)	Leader	<ul style="list-style-type: none"> <li>• Social (sustainability and integration of local resources)</li> <li>• Market</li> </ul>
Crédito Agrícola (Cooperative Financial Institution)	Knowledge transference	<ul style="list-style-type: none"> <li>• ‘Crédito Agrícola Innovation Award’</li> </ul>
Association of Coruche Forest Producers	Leader Knowledge Production Knowledge transference	<ul style="list-style-type: none"> <li>• Forest Certification (37000ha)</li> <li>• New technology in tree development (e.g., <i>pinus</i> production anticipation)</li> <li>• Mechanic extraction</li> </ul>
Association of Irrigators and Beneficiaries of Sorraia’s Valley	Funds management Knowledge transference	<ul style="list-style-type: none"> <li>• Laser control of rice fields</li> <li>• Digital Control of irrigation system (surveillance by cameras/GSM)</li> <li>• Satellite control of rice plant (NDVI)</li> <li>• Meteorology models-irrigation management</li> <li>• Communication TIC</li> <li>• AutoCAD Systems (design of water channels)</li> <li>• Development of rice seeds (and ISA (University of Lisbon))</li> <li>• Control of water quality</li> <li>• Impact of water pollution</li> </ul>
Association for the Promotion of Ribatejo Country	Knowledge transference	<ul style="list-style-type: none"> <li>• Leader management (European Structural Funds directed to rural territories)</li> <li>• Social innovation (e.g., promotion of local association and the development of rural economy namely regional products and landscape)</li> <li>• Ecological preservation (e.g., <i>montado</i> ecosystem)</li> </ul>
Association of Coruche and Sorraia’s Valley Farmers	Knowledge transference	
RETECORK	Knowledge transference	
Polytechnic Institute of Santarém	Knowledge production Knowledge transference	
INIAV	Leader Knowledge production Knowledge transference	
Regional Direction of Agriculture	Knowledge dissemination	

<sup>n</sup> Premium Design

<sup>o</sup> Integrates *BuildingGreen Top-10 Product for 2013*

Inter-municipal Community of Tagus Valley	Knowledge dissemination	
Municipality of Coruche	Knowledge dissemination	
Coruche County	Knowledge dissemination	

The innovation related to cork and taking place in the companies located in Coruche is mainly related with cork production and transformation. Forest production has known some important innovations like certification of cork oak forest management and extraction (mechanical extraction), which are the result of partnerships with international players. Besides, there is research on cork genome with the purpose of reduction of extraction periods (now in a 9 years period). This project is developed through a partnership between Corticeira Amorim, the big player in cork transformation, and Portuguese Universities.

The innovation related with cork transformation is mainly developed by Corticeira Amorim. This is done through multilevel territorial partnerships - local, regional, national and international. This multinational company is based in the North of the country, as mentioned above, and has its own R&D units<sup>p</sup>. Nevertheless, the connection with the Portuguese scientific system is strong and relevant in terms of knowledge production and innovation. Corticeira Amorim corresponds to a center of a multinational innovation complex focused on cork. Therefore, some of the big players of cork innovation are external to the territory under analysis, which corresponds to a territory with a strong presence of forest cork oak production. The evolution of innovation taking place in this company is characterized by a change and is nowadays more centered in forest, that is, raw material – cork. In fact, the concerns with forest production and the problems related with cork (e.g., cork's quality change, diseases) are recent and constitute a novelty in terms of the innovation purposes and players.

Besides Corticeira Amorim, Coruche integrates very important actors in cork innovation system. This is the case of the Association of Coruche Forest Producer, which is related with other local, national and International players with an important role in the sector.

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<sup>p</sup> All business units have their own competences in R&D. However, Corticeira Amorim has a R&D transversal structure - Amorim Cork Research. It was also created a program (CORK.IN), which collect ideas and proposals to new products and innovative solutions. R&D in raw materials was created in 2002 and aims the diversification of raw material sources.

The importance and the role of Corticeira Amorim in terms of territory development is recognized by all the actors interviewed and expressed in figures 5, 6, and 7. This importance is related with employment opportunities, and the contribution to the maintenance of a particular ecosystem (*montado*) with impact in cultural life and territory identity. In fact, the use of cork as a raw material contributes to the development and investment in cork oak trees. Nevertheless, there are some critics to this actor related with its dimension and market power. The localization of some units of Corticeira Amorim in Coruche is based on financial incentives, as mentioned above, and does not correspond to a transference of Company' productive center to the proximity of raw material.

## **6. CONCLUSION**

Coruche corresponds to an interesting case for the research on governance and innovation with a territorial base. The strong presence of cork activities (production and transformation) in Coruche justifies the identification of the big players, their interdependencies, scale of action and main innovation. Besides cork, we find other important products with relevant innovation processes and contribution to territory development. This is the case of some associations and private enterprises, which explore important local resources like rice.

The governance of cork based activities includes important cork Companies (Corticeira Amorim and Grupo Piedade), cork producers, professional and development associations, and public administration entities with competences in regulation and the development of the territory, including the management of European Funds (e.g., Leader). The interaction between these players constitute an interesting governance system, namely on innovation processes. We are dealing with diverse and multi-level institutions whose activity allows the development of a raw material and the national economy. Future research on this governance system should consider a deep characterization of forest producers, that is, the actors responsible for the investment and maintenance of cork oak trees and, therefore, to the maintenance of an important ecosystem, identity and Portuguese exports.

The identification of actors according to a typology (enterprises, associations, public administration, and education and research activities) was followed by the identification of the main interdependencies in different territorial levels (local, national and international). The analysis of these partnerships remits to a complex institutional tissue with a multilevel nature. The reference to the main innovations taking place in Coruche was made within a

dynamic approach by taking into account the partnerships developed in innovation process. The results show a complex system of relations with multi-level territorial scales. Within this analytical framework one should highlight the role of cork-based activities, namely Corticeira Amorim, a multinational enterprise with strong relations with Coruche in multidimensional terms (economic, social and cultural). In fact, and despite the fact related to the distance between raw material and main and most important units of production, the presence of Corticeira Amorim in Coruche enforces the centrality of cork sector in the territory in a multidimensional perspective. Besides employment creation, the presence of Corticeira Amorim contributes to the visibility of a particular ecosystem (*montado*) with important impacts in economic, social and ecological aspects.

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