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"Social Innovation in forestry: a preliminary analytical framework"

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Abbreviations and acronyms

| | |
|-------|---|
| AFP | Associazione Forestale di Pianura |
| BEPA | Bureau of European Policy Advisers |
| EC | European Comission |
| ENFI | National Forest School of Engineers |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nation |
| FSC | Forest Stewardship Council |
| GDP | Gross domestic product |
| IT | Information Technology |
| NESTA | National Endowment for Science, Technology and the Arts |
| NGO | Non Governmental Organization |
| OECD | Organization for Economic Co-operation and Development |
| PA | Participatory approach |
| TMC | Territorial Management Contract |

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*"Souls come and meet,
And go find others connected and willing to the same bumping of hearts sustained in light.
We are no angels, but we have light. And light is love."*

(NFC, Pieve Tesino)

Abstract

Over the years social innovation has been receiving increasingly consideration to address the complexity of global problems that require sophisticated solutions to tackle social problems and add collective value. As a natural resource-based sector, with its potential role for employment and for community development, forestry is a promising field within which to investigate the role of social innovation in the support of adding collective social value. However the main innovations in forestry in recent decades have been of a technological and organizational nature, and social dimensions of innovation have been poorly explored by discourse and research. Therefore, in order to be able to provide relevant advice that includes the social dimensions on forest policy the purpose of this work is to provide an overview about the state of the art of social innovation on a basis of a preliminary analytical framework to identify elements that can support or hinder social innovation. The analytical framework, built on a literature review and document analysis carried out with reference to the forestry sector, is preliminary tested by forest experts and case studies, and finally, a preliminary analytical framework on governance elements relevant to social innovation is proposed. Implications - potentialities and limits/criticisms - in using and further developing such a framework are discussed.

1. INTRODUCTION

Over the past 30 years, social innovation is gaining domestic and international attention by nonprofits, governments, and businesses which have developed a better appreciation of the complexity of global problems requiring sophisticated solutions (BEPA, 2011). Social innovations have been evolving around the promise of offering solutions to a range of today's societal problems, which neither classic tools of government policy nor market solutions are able to solve (Murray et al. 2008), and that brings by definition social change and a plus of social value.

Although social innovation as a phenomenon has been constantly present in the evolution of human societies (Simms, 2006), attention to social dimensions of innovation appeared quite recently and has been poorly explored by discourse and research, while in discussion regarding technology we have seen considerable development of the concept of innovation. In addition, the diverse contexts and research fields in which social innovation has been conceptualized and practiced leads to a vague definition of the term. Therefore, the main limitations in the field of social innovation miss a clear definition of the concept and adequate theories and corresponding methodologies able to bring this field forward (Cajaiba-Santana, 2014).

As a natural resource-based sector, with its potential role for employment and for community development, forestry is a promising field within which to investigate the role of social innovation in the support of adding collective social value. Apart from the forest's relevant role on increasing the resilience of communities, by providing sources of food, energy, shelter, fiber, income, social innovations can highlight cross-sector relationships between forestry, agriculture and their actors, for instance, increasing efficiency of rural development strategies to rescue marginalized rural societies through collective engagement. Moreover, the main innovations in forestry in recent decades have been of a technological and organizational nature (Rametsteiner and Weiss, 2004), reinforcing the lack of exploring the social dimensions also in this field of research.

Thus, in order to be able to provide relevant advice that includes the social dimensions on forest policy, the purpose of this work is to provide an overview about the different uses and meanings of social innovation found in the literature, and to propose an analytical framework based on the literature review which is relevant for the field of social innovation in forestry. Such framework is intended to identify gaps in literature, to define the concept and to systematize relations among concepts that can support or hinder social innovation in forestry.

1.1 Objectives

The general objective of the present work is to study the state of the art of social innovation on a basis of a preliminary analytical framework to identify elements that can support or hinder social innovation in forestry.

Specific objectives are:

- i. Update the knowledge and scientific interest by literature review of theoretical concepts and approaches which will enable the comprehension, description and enhancement of social innovation in forestry;
- ii. Development and preface test of a conceptual framework identifying pre-conditions, limiting factors, mechanisms and drivers that can support or hinder social innovation in forestry as reported in literature;
- iii. Proposition of a preliminary analytical framework on governance elements relevant to social innovation in forestry.

1.2 Thesis structure

With regards to provide an understanding of the thesis' logical framework, this paragraph briefly explains the structured and development of the work. The thesis is developed into five main parts.

The present Chapter 1 gives an overview of the background information and of the main points of the research problem collected from literature review related to the topic, followed by the statement of the research objectives for further development of the study.

Chapter 2 presents the theoretical background which allows to understand clearly the importance and challenges of the topic. Special attention is paid to research gaps around the concept of social innovation highlighting the need for the analytical framework. And also to the contextualization of forestry as a promising field within which to investigate the role of social innovation.

Chapter 3 describes the research methodology, where all methods used for data collection and analysis are explained. Chapter 4 presents results and discussions of the research from two main blocks: research made out from review of scientific articles from SCOPUS data base and the development of the preliminary analytical framework. Referred to the four specific objectives: firstly, the relevance of the research topic is proved; secondly, the elements that support or hinder social innovation in forestry are identified and preliminary tested by forest experts and case studies, and finally, a

preliminary analytical framework on governance elements relevant to social innovation is proposed.

Conclusions are presented in Chapter 5.

At the end, the thesis is completed by a reference list and by three annexes. Annex 1 presents the list of publications selected from the search on Scopus and grey literature for the development of the analytical framework. Annex 2 contains the questionnaire to the forest experts and Annex 3 is the matrix for collection of case studies in order to preliminarily test the applicability of the framework.

2. THEORETICAL BACKGROUND

In this chapter the main concepts and definitions concerning topic of the research are given. The chapter is divided into 3 subchapters. In the first subchapter the main definitions about social innovation are presented. In the second one, the main research gaps around the concept of social innovation are discussed highlighting the need for the analytical framework. And the third and final one presents and contextualize forestry as a promising field within which to investigate the role of social innovation.

2.1 Definitions of Social Innovation

One broadly accepted definition of social innovations involves the development and implementation of new ideas (products, services and models) to meet social needs and create new social relationships or collaborations (EC, 2013). Its concept and practices originates in the 1990s in critiques of traditional innovation theory, with its focus on material and technological inventions, scientific knowledge and the economic rationale of innovation, as a way to cope with the consequences of economic restructuring and mass unemployment (EU SCAR, 2012).

Although “there is lack of a universally accepted definition of social innovation and ambiguity surrounding the term” (de Bruin 2012, p.373), which will be further discussed on the following subchapter, social innovations have been evolving around the promise of offering solutions to a range of today’s societal problems, which neither classic tools of government policy nor market solutions are able to solve (Murray et al. 2008), and that brings by definition social change and a plus of social value.

However, not every process of social change is necessarily a social innovation; in this sense ‘*Innovation*’ refers to the capacity to create and implement novel ideas which are proven to deliver value (Hubert et al., 2010); and ‘*Social*’ refers to delivering a value less concerned with profit and more with issues such as quality of life, solidarity and well-being (BEPA, 2011). In this context, the distinguishing feature of social innovation lies firstly in newness, with outcomes including new institutional arrangements, new fields of activity, and new actors’ interaction (Mumford, 2002); and secondly in the structure of intended, planned, coordinated, goal oriented and legitimated actions towards new social practices (Cajaiba-Santana, 2014).

Cajaiba-Santana (2014) also presents the process of social innovation as a “phenomenon” having the power to trigger “legitimized and purposeful” social change, aiming at “the improvement of collective well-being”. The author address social innovation

not only as a descriptor of a set of practices but, more importantly, as an emerging phenomenon, a theoretical construct and an ongoing field of research.

Other literature available reinforce the idea of a broader concept of innovation focusing on social return and transformation. According to Pol and Ville (2009) the desired outcome of social innovation are related to the improvement of 'either the quality or the quantity of life'. Others describe the outcome dimension of social innovation as meeting social needs (Caulier-Grice et al. 2012: 18; Mulgan 2007: 8; Murray et al. 2010: 3), or as solving a social problem (Phills et al. 2008). In general terms, the desired social outcomes of a social innovation can be stated as the improvement of human well-being, with results such as better access to health care services, improved opportunity for income generation, education etc.

It is relevant to point out that social innovation is not the tangible improvement itself but new *intended* forms of collaborative action that enables the improvement in the first place (Neumier, 2012). The intentional facet of social innovation allows for the building of a shared vision, crucial for building coalitions and networks, which leads as a result to some kind of tangible improvement for the actors involved or even beyond (Neumier, 2012). This type of learning is in itself innovative as it allows for a new (cross-border) constellation of actors to collaborate, who come from different backgrounds and have different interests (Tovey 2008).

Therefore, the following outcomes from social innovation practice are generally agreed to be its constituent (EC, 2013 and 2015): (i) *new institutional environments and arrangements* (e.g. new formal or informal rules, new administrative procedures); (ii) *new governance arrangements* (e.g. new decision-making processes based on involvement of private sector); (iii) *new fields of activity* (e.g. social entrepreneurship and social enterprises, new social uses of forests); (iv) *new actors' relationships and interactions* (e.g. new forms of collaboration, new networks; new attitudes, values and behaviours).

2.2 Lack of unanimity around social innovation

Although social innovation has been constantly present in human societies and has become a widely known term when offering solutions to societal issues, the multitude and variety of definitions and theories of social innovation is confirmed by numerous academics. Not only the topic has been poorly explored by discourse and research, which leads to a vague definition of social innovation (Butkeviciene, 2009; OECD, 2010; Caulier-Grice et al., 2012;), but also "the recent success of the notion and its mainstreaming in

policy discourse has paradoxically emptied it of its innovative dimension, exposing it to the concrete danger of becoming hollow – or, worse, instrumental – rhetoric” (Martinelli, 2012, p.171).

The lack of unanimity about the meaning of social innovation may be explained from the diverse contexts in which social innovation is practiced since it has been conceptualized in very different research fields (Caulier-Grice et al. 2012). Also according to the authors, most of the understandings and definitions of social innovation have emerged from people actively involved in solving practical problems rather than from scholars who theorize on social innovation. Recent work on social innovation has been mostly practice-oriented and has been published in the form of research reports of various organizations and foundations. (Choi and Majumdar, 2009).

It is clear, however, that the context in which the definitions of social innovation were created have a great importance especially when it comes to the definitions of "social" and "social issues" that evidently vary from one places' reality to another. For instance, some important and recent collective efforts to pursue the expansion and definition of the term arose from the European context, including the Vienna Declaration, from the 2011 Challenge Social Innovation Conference (Anderson et al, 2014). Naturally, these definition won't have the same meaning in Latin America or Africa if universal parameters of social challenges are not defined which would allow to set priorities, and therefore, to set the targets of social innovation.

These challenges would include the major ones currently faced by the global community, ranging from climate change, poverty, social exclusion, unemployment, food security, migration and social conflicts (Hochgerner, 2012), manifesting themselves on a global scale or on a smaller scale within local communities. Although the understanding and definitions of social problems will naturally depend on one's context; in order to avoid social innovation becoming a 'catch-all' term, there is a need to define universally shared priorities.

In this context it becomes evident that the growing set of examples and attendant discourses and logics of social innovation have yet to coalesce around a single, common definition, a set of standards or performance measures or an agreed policy agenda (Nicholls et al, 2015), in order to move forward investigating the way social innovation emerges and spreads.

2.3 Social Innovation - Promising role in forestry

As previously discussed, the concept of social innovation have been evolving mainly in relation to addressing social issues such as the ones mentioned by Hochgerner (2012). However, it quickly became evident that many of the organizations active in the field of social innovation also considered ecological issues as relevant topics for social innovation process (Bjork, 2013), focusing on the need to embed social innovation as the key to sustainable development of societies.

In the past decades much has been discussed on the pioneering role forests play on understanding and achieving sustainable development goals, within a growing interest towards an approach based not only on the wood resources that could be obtained from the forests and on the environmental values related to its existence, but also focusing on the social and cultural dimensions of forests.

According to Pretzsch et al (2014, pg 5.) "the social and cultural approach to forests is a vast universe that includes issues like decent and health labor, cultural and spiritual values, traditional forest knowledge, anthropology, geographical history, indigenous people, community management of natural resources, and rural development". Where, possibly, one of the most consolidated links of the social dimension is related with rural development due to the contribution of forests to the livelihoods of the forest-related rural communities (Elands and Wiersum, 2001).

Social innovation becomes a promising field that can highlight cross-sector relationship between forestry, agriculture and their actors, for instance, increasing efficiency of rural development strategies. Compared to the development of cities, rural areas face problems related to disperse human capital, comparatively less developed infrastructure, unemployment, social exclusion etc. (Sumane S., 2010; Grinberga-Zalite et al, 2015). In this sense, rural development can be considered a prominent case when social innovation is then appointed as desired outcome – a renewed, revitalised society - as well as instrument and strategy to rescue marginalized rural societies through collective engagement (Bock, 2012).

Some authors argue that rural development public policies in forest-dominant areas should focus on supporting and developing multi actors networks of small and medium enterprises (SMEs) and entrepreneurship (Bukula and Memani, 2006; Macqueen, 2008; Pretzsch et al, 2014). It would promote wood, bioenergy, nonwood forest products, and tertiary services from forests, but also trigger the incorporation of a considerable amount of informal labor into the formal economy. Therefore, SMEs networks would play an

important role in the social architecture and democracy as, by increasing competition, they prevent corruption and ensure a broad middle class (Campos et al, 2005).

Apart from the relevant potential rural development strategies have on forestry, it is also known how forests are an important direct source of income for forest owners and for employees in rural areas. The Food and Agriculture Organization of the United Nations estimates that forest industries contribute more than US\$ 450 billion to national incomes, contributing nearly to 1 percent of the global GDP in 2008 and providing formal employment to 0.4% of the global labor force (FAO 2012). Moreover, forests also help ensure the food security of hundreds of millions of people and are fundamental to increase the resilience of communities, by providing sources of food, energy, shelter, fodder, fiber and income (Angelsen and Wunder, 2003).

However a global forest lost is still currently observed, where agriculture continues to be the major driver of deforestation globally, and agricultural, forestry and land policies are often at odds (FAO, 2016). According to some estimates, agricultural expansion is the proximate driver of about 80% of deforestation worldwide (Kissinger, Herold and De Sy, 2012). In addition to all the other complex causes of forest loss, poor governance is highlighted as significant driver of deforestation, where intersectoral linkages are weak, policies in higher-priority sectors – such as agriculture, mining, industrial development and energy may have a greater impact on forests than the forest policy itself.

Notwithstanding, forests are essential for climate-change adaptation and mitigation, a major global issue faced by society. Sustainably managed forests will increase the resilience of ecosystems and societies and optimize the role of forests in absorbing and storing carbon while also providing other environmental services.

The future of the people, who make a living in rural areas from forestry, will considerably depend on how individuals and institutions react in view of the challenges mentioned above, focusing on innovative integrated approaches to land use to: address the drivers of deforestation and conflicts over land use; capitalize on the full range of economic, social and environmental benefits of integrating forests with agriculture; and maintain multiple forest services in the landscape context. (FAO, 2010).

In this context, forestry is a promising field within which to investigate the role of social innovation in the support of adding collective social value. Nevertheless, in the forest sector policy, as in other sectoral policy, innovation is specifically discussed in the context of improving the competitiveness of forestry with a technological and organizational nature (Rametsteiner and Weiss, 2004), against other sectors of the economy and forest sectors

of other countries. If the theoretical literature on forest business innovation today is very extensive and versatile, the systematic analysis of social innovation, as well as an analytical framework for understanding key elements that can support or hinder social innovation in forestry is currently still to be formed.

Independently of how complex are the changes proposed, social innovation is considered essential as instrument and process to realize a transition towards more sustainability. This underlines the importance of better understanding how it works and how the process related with social innovation may be effectively supported in forestry.

3. RESEARCH METHODOLOGY

The methods of this research are mainly based on the qualitative ones, a research approach normally characterized by its aims, which relate to understanding some aspect of social life, and its methods which (in general) generate words, rather than numbers, as data for analysis (Perry and Coote, 1994). Qualitative methods are also effective in identifying intangible factors, such as social norms, socioeconomic status whose role in the research issue may not be readily apparent (Denzin and Lincoln, 2000). In this context, and considering that the topic has been poorly explored by academics, this research topic will start with qualitative method, that could help generating hypotheses for further researches that can then be tested by quantitative methods.

3.1 Scopus research

The first phase of the research is aimed to understand how the topic is currently represented, by exploring the theoretical concepts and methodologies found in the scientific world and also on grey literature. To this end, a literature review is conducted, including a research of the main publications, studies, papers, articles and other literature available. Scopus online research platform, which contains a vast number of scientific papers and the main international peer reviewed journals is used, as well as Google search platform to include how the topic is represented by grey literature, due to the vast use of social innovation topic in reports of organizations.

For the search on Scopus specific key words combinations were selected, including: "social innovation" AND "forest"; "social entrepreneurship" AND "forest", "social innovation" AND "rural development" and "social entrepreneurship" and "rural development", in the titles, key words and abstracts of papers. In order to have a more complete result, the term "rural development" was selected due to the links between cross-sectoral approaches of forestry and agriculture for social innovation as presented in the theoretical background, as well as "social entrepreneurship" for being frequently mentioned by literature on the topic. To further refine the search, the wildcard * was used in the key words "innovation" and "forest" to guarantee the inclusion of their multiple spelling variations. For instance, "innov*" returns "innovator", "innovative", "innovating", and "forest*" includes "forestry", forests. After choosing the disciplines Social Sciences, Environmental Sciences and Agricultural and Biological, a sample of articles was presented by presence of key words in the title or abstract and further narrowed by reading abstracts.

However, as the preliminary screening on Scopus resulted on only few number of articles the search was broaden by removing the quotation marks (") from the key words. By doing this, Scopus automatically joined the key words with AND (for instance: "social" AND "innovation" AND "forest), and they are not searched together as phrases anymore, but as separate words. Although this method results in a much higher number of articles covering different research fields, a detailed examination on them was carried out by reading the text (not only the abstracts) in order to understand and verify whether their contents were pertinent and relevant to the study. At this point, studies were excluded, for instance, if the social facets of innovation were insufficiently described or correlated with forest and rural development, or even if the study did not contribute with important information to this review.

3.2 NVivo analysis

The search was carried out in May-July 2016, and the relevant articles selected were finally analyzed for the effects of identifying elements to support or hinder social innovation to happen in forestry by using NVivo, a qualitative data analysis software package. Bernauer et al (2013, p.6 *in* Creswell 2013, pg.201) describes the process used for qualitative data analysis in NVivo as "the same for hand coding or using a computer: the inquirer identifies a text segment or image segment, assigns a code label, searches through the database for all text segments that have the same code label, and develops a printout of these text segments for the code. In this process the researcher, not the computer program, does the coding and categorizing".

Therefore the software is used to analyze the results of the literature review based on discourse analysis by transforming raw data (rich and plain text documents, word documents, PDFs, bibliographical data, and web pages) into more meaningful segments and concepts that respond to the need posed in the study (Bazeley and Jackson, 2013). However, the analysis has been aimed at formulating merely *sensitizing* concepts allowing to foster future researches on the matter in order to finally achieve *definitive* concepts (Cardano, 2004), due to great complexity and lack of scientific knowledge of the matter and the lack of empirical base used. The results of the survey with all elements identified are presented in the Result section in the form of the analytical framework, and the publications used to develop it are available in Annex 1.

3.3 Expert's perception

Once the analytical framework is developed, a questionnaire with open and close-ended questions was developed in order to get a preliminary overview on the validity of the framework based on forest experts' opinion. According to Bogner et al (2009) the use of experts review has long been popular especially in the exploratory phase of a topic in social research due to its shorten time-consuming data gathering processes and due to the fact that the interviewer and the interviewee share a common scientific background which can increase the level of contribution and motivation on the part of the expert to participate.

In the present study a questionnaire was developed to ask experts to assign a weight to the different elements identified to support or hinder social innovation in forestry (some of them can be considered strictly necessary, others might be less important - and this analysis is out of the scope of the literature review). The experts were also requested to integrate any element that might not have emerged from the literature in order to enrich the validity of the framework. The questionnaire can be found in Annex 2.

An alert message to compile the questionnaire was sent to the experts by email, including introductive and explanatory messages, accompanied with the link to the online questionnaire based on the Google Forms platform. The questionnaire was circulated to a mailing list of expert in Europe, where eleven experts in the field of Forest Policy and Economics and Social Forestry with both scientific and practice expertise were selected on a subjective basis. However, it cannot be considered as a representative sample, but as an online survey to a network of forest experts known to have considerable knowledge in the topic. This type of research (Bogner et al, 2009) was chosen in order to deal with global scale of the study and with the time limit of the thesis development, as the experts can be reached with no costs and easily reply to an online questionnaire on their preferred time.

Following with the research methodology, an exploratory case-study approach (Yin 1994) was used in order to get insights on the preliminarily test of the completeness and feasibility of the framework. The exploratory case-study approach is applicable when: (1) the goal is to develop hypotheses and propositions for further enquiry, (2) it is not possible to control the situation being investigated, for example, through experimental manipulation, and (3) a holistic approach that considers the interplay of factors in the richness of contemporary real-world contexts is required to understand "how" and "why" certain events occurred (Yin 1994, Stake 1995).

This approach mainly consisted of a consultation with few academic and practioners engaged in projects of social innovation in forestry on different levels, such as on the level of frameworks (policy and legal frameworks), social and economic viability, and conflict management and organizational development. The cases were selected from the Mediterranean basin (Italy, Morocco and Spain) to contribute to the scope of the master, where the individuals contacted were asked to actually use and fill the analytical framework based on the case study that they are involved with (or aware of). A short questionnaire was developed and anticipated by e-mail with a table to be filled in (the analytical framework). Their inputs were then analyzed based on discourse analysis.

It is important to mention that the experts questionnaires and the case studies collection did not provide a detailed description of the meanings of each element, due to the their long and complex characteristic, which would possibly discourage the expert's contribution. Therefore, it was assumed that they would have understood the concepts from the elements based on their expertise. At the same time, this brings potential biases to the research as some concepts might not be clear enough for their analysis tendencies to think in certain ways that can lead to systematic deviations.

In sum, results from such exploratory analyses should not be taken as conclusive. The intention was that this study would explore the usefulness of a social innovation perspective and would suggest starting points for more detailed case studies, rather than provide conclusive empirical findings.

3.4 Building the analytical framework

The development of the analytical framework which a scientific or policy analysis could focus on in order to identify possible interventions that foster SI was built from the same structure proposed by the previous conceptual framework.

We draw from such a conceptual framework those elements that can be considered directly linked to governance-related issues, and we detail a preliminary set of questions for analysing governance.

The basic elements of the framework connecting governance and innovation include: the specific sub-elements of governance – the focus of attention (second column); possible policy or research related questions (third column); information needed in order to respond to the questions (indicators - fourth column) and ideas/suggestions about tools that could be adopted for the analysis (fifth column).

4. RESULTS AND DISCUSSION

The literature review allowed to show the relevance and the scientific interest of the research topic (4.1). In the next section (4.2), pre-conditions, limiting factors, mechanisms and drivers of social innovation in forestry were identified (Figure 1), and the results of the elements identified in the literature review are shortly described, followed by the (4.3) overview on the validity of the elements based on forest experts' opinion and provided case studies. Subsequent (4.4), the results show the governance elements that are likely to support social innovation in rural areas and more specifically in the field of forestry and ecosystem service provision are analyzed as a basis for a preliminary analytical framework (Table 4.4).

4.1 Scientific interest on the topic

Following the research methods explained on the previous chapter, the survey of scientific articles was done in order to find out the relevance of the topic in the science society. The results of the survey for each word combinations are presented in the table 1. The total amount for all searches is 177 publications, which were mainly published from 2010 to the present year, with a growing pattern observed for the last 3 years (2013-2016), showing a relevant increase, but not sufficient interest in the topic by the scientific literature. Although forms of social innovation were many times not explicitly mentioned, most of the articles discussed the importance of including and understanding social dimensions of innovations in order to improve the livelihood of forest-dependent and rural communities in future research. This last finding supports the recent years' trend of the growing interest in exploring the topic.

Table 4.1: Results of the survey of scientific articles (own elaboration)

| # | Key words | Number of articles | Key words | Number of articles | Total number of articles |
|----|---|--------------------|---|--------------------|--------------------------|
| 1) | "social innovation" AND "forests" | 3 | social innovation AND forests | 27 | 32 |
| 2) | "social innovation" AND "rural development" | 15 | social innovation AND rural development | 67 | 82 |
| 3) | "social entrepreneurship" AND "forest" | 2 | social entrepreneurship AND forest | 12 | 14 |
| 4) | "social entrepreneurship" and "rural development" | 5 | social entrepreneurship and rural development | 46 | 51 |
| | Number of articles | 25 | Number of articles | 154 | TOTAL = 177 |

However, it is important to notice that when the key-words are searched as phrases (second column), the proportion of articles from the total drastically decreases, resulting in only 25 articles for all words combination. This highlights how social innovation as a concept and as a promising field constantly mentioned by policy discourse is yet poorly explored by the academic literature, especially when having its application narrowed to forestry and rural development. Moreover, from the 154 publications resulting from key-words searched separately (without quotation marks), it can be said that the studies lack exploring whether social objectives were achieved. Many authors judged, for instance, any rural development project as social, as in the end it is always about peoples' way of life and well-being (Lowe et al. 1998; Vanclay 2002), but there should be a narrower focus from the academy on the contribution of social innovation projects to sustainable communities, liveability and quality of life, instead of purely economic growth, job creation and entrepreneurship.

As it is also shown on the table, the publications mentioning social innovations in rural development are predominant over the ones concerning the forest research field. In fact, the words combinations with "rural development" are representing more than half of the total articles searched. This difference between forest and rural development in representativeness on the scientific interest in social innovations can possibly be explained not only by the fact that the forestry sector is included in rural development strategies, but also due to the current role social innovations are playing in European policies and strategies of rural development in recent years, which can be noted by the high amount of publications searched addressing the European context, driving the interest of conducting research in social innovation to support policy discourse in rural development strategies. According to Glenna et al (2014), although it shows the societal relevance of rural development research, it can also imply considerable control of research agendas, where in this case, EU policy and funding significantly shape the interest in social innovation.

When analyzing the publications linking social innovation and forests, many of them described one specific case or situation where forest resources and services were considered when supporting innovations and entrepreneurship, mentioning but not clearly demonstrating, the cause-effect of implementing social innovation to positive impacts on local development. Other relevant topics mentioned by the academic literature related to social innovations in forestry included examples of new pieces of legislations and institutional forms in forest policy making and entrepreneurship, as well as studies

investigating processes and mechanisms which were designed to induce creation of social value in forest communities.

In terms of cross-sectoral links with forestry, apart from the agriculture sector, which was already expected to be a major player, social innovation and entrepreneurship in the tourism sector in forest and rural areas was frequently discussed as an important driver to rescue marginalized rural societies and to contribute to local livelihoods.

Here it is important to highlight that the publications on *social entrepreneurship* and *rural development* did not significantly diverge from *social innovation* and *rural development*, as many overlapping articles were found during the search. Social entrepreneurs share characteristics and techniques with traditional business entrepreneurs, such as their focus on innovation, however their goals are social: participation, user involvement and community benefit (Morrar, 2014). Therefore social entrepreneurship can often be found as an innovative form of activity of civil society organizations, whereas social enterprises almost by definition develop social innovation in its operations, so they are both co-related and are seen as a part of the solution.

Although social entrepreneurship was largely mentioned by literature when developing technological, economic and business oriented innovations able to improve local livelihood of rural communities, many studies mentioned the importance of new forms of collaborative actions as a pre-condition for entrepreneurship to happen. For instance, the creation of networks for women's rural cooperatives was a topic frequently discussed, mainstreaming gender as a current global social challenge specially in rural communities.

Regarding methodological approaches, the publications mainly included qualitative methods such as interviews and focus groups with households and stakeholder, with only few studies using mixed qualitative-quantitative methods, when including for instance demographic and income data. Moreover, the studies did not provide new methodologies able to clearly identify social dimensions of innovative measures in forestry, and neither demonstrated empirical evidences of social innovation adding collective value with little systematic evidence about concrete measurement and evaluation of its impact. As pointed out by Baturina (2010) it can be explained by the small-scale and short in duration of such innovations, which hampers their development, as well as assessment of their long-term impact. The same goes for indicators, which would be suitable for observing and analyzing social innovations.

When searching for other types of publications in grey literature, which are materials and research produced by organizations outside of the traditional commercial or

academic publishing, it becomes evident how the field of social innovation is growing rapidly based on the promise of offering solutions to global and local societal challenges. This can be noted by the large number of reports, guides, working papers published by range of networks, funds, institutions and government departments specifically focused on supporting and promoting social innovations of various kinds. This literature usually focus on practical applications of social innovation rather than in building theories on the topic. Hence, literature of this type often attempts to offer strategies and road maps for creating social innovations, rather than explaining social innovation within a theoretical context. Worth noting is *The Open Book of Social Innovation*, published in 2010 and authored by Murray et al. (2010), as the result of a collaboration between the Young Foundation and NESTA (the National Endowment for Science, Technology and the Arts). In this book, the goal of the authors is to present ways to 'design, develop and grow social innovation'. The authors (Murray et al. 2010: 3) described many methods and tools for innovation being used across the world, as a first step to developing a knowledge base on the topic.

In the public policy making field a large number of this literature mention social innovation. The European Union's innovation strategy, for instance, was the first well-funded research and development strategy to emphasize social innovation. The Bureau of European Policy Advisers (BEPA) organized in 2009 a two day workshop with around 40 European stakeholders (representatives of the Economic and Social Committee, social partners, the social platform), experts and social innovators, with the objective to debate how Europe supports and integrates social innovation in its policies, in the wake of its renewed social agenda. As a result of the workshop BEPA published a report entitled "Empowering people, driving change Social Innovation in the European Union", that draws from actions undertaken and lessons learned in the last decade which have contributed to promoting social innovations in the EU.

When narrowing the scope to forest and rural related social innovations a similar pattern is observed regarding the interest on the topic being driven by policy agenda on rural development strategies, as already mentioned above from the search on Scopus. Rural policy in Europe has seen a shift in this direction over the past two decades, exemplified by the implementation of LEADER programme. With its bottom-up approach, LEADER strongly advocates the creation of new public–private partnerships in rural areas, integrating local constituents into the decision-making process and strengthening the self-governance potential of rural areas (Bosworth et al, 2016). In fact the LEADER programme

is fairly mentioned by literature as a robust example of how to mainstream social innovation in policy making and implementation in rural areas.

It is possible to notice that, related to forest and rural areas, social innovation is mainly serving the purpose to praise something and call for action, a public goal and the legislation for it, and only very recently has social innovation entered theoretical writings within the field. As pointed out by Godin (2012) "social innovation is part of a semantic network of terms, all of old origin by the way, which get resurrected from time to time to put emphasis on the social and add a moral connotation to it". Therefore social innovation research should be engaged with this complexity, in theory as well as in action terms, and most importantly, give a place to social actors in the building of a theoretical framework.

4.2 Elements of social innovation

After coding and analyzing the concepts from the literature on selected articles and other relevant publications from the previous survey, the elements to support or hinder social innovation to happen in forestry were identified. The list on the scientific articles and publications used are available in Annex 1.

It is important to mentioned that the aim of the analytical framework was not to gain a complete and detailed description of all the elements involving the theme, but to get the best understanding of the main aspects covered in the topic and also those that are not sufficiently described and able to provide real evidences, or the rhetoric and repetitive elements that might empty the innovative facets of the topic. The analytical framework proposed for forestry is shown in Figure 1. As it will become evident, the different tiers of elements are closely intertwined and influence each other so that a clear and concise distinction is not always possible.

Furthermore, the weight of each individual element will vary on its case-specific interplay and shaping. So it is not possible to derive some kind of universal 'field manual', which, if followed, guarantees the development of a successful social innovation within forestry and rural development. Neumeier (2016) highlights this characteristic of social innovation as the main challenge to measure its outcome and performance in a quantifiable way based on a set of pre-defined indicators or a standard methodological framework.

The following section explores the main elements identified under the four core groups: *pre-conditions*, *limiting factors*, *mechanisms* and *drivers* of social innovation in forestry.

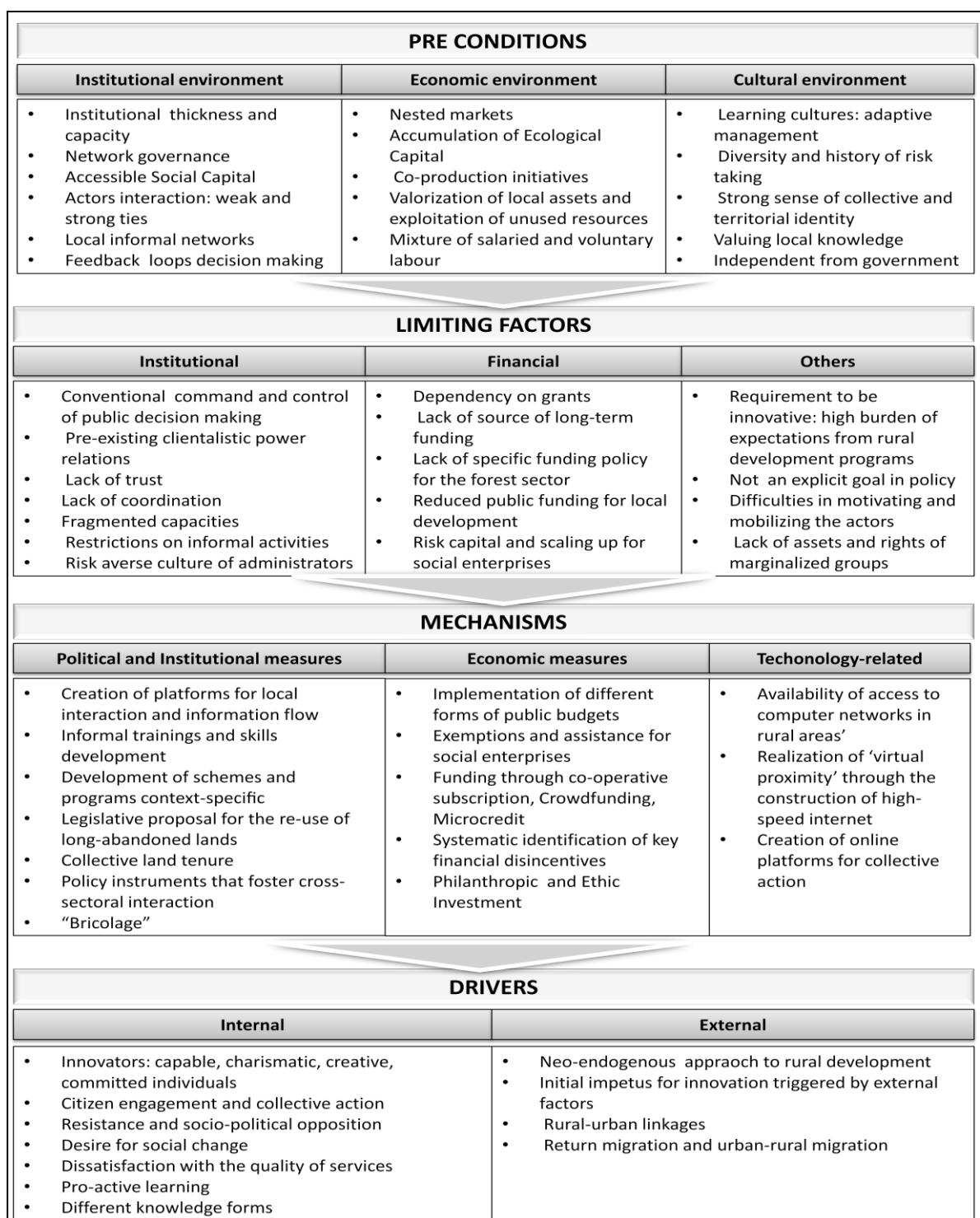


Figure 4.1: Identified pre-conditions, limiting factors and mechanisms and drivers that can support or hinder social innovation in forestry. (Own elaboration)

4.2.1 Pre-conditions

Pre-conditions are here understood as the elements that should be in place for social innovation to happen. Something that should exist before and within which social innovation cannot happen without, in the institutional, economic and cultural fields.

Institutional environment

Institutional thickness and capacity was strongly mentioned by literature as an important element of social innovation. It can be understood as the combination of various institutions which serve to constitute 'the social atmosphere' of a particular locality based on knowledge resources ('intellectual capital'), relational resources ('social capital') and mobilization and collective action capabilities ('political capital') (Amin and Thrift 1995). Institutional thickness is considered to help determine the capacity of any territory to adapt to changing conditions and generate and assimilate innovation (Neumieir, 2016). Moreover, institutions should have the following characteristics as described by Gobattoni et al (2015) to support innovations: Adaptability (ability to change when external or internal conditions change using the means available); Resilience (ability to adjust its organization under internal or external forces in order to remain competitive); and self-organization (ability to create new structures and behaviors).

Another important and well mentioned pre-condition of social innovation is network governance. Unlike more traditional approaches, the focus is on a participatory and democratic governance system, with bottom-up processes able to draw on the experience of those that the policy will target as well as building a shared understanding and a higher level of consensus (BEPA, 2011). Thus, processes initiated by the actors themselves, as well as a frameworks (local informal networks) enabling the actors to develop social innovation processes seem to be more promising than purely externally governed processes (Butkevičien, 2009; Neumeier, 2016).

Also according to the author an actor network should be in place with different actor's backgrounds, knowledge and ties, where both weak and strong ties are considered important. While weak ties provide much of the novel information, strong ties are important for trust and social support. Here it becomes evident the importance of bonding and bridging accessible Social Capital of the actor network, understood as the potential of cooperation based on mutual trust and shared norms and values. Together with natural, financial and other forms of capital, Social Capital is mentioned as the key "features of social organizations that facilitate coordination and cooperation for mutual benefit of the members and the society as a whole" (Coleman 1988, Bourdieu 1986, Putnam 1993).

Regarding the decision making process the focus are on the so called 'feedback loops' (Easton, 1965), which is characterized by a fluid changing system of steps in decision making. The "feedback loops" promote changes in the political environment, roles and institutions and alter outputs, consequently changing the actors' positions and, again,

their demands for new outputs, thus creating a permanent dynamic which is extremely beneficial for the arise of innovations.

Other pertinent network governance elements supporting the development of social innovations are:

- Partnership-based governance structures: connected, multilayered, nested and engaged institutions at multiple scales;
- Coordination among actors and institutions is essential;
- Local decision-making bodies, with low-scale administrative articulation on a regional level.

Economic environment

Based on the idea that Innovation needs to be supported by incentives, or at least not blocked by disincentives, the main incentives for social innovations is related to a shift towards an ethical civil economy where economic and social sustainability are always connected at a local level (di Lacovo et al, 2014). Therefore, the following economic elements where identified:

- Nested markets: a mix of the following elements: (a) demonopolization of existing markets, (b) the construction of new connections between existing markets, (c) the creation of new markets, (d) the development of new governance structures for both existing and new markets. Nested markets are grounded on social relations among actors where such relations end up entailing the formation of social networks, crucial factor for social innovation.
- Co-production initiatives among a plurality of public and private actors;
- Valorization of local assets and exploitation of unused resources;
- Accumulation of ecological capital;
- Access to financial resources with funding mechanisms outside the industry;
- Mixture of salaried and voluntary labor

Cultural environment

Whether or not innovation becomes embedded within an organization or an actor network depends also on whether there is a culture which is supportive of new ideas (Murray et, 2010). One important feature of the innovative institutions and actors is that they are comfortable adopting ideas from diverse and surprising sources. Moreover, developing the cultural capital of rural areas affects many local residents and helps to

develop a stronger sense of collective identity which support the development of social innovations. In this sense, the cultural pre-conditions were identified:

- Learning cultures: adaptive management. Learning by doing, from mistakes, other sectors and places, creates room for experimentation which can support innovations to arise.
- Cultural diversity and history of risk taking (Song et al, 2004)
- Strong sense of collective and territorial identity (sense of belonging)
- High proportion of out migrants reflects tradition of opportunity seekers
- Climate of acceptance/cooperation
- Valuing local knowledge
- Pertinence to a cultural community based on corporal and spatial proximity in neighbourhoods, quarters, districts, towns, villages, etc.
- Independent culture from government organizations, rather than reliant.
- Recovery of historical memory and cultural promotion initiatives, especially with an ethnological focus

4.2.2 Limiting factors

In most of the literature on successful participative processes, only the factors leading to success are directly addressed whereas barriers or constraints are neglected. But these barriers or constraints must also be understood as important factors external to the actual participation process underlying a social innovation and influencing its 'room to manoeuvre'. Thus, one important factor to add to the success of implementing social innovation is the reduction of possible barriers. (Neumeier 2016)

Institutional

The most frequently mentioned limitation to the development of social innovation in forest and rural areas is the conventional "top-down", command and control style of public decision making and hierarchical administrative structures working against cross-cutting and multi-level governance. Moreover, closed systems favoring single-issue solutions developed within clusters of organisations lacking mutual awareness, communication, networking and trust, associated with pre-existing clientalistic power relations with dominant relational procedures in the local political arena are strongly hindering social innovation in rural development. Other limitations are:

- Lack of trust and conservative resentment against institutions and collective action;

- Lack of coordination between the various actors engaged in social innovation within the policy domain;
- Fragmented capacities (resources, infrastructures and intermediaries) and skills (training, design tools, monitoring, validation and evaluation);
- Restrictions on informal activities
- Risk-averse and cautious organizational cultures of administrations;

Financial

The main financial barriers are generally considered to be the difficulties associated with accessing finance, risk capital and scaling up for social enterprises. The issue of finance is particularly critical for social innovation, mainly due to its particular nature. As has been shown, beyond its novelty, it is often bottom-up, frequently promoted by nontraditional business organizations and usually starting from a limited size, and thus may not be perceived as self-sustainable/replicable (as their business driven counterparts) and consequently do not attract the necessary interest. Thus, the limiting factor include:

- Insufficient stable, seamless and sustainable funding throughout all stages of the innovation cycle
- Dependency on grants from philanthropic organizations. While grant funding is valuable in the prototyping and start-up phases of social innovation, it is not a reliable source of long-term funding
- Lack of specific funding policy for social innovation in the forest sector
- Reduced public funding for local development (time of austerity)

Other - general limiting factors

- Requirement to be innovative from rural development programs. Local people found the term extremely off-putting, as it suggested high expectations of completely new and successful projects;
- Social Innovation is not usually an explicit goal/primary objectives of rural development programs. Instead here we typically find objectives such as sustainable rural development, business development (often through tourism), education or improving quality and adding value;
- Innovation policies are hardly considered in forest policy programmes;

- Difficulties in motivating and mobilizing the actors necessary for a successful social innovation;
- Lack of assets and rights of chronically disadvantage and marginalized groups in rural areas.

4.2.3 Mechanisms

The mechanisms explore operational procedures underlying social innovations and affecting their initiation, implementation and diffusion. What should happen in practice. Overall, incorporating social innovation goals into policy measures was seen to be highly subjective and dependent upon the support of local communities as well as the networks and human capital attached to key actors that formed the driving force for new initiatives. In the literature, mechanisms are mostly related to political and institutional measures, economic measures, and technologically related measures.

Political and institutional measures

- Creation of platforms for local interaction and information flow in order to put in place forceful and broader representation of the interests of stakeholders. Moreover it can serve as arenas in which the traditionally powerless can explain their problems, participate in the community and receive services. These platforms should also promote open forms of consultation and participation.
- Developing human capital through capacity building, informal trainings, workshops, and skills development;
- Development of schemes and program context-specific, considering the range of actors and all types of interaction, rather than act as restrictive instruments on informal activities and institutions. Such programs should also be able to achieve social and environmental results under the commitment to economic sustainability, and not vice versa.
- Development of new regulatory and legal frameworks (such as new standards, new legal forms and new planning requirements). For instance, a new legislative proposal to encourage the re-use of long-abandoned or unproductive lands;
- Promote collective land tenure through Territorial management contract (TMC) as proposed by Rocamora-Montiel et al. (2014). In TMCs farmers cooperate and agree to meet the commitments negotiated with the public administration.

- Entrepreneurship promotion program focused on local products and services based on nature enjoyment;
- Policy instruments that foster cross-sectoral interaction and information exchange via especially low-bureaucratic and small-scale funding.
- Policy instruments to re-make markets to promote the social economy such as compulsory targets;
- Bricolage: making do with current resources and ‘creation’ of new opportunities through the recombination and transformation of existing resources (Owusu and Janssen, 2013).
- Promoting membership of local actors in associations or cooperatives

Economic measures

Increasingly, there are a range of financial instruments and packages which take into account the particular needs of social enterprises and businesses with social goals. Here we look at some emerging elements of social finance:

- Implementation of different forms of budgets: Participatory budgeting Cross-cutting budgets; Outcome-based budgets; Online budget-setting tools;
- Exemptions and assistance for social enterprises, such as tax relief
- Financial Instruments :Funding through co-operative subscription, Crowdfunding, Microcredit for micro production;
- Systematic identification of key financial disincentives, and viability of alternatives;
- Philanthropic and Ethical Investing, also known as ‘socially responsible investing’, covers a broad range of financing strategies which seek to maximize both social and financial returns on investment – or at least, reduce the negative impacts of investments.

Technology-related:

Information Technology was pointed out by a number of studies as a promising instrument in promoting social innovations in rural and specially, isolated and remote areas. Once the remote rural areas have access to high-speed internet, the use of novel technology offers great opportunities to such areas, as it greatly improves their connectivity and, with that, the accessibility of external services, resources and social networks. Thus, the mechanisms are as follows:

- Availability of access to computer networks in rural areas;

- Realization of 'virtual proximity' through the construction of high-speed internet; as it provides access to external knowledge, partnerships and markets.
- Creation of online platforms for collective action and to ensure rapid transmission of information. It provides an infrastructure to extend the range and capacity of social movements, including consumer movements, as well as enabling new forms of collaborative purchasing and management.

4.2.4 Drivers

Drivers are understood here as fostering elements to social innovation process. The aim was to identify further factors that may be leveraged to stimulate transformations in societies, from sectoral, expert-centered to adaptive, integrated, collaborative approaches. During the literature analysis it became relevant that social innovations processes are affected by both personal (internal) and external factors, acting in an intertwined and co-related manner.

Internal

Here, once again, the elements identified frequently mentioned for social innovation characterized as internals come into being through co-operation, social interaction and learning processes consisting of identifying social needs, creating new solutions and their implementation.

As the process of social innovations can be said to begin in civic action, where the initiatives are driven by an intrinsic motivation to improve the quality of life in the community and the currently offered services, social innovation includes, hence, an element of resistance and socio-political opposition and a desire for social change.

In this context, capable and charismatic leaders and entrepreneurial people are needed to inspire others and negotiate (Horlings 2015). Moreover, as already discussed above, the actors involved should have a combination of different knowledge forms, such as technical and expert knowledge with local and lay knowledge, which are essential to both negotiating and implementing phases of social innovation processes in rural areas.

Thus, the internal drivers are:

- Innovative actors: capable, charismatic, creative, committed individuals;
- Citizen engagement and collective action;
- Resistance and socio-political opposition;
- Desire for social change;

- Dissatisfaction with the quality of services;
- Pro-active learning;
- Different knowledge forms.

External

Factors external to the people involved, like regional development programmes, might play an important role in triggering social innovations in forestry and rural development. It is likely that the initial impetus for innovation is triggered by external factors, as ideas or the identification of a need to change one's behavior very seldom arise in a vacuum, without any external influence or stimulation (Neumeier, 2011). Thus research on the importance of external influences and their role in social innovations is needed.

In this context neo-endogenous development was frequently mentioned by literature in recognizing that external actors play key roles in rural development dynamics. The neo-endogenous model acknowledges the importance of external relations and interaction between communities as contributors to local development (Bosworth et al. 2015), but it does not consider development as imported from outside, as in the exogenous model. If the spark is ignited from outside but then evolves to address local issues and employ local resources in generating local development, this seems to be very positive for social innovation to occur in forestry and rural areas.

Another relevant external driver is related to population migration. Return migration and urban-rural migration do play a key role in building social innovations in host regions by diversifying household livelihoods and transferring capabilities, and partly compensating initial social capital losses (Scheffran et al., 2012). One of the benefits of immigration to rural areas is the increasing entrepreneurship (Baumgartner et al., 2013) and the generation of socio-economic strategies as a force against the competitiveness of the global agenda (Horlings and Marsden, 2012; Wilson, 2012; Baumgartner et al., 2013)

The external drivers summarized are:

- Initial impetus for innovation is triggered by external factors
- Neo-endogenous approach to rural development
- Rural-urban linkages
- Return migration and urban-rural migration

4.3 Overview on the validity of the elements

After conducting the literature analysis the gap in the scientific knowledge about social innovations in forestry and rural areas is confirmed, specially related to the specific aspects supporting social innovation. As explained in the methodology chapter, the present section provides a preliminary overview of the elements identified from the literature, by including forest expert's perceptions and case studies to illustrate the applicability of the framework in practice.

4.3.1 Forest experts' perception

After conducting the literature review and identifying the elements of social innovation, forest experts ranked their importance, under the four core groups (please see Figure 4.1: Pre-conditions; Figure 4.2: Limiting factors, Figure 4.3: Mechanisms; and Figure 4.4: Drivers). The present section is intended to give an overview on their opinion, focusing on the elements highlighted as strictly necessary and on the less important ones- as this analysis is out of the scope of the literature review. From 11 questionnaires sent, 6 experts responded.

Among the questionnaires, experts' answers were quite heterogeneous when assigning a weight to each element, mainly because it was based on their personal opinion, which opened the room for more subjective oriented answers, associated to the own limitation of this research regarding the possible bias generate from assuming the experts would have understood the meaning of each element, as no detailed description was provided. Another reason that can explain this situation is the lack of scientific attention in exploring the factors and mechanisms important for the success of social innovation (Borzaga and Bodini 2012, 4), especially those related to forestry and rural development strategies. This is also reflected by the significant amount of experts choosing the rank "I do not know", which reinforce the gap found in the scientific world on the topic. But most importantly, what characterizes this heterogeneity is the multitude of fields and arenas that social innovation can be shaped and take place. In fact, the formulation and implementation of context- specific programmes was identified by most of the experts as an "extremely important" mechanism to support social innovation. An attempt to fill this gap will be present in the next section by including three case studies where each element was weighted based on a practical project.

However it is important to notice that experts were quite consistent when identifying the most relevant elements to support social innovation. When it comes to the elements

ranked under the four core groups in "Extremely important" and "Important", they were mainly related to network governance, "a mode of governing that shows a preference for collaborative approaches among government and non-government actors from the private sector and civil society" (Howlett and Rayner 2006). Therefore, elements such as "local informal networks", "Institutional thickness and capacity", "feedback loops decision making", "accessible social capital", "actors interaction", "co-production initiatives", "strong sense of collective and territorial identity", "cultures independent from government", "platforms to enable local interactions", "collective engagement" were identified by the majority of experts to be crucial to support social innovation in forestry and rural development context. At the same time, limiting factors identified as very important to hinder social innovation are related to the opposite facet of network governance, with conventional hierarchical-based government interventions. In this context, expert's opinions were coherent with the findings emerged from the literature which highlighted a participatory and democratic governance tightly connected to social innovation, as it relates to the shift from government to new governance arrangements which include both state and non-state actors (civil society but also private and social enterprises).

The elements weighted as less important were identified mainly from the *limiting factor* group, including: "fragmented capacities of actors and institutions"; "restrictions on informal activities"; "lack of specific funding policy for social innovation in the forest sector"; and "collective land tenure". Those elements might have been weighted as such due to their context-specific characteristics, which calls for more research in exploring general and flexible elements that can be adapted to different realities.

The experts were also asked to identify further elements that might not have emerged from the literature, however, only few experts provided new elements. Under the core group *Pre-conditions*, (i) *political will* and (ii) *policy and legal framework* were suggested as extremely important elements to be in place in the institutional environment to support social innovations. For the financial environment, experts identified (iii) *accessibility to financial resources for small initiatives (special agreements or programs by ethic banks)* and (iv) *availability of funds by different institutions that are going to sustain the initial steps of a social innovation process*, which were elements that emerged also from the literature, however placed under a different core group, in mechanism as financial measures. Other elements suggested were: (v) *openness of the community* (Pre-condition - cultural environment); (vi) *constraining policy and legal framework* (Limiting factor -

institutional); and (vii) *Technology transfer* (e.g. support to spin-offs, start-ups, pilot experiences) (Mechanisms - technology related).

Although the number of experts consulted was quite low due to time constraints, which can be considered one of the main limitations of this research approach, calling urgently for improvement, it is relevant to point out that their opinions were generally coherent with the main ideas of what the elements to support or hinder social innovation are found in the literature, which can be noted, for instance, by the fact that no element was ranked as "Irrelevant". Nevertheless, we should be aware that experts' opinions can be influenced by what they read through the literature. As a consequence, there is an important need to further research the role of the different elements of social innovation in actually boosting the provision of ecosystem services in forest and rural areas, as well as to research ways of measuring its impact in adding collective value in marginalized regions.

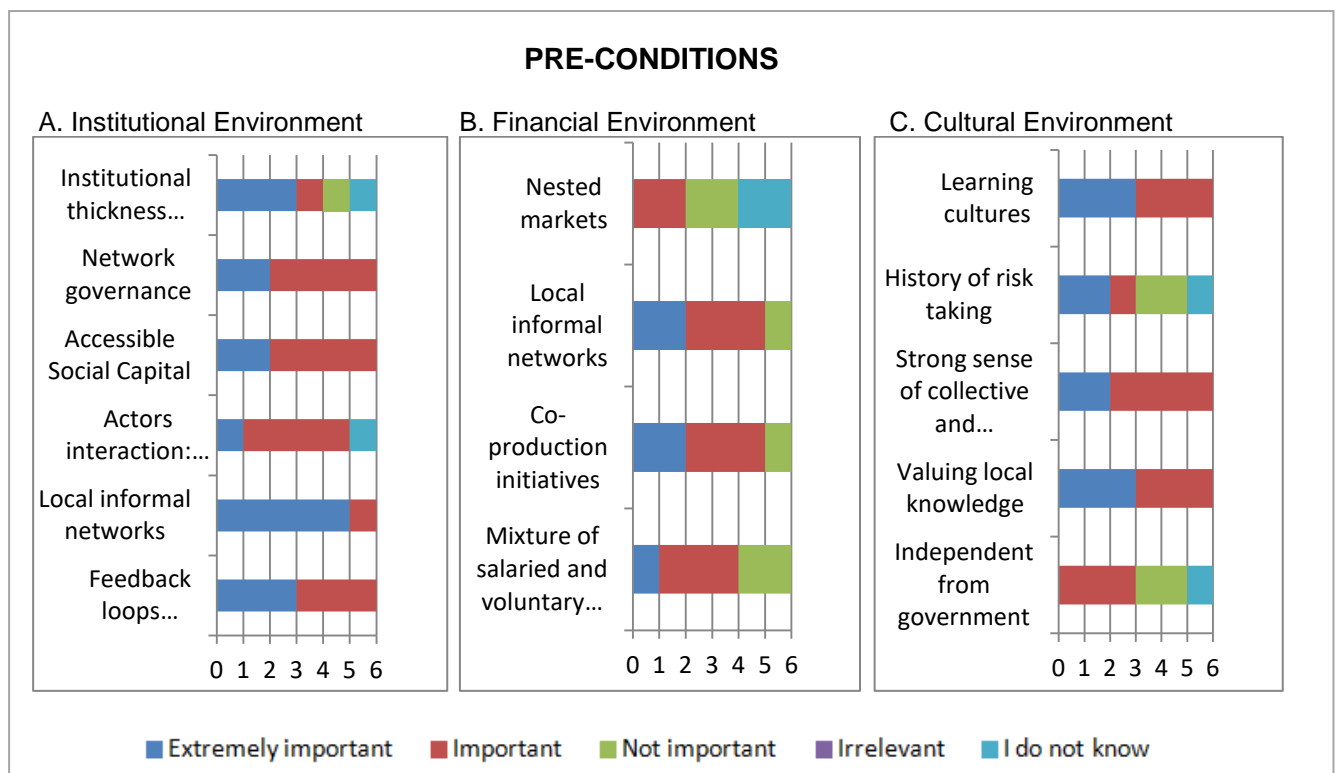


Figure.4.2: Pre-conditions ranked by forest experts (own elaboration)

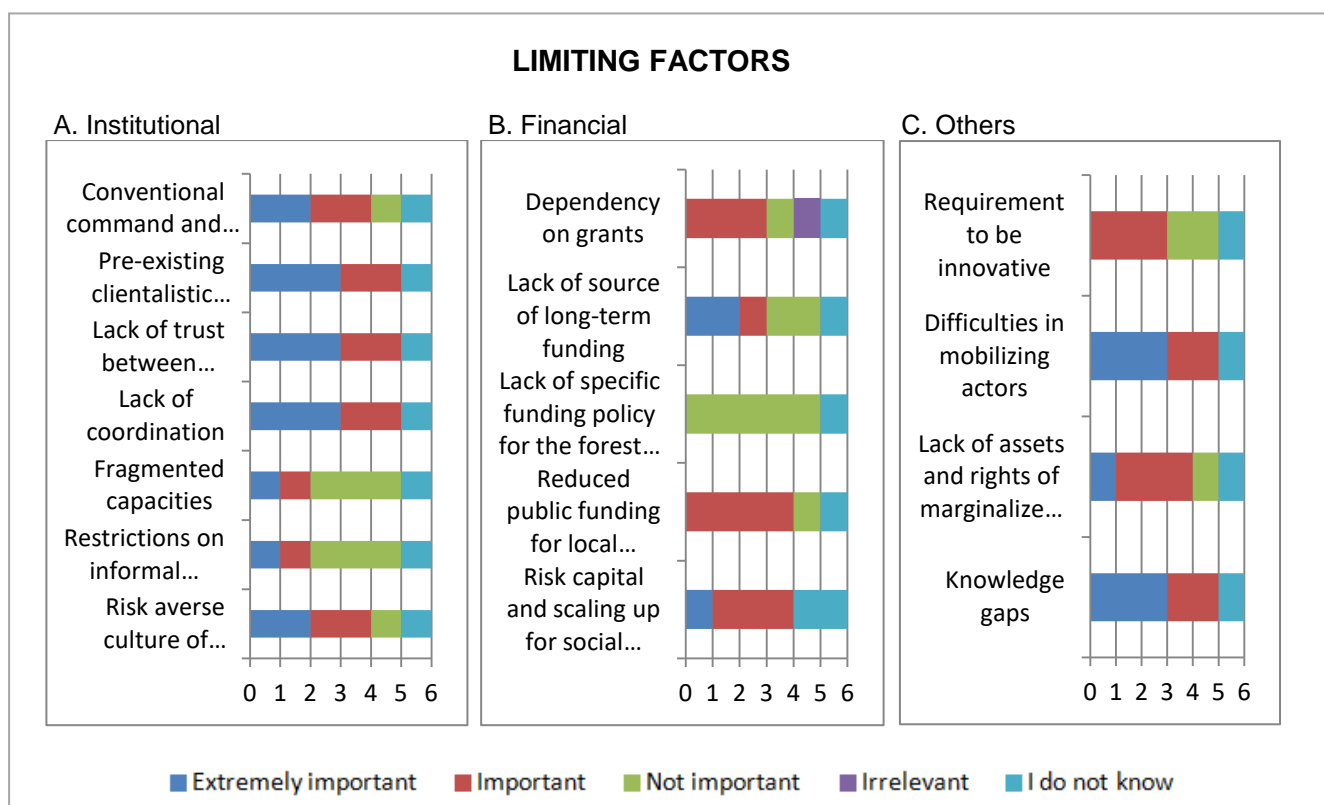


Figure 4.3: Limiting factors ranked by forest experts (own elaboration)

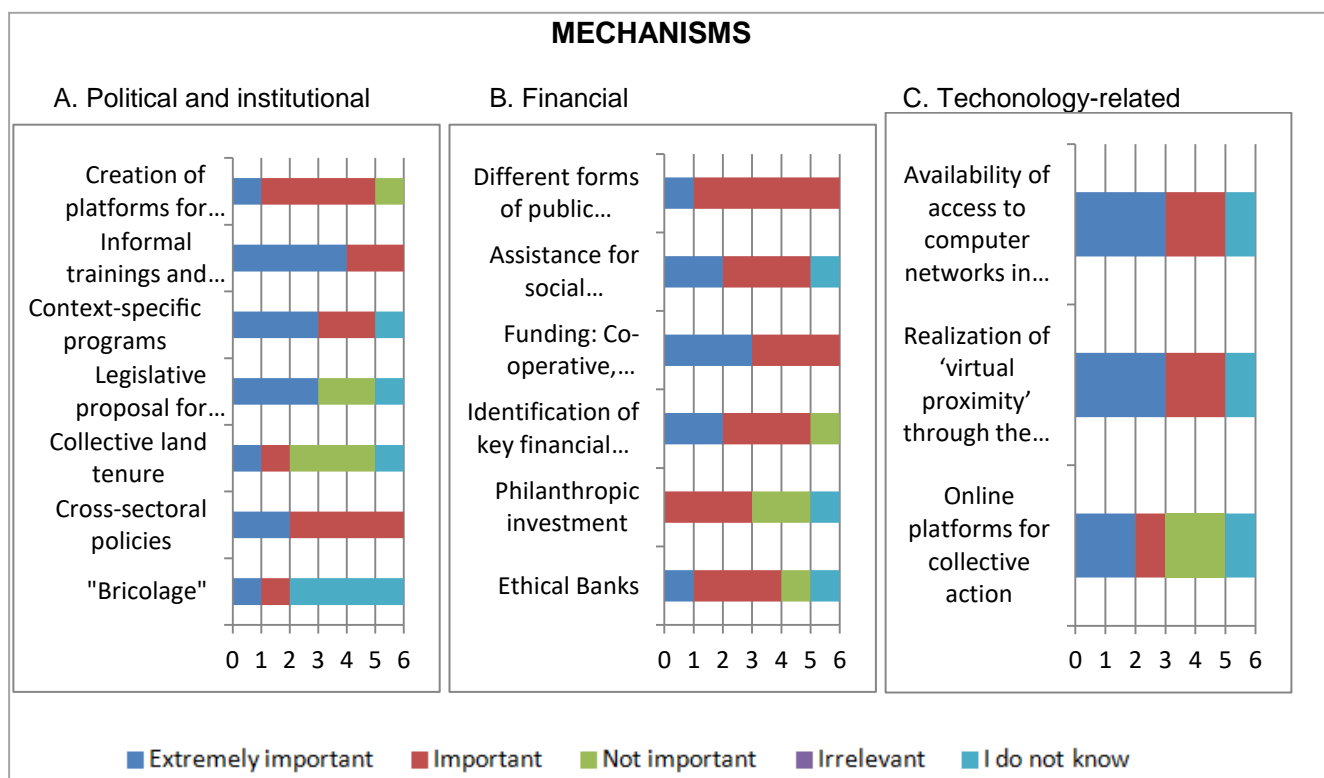


Figure 4.4: Mechanisms ranked by forest experts (own elaboration)

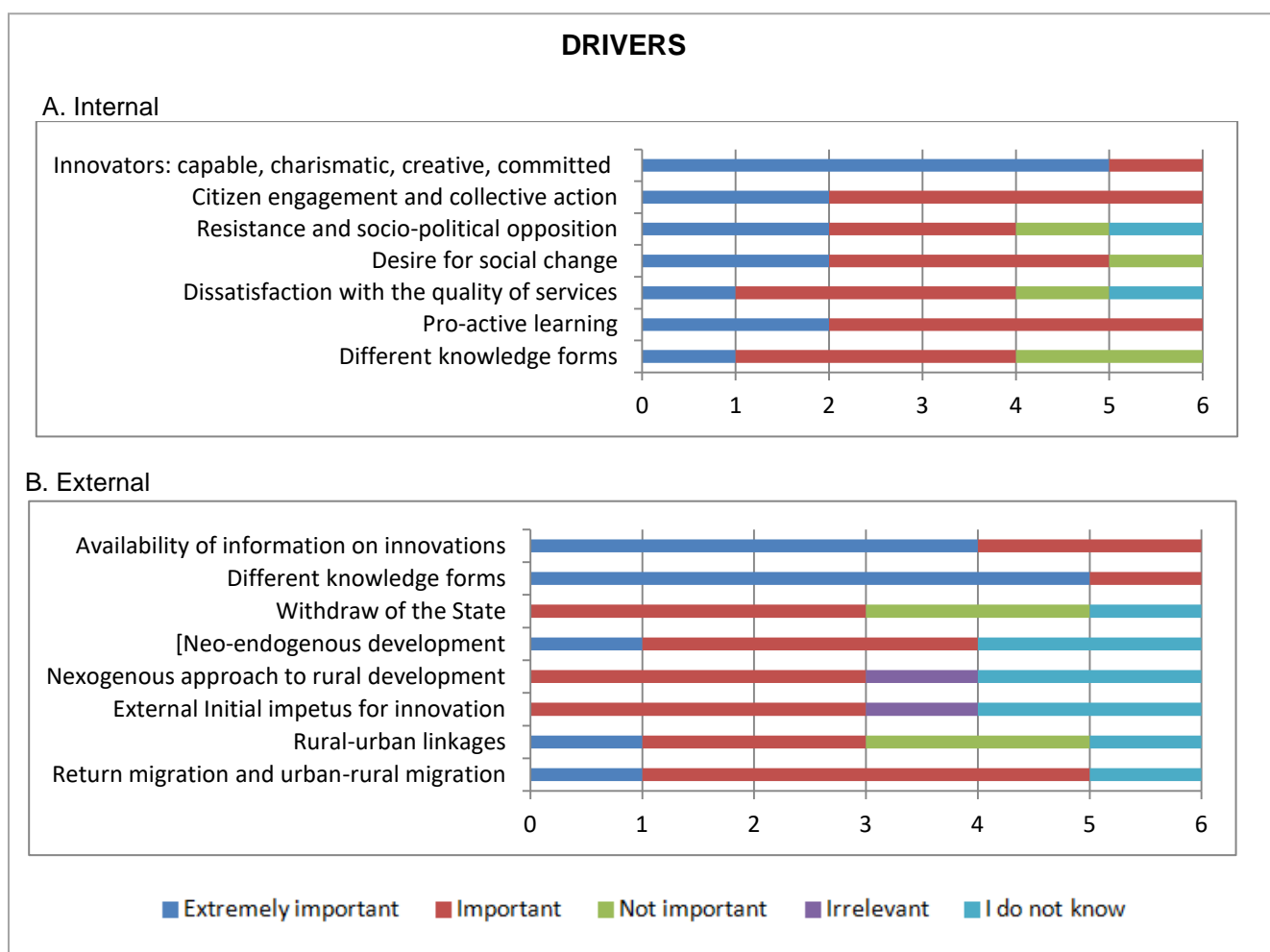


Figure.4.5: Drivers ranked by forest experts (own elaboration)

4.3.2 Case studies

This case-study approach intends also to preliminarily test the completeness and feasibility of the proposed framework, showing how the framework can apply in practice, but most importantly discussing its implications.

a. Lowland Forest Association, North Italy:

Associazione Forestale di Pianura (AFP - Lowland Forest Association) is the first association of forest holders in the flatten part of northern Italy. Created in 2002 and running until the present days, its main objectives involve the development and protection of lowland forest resources; the aggregation of forest owners; and to increase forest area and value. Its associates counts with members representing public bodies and private owners and managers of forests, from which 40% corresponds to mature forest stands and the remaining 60% consists of reforestation made with broad-leaved trees. These forests are mainly used for recreational purposes or as a means to protect the coast.

AFP is managed by The association GAL Venezia Orientale, a non-profit development agency, with technical support provided by ETIFOR, a spin-off of TESAF Department (Land and Agro-forestry systems), of University of Padua. Among the activities implemented by AFP, it is possible to highlight: lobbying and fundraising, project development, and stakeholder involvement.

A part from being the first association of lowland forest owner, as previously mentioned, this initiative can be characterized by some social innovation features, for instance, the implementation of Integrated funding (integration of private investments and public EU funds) and the development of evaluation and selling of ecosystem services. Moreover, AFP won a fund to prepare for the volunteer forest certification according to Forest Stewardship Council (FSC) criteria, which aggregated value to the local livelihoods of public and private forest owners.

The elements identified in the matrix as the most important to support this particular social innovation initiative were related to the valorization of local interaction and resources, coherent with the objectives of grouping local actors into Associations. At the same time, limiting factors identified as important that could hinder the initiative was "Lack of coordination and trust among actor and institutions", which is also reflecting the main challenges of bringing efficiently bringing these actors together into one single organization.

Table 4.2: Lowland Forest Association matrix with the elements from the analytical framework ranked in 5 – extremely important, 1 – the least important, 0- irrelevant (own elaboration).

| | PRE-CONDITIONS | LIMITING FACTORS | MECHANISMS | DRIVERS |
|----------------------------|--|--|--|---|
| Extremely important | <ul style="list-style-type: none"> • Valorization of local assets and exploitation of unused resources • Mixture of salaried and voluntary labour • Diversity and history of risk taking • Collective and territorial identity | <ul style="list-style-type: none"> • Risk averse culture of administrators | <ul style="list-style-type: none"> • Platforms: local interaction, information flow • Different public budgets • Philanthropic investment • Access to computer networks • 'virtual proximity' | <ul style="list-style-type: none"> • Innovators: capable, charismatic, creative, committed • Information available • Withdraw of the State • Rural-urban linkages |
| Very Important | <ul style="list-style-type: none"> • Accessible Social Capital • Actors interaction: weak and strong ties | <ul style="list-style-type: none"> • Conventional command and control decision making • Clientalistic power relations • Lack of trust and coordination • Restrictions on informal activities | | |

| | | | | |
|------------------------|--|--|---|--|
| Important | <ul style="list-style-type: none"> • Learning cultures: adaptive management • Independent from government | <ul style="list-style-type: none"> • Pre-existing clientalistic power relations • Dependency on grants • Risk capital and scaling up for social enterprises | <ul style="list-style-type: none"> • Development of schemes and programs context-specific • “Bricolage”: recombination of resources for new purposes • Systematic identification of key financial disincentives | |
| Less important | <ul style="list-style-type: none"> • Valuing local knowledge | <ul style="list-style-type: none"> • Lack of source of long-term funding | <ul style="list-style-type: none"> • Informal trainings and skills development • Funding through co-operative subscription, Crowdfunding, Microcredit • Ethical Banks • Creation of online platforms for collective action | |
| Least Important | | | | |
| Irrelevant | | <ul style="list-style-type: none"> • Lack of specific funding policy for the forest sector • Reduced public funding for local development • Strict requirement to be innovative from rural development programs • Difficulties in motivating and mobilizing the actors • Lack of assets and rights of marginalized groups • Knowledge gaps | <ul style="list-style-type: none"> • Legislative proposal for the re-use of long-abandoned lands • Collective land tenure • Policy instruments that foster cross-sectoral interaction • Exemptions and assistance for social enterprises (e.g tax relief) | |
| "I do not know" | <ul style="list-style-type: none"> • Institutional thickness and capacity • Network governance • Local informal networks • Feedback loops decision making • Nested markets • Accumulation of Ecological Capital • Co-production initiatives | | | <ul style="list-style-type: none"> • Citizen engagement and collective action • Resistance and socio-political opposition • Desire for social change • Dissatisfaction with the quality of services • Pro-active learning • Different knowledge forms • Neo-endogenous development • Nexogenous approach to rural development • Initial impetus for innovation is triggered by external factors • Return migration and urban-rural migration |

b. Amsiten Mountain Rural counties, Morocco

This 5 years-duration project proposed a methodology to define a concerted development strategy for mountain rural areas in Morocco capable of ensuring the coexistence of objectives of economic development, natural resources conservation and protection in harsh environments. The project involved a wide range of actors, such as researchers and faculties from ENFI (National Forest School of Engineers), forest managers, local authorities, local services of Ministry of Agriculture and local population (main actor).

The project's first phase was concerned with understanding and analyzing knowledge of human and natural environments dynamics. A second phase was devoted to participatory development of concerted management scenarios aiming at innovation in human behaviors in order to explore others resources of income that are compatible with natural resources conservation and sustainable management.

Its innovative features include: *i)* application of new spatial unit of analysis (socio-territorial unite); *ii)* integration of spatial technology for socio-economical and land occupation analysis; *iii)* new institutional organization of local population; *iv)* capacity reinforcement of local population; *v)* proposition of new activities income generating activities in line with sustainable natural resources management.

Regarding specific elements identified in the matrix below, in addition to the crucial importance of local synergies to be in place as already highlighted in the previous case study (Italy), this particular initiative in Morocco also identified important elements, such as "Resistance and socio-political opposition and "Desire for social change ranked and rural-urban linkages and migration movement, showing the importance of internal and external drivers affecting social innovations initiatives. Moreover, most of the financial mechanisms, such as assistance to social enterprises (tax relief) and funding through co-operative subscription, Crowdfunding, Microcredit, were considered important to allow for social innovation.

Table 4.3: Amsiten Mountain Rural counties matrix with the elements from the analytical framework ranked in 5 – extremely important, 1 – the least important, 0- irrelevant. (own elaboration)

| | PRE-CONDITIONS | LIMITING FACTORS | MECHANISMS | DRIVERS |
|----------------------------|---|--|---|--|
| Extremely important | <ul style="list-style-type: none">• Local informal networks• Valorization of local assets and exploitation | <ul style="list-style-type: none">• Lack of trust and coordination• Dependency on grants• Difficulties in motivating | <ul style="list-style-type: none">• Platforms: local interaction, information flow• Exemptions and | <ul style="list-style-type: none">• Citizen engagement and collective action• Information |

| | | | | |
|------------------------|--|--|---|---|
| | <ul style="list-style-type: none"> of unused resources Collective and territorial identity | and mobilizing the actors | assistance for social enterprises (e.g. tax relief) <ul style="list-style-type: none"> Access to computer networks | available <ul style="list-style-type: none"> Rural-urban linkages Nexogenous development |
| Very Important | <ul style="list-style-type: none"> Actors interaction: weak and strong ties Co-production initiatives Valuing local knowledge | <ul style="list-style-type: none"> Conventional command and control decision making Clientalistic power relations Lack of source of long-term funding Knowledge gaps | <ul style="list-style-type: none"> Informal trainings and skills development Development of schemes and programs context-specific Different public budgets Funding through co-operative subscription, Crowdfunding, Microcredit Creation of online platforms for collective action | <ul style="list-style-type: none"> Resistance and socio-political opposition Desire for social change Neo-endogenous development |
| Important | <ul style="list-style-type: none"> Feedback loops decision making Nested markets Learning cultures: adaptive management | <ul style="list-style-type: none"> Fragmented capacities Lack of specific funding policy for the forest sector Reduced public funding for local development | <ul style="list-style-type: none"> "Bricolage": recombination of resources for new purposes Systematic identification of key financial disincentives 'Virtual proximity' with high speed internet | <ul style="list-style-type: none"> Different knowledge forms Return migration and urban-rural migration |
| Less important | <ul style="list-style-type: none"> Network governance Independent from government | <ul style="list-style-type: none"> Strict requirement to be innovative from rural development programs | <ul style="list-style-type: none"> Collective land tenure Policy instruments that foster cross-sectoral interaction Ethical Banks | |
| Least important | <ul style="list-style-type: none"> Institutional thickness and capacity Mixture of salaried and voluntary labor | <ul style="list-style-type: none"> Restrictions on informal activities Lack of assets and rights of marginalized groups | | |
| Irrelevant | <ul style="list-style-type: none"> Social Capital Accumulation of Ecological Capital Diversity and history of risk taking | | <ul style="list-style-type: none"> Legislative proposal for the re-use of long-abandoned lands | |
| "I do not know" | | <ul style="list-style-type: none"> Risk averse culture of administrators Risk capital and scaling up for social enterprises | | <ul style="list-style-type: none"> Innovators: capable, charismatic, creative, committed Dissatisfaction with the quality of services Pro-active learning information on innovations Different knowledge forms Withdraw of the State Initial impetus for innovation is triggered by external factors Rural-urban linkages |

c. *Social Forest, Catalonia, Spain*

Social Forest is a company of forest management and silvicultural work started in 2013 in Catalonia (and partially in Germany) that offers on-hands forestry trainings for youngsters in risk of social exclusion due to school dropout. It is the first social entrepreneurship initiative in Catalonia focusing in forestry based in a dual purpose of providing forest management services of high quality while contributing to the vital and professional development of participating students in Catalonia.

It was first started by Joachim Englert, technical engineer leading the project, from the desire to promote the use of clean and affordable energy while caring for the environment and reconnecting society with rural and forest areas. Today it counts with different actors involved in its development, execution and activities, from the social entrepreneur himself, administrative assistant; trainers; youngsters (participants: students and workers), and the Social Foundation of Caixa supporting the project with financial support, technical advice and business training.

Among the main activities of the enterprise we can highlight: i) trainings in forestry basics and machinery usage; ii) forestry projects' execution and dissemination; and iii) labor integration assessment.

This case interestingly presented almost all pre-conditions elements as irrelevant, possibly due to the nature of the project's origin, being conceived and initiate by a single social entrepreneur, which eliminates the need of previous collective action and other elements related to this characteristics. Moreover, financial limiting factors, such as "Dependency on grants", "Lack of source of long-term funding", "Risk capital and scaling up for social enterprises", associated with financial mechanisms, like "Exemptions and assistance for social enterprises", characterizes once more the social entrepreneurship nature of this initiative.

Table 4.4: "Social Forest" matrix with the elements from the analytical framework ranked in 5 – extremely important, 1 – the least important, 0- irrelevant (own elaboration).

| | PRE-CONDITIONS | LIMITING FACTORS | MECHANISMS | DRIVERS |
|---------------------|----------------|--|--|---|
| Extremely important | | <ul style="list-style-type: none"> • Lack of trust • Fragmented capacities • Difficulties in motivating and mobilizing the actors • Lack of assets and rights of marginalized groups • Knowledge gaps | <ul style="list-style-type: none"> • Informal trainings and skills development • Exemptions and assistance for social enterprises (e.g tax relief) | <ul style="list-style-type: none"> • Innovators: capable, charismatic, creative, committed • Information available • Withdraw of the State |

| | | | | |
|------------------------|--|--|--|--|
| | | | | <ul style="list-style-type: none"> • Rural-urban linkages • Different knowledge forms |
| Very Important | <ul style="list-style-type: none"> • Valuing local knowledge | <ul style="list-style-type: none"> • Dependency on grants • Lack of source of long-term funding • Risk capital and scaling up for social enterprises | <ul style="list-style-type: none"> • Ethical Banks | <ul style="list-style-type: none"> • Desire for social change • Dissatisfaction with the quality of services • Availability of information on innovations • Rural-urban linkages |
| Important | <ul style="list-style-type: none"> • Independent from government | <ul style="list-style-type: none"> • Lack of coordination • Restrictions on informal activities • Risk averse culture of administrators | <ul style="list-style-type: none"> • Development of schemes and programs context-specific • Policy instruments that foster cross-sectoral interaction • Philanthropic investment | <ul style="list-style-type: none"> • Citizen engagement and collective action • Resistance and socio-political opposition • Pro-active learning • Return migration and urban-rural migration |
| Less important | | | <ul style="list-style-type: none"> • Platforms: local interaction, information flow • “Bricolage”: recombination of resources for new purposes • Funding through co-operative subscription, Crowdfunding, Microcredit • Systematic identification of key financial disincentives | |
| Least Important | | | <ul style="list-style-type: none"> • Different public budgets • Access to computer networks | |
| Irrelevant | <ul style="list-style-type: none"> • Institutional thickness and capacity • Network governance • Accessible Social Capital • Actors interaction: weak and strong ties • Local informal networks • Feedback loops decision making • Nested markets • Accumulation of Ecological Capita • Co-production initiatives • Valorization of local assets | <ul style="list-style-type: none"> • Conventional command and control decision making • Clientalistic power relations • Reduced public funding for local development • Strict requirement to be innovative from rural development programs | <ul style="list-style-type: none"> • Legislative proposal for the re-use of long-abandoned lands • Collective land tenure • ‘virtual proximity’ through high speed internet • Creation of online platforms for collective action | <ul style="list-style-type: none"> • Withdraw of the State • Neo-endogenous development • Initial impetus for innovation is triggered by external factors |

| | | | | |
|-----------------|--|--|--|---|
| | and exploitation of unused resources <ul style="list-style-type: none"> • Mixture of salaried and voluntary labour • Diversity and history of risk taking • Collective and territorial identity | | | |
| "I do not know" | | | | <ul style="list-style-type: none"> • Different knowledge forms • Nexogenous approach to rural development |

Case studies Implications

Drawing from the framework proposed, the matrixes from the case studies (Tables 4.2, 4.3 and 4.4) provides the elements identified and their respective weights of importance by individuals directly involved with the social innovation initiatives showing how the framework can apply in practice.

When comparing the weight assigned to each element from all the three case studies, the importance of considering the local contextual forces becomes evident, which tends to create a distinctive set of challenges and dynamics especially between developed and developing countries. Developing countries dealing more frequently with abrupt and radical political shifts, frequent economic crises, low wealth levels, unfair income distribution, constraints to resource mobilization, limited institutional capabilities and scarce human talent pool (Austin et al, 2006), require not only different elements in place, but also different intensities to support a successful social innovation. Whereas, some of those issues might not be present in developed countries, the elements of social innovation can be more intensely directed to improve the effectiveness of local business, and less concerned with improving public services as would happen in a developing country.

However, the presented social innovation initiatives share significant elements, mainly those rural context-specific. For instance, "*Strong sense of collective and territorial identity*", "*Availability of access to computer networks in rural areas*" and "*Creation of online platforms for collective action*" was ranked by both forest experts as "Extremely important" to support their respective social innovation initiatives, possibly due to their remote location and marginalized features of rural communities.

Although is not possible to describe a clear difference between the weight assigned to the elements on this context-specific approach with the one from the expert

questionnaire previously discussed, some discrepancies can be drawn from theoretical and practical perspectives of social innovation. The scientific literature and the expert's overview on the validity of the elements identified, for instance, "*Accessible Social Capital*" as an extremely important pre-condition, whereas two case studies classified it as irrelevant to the development of their social innovation initiative, calling for more in-depth analysis on place-based trajectories.

Moreover it is important to note the relevant number of elements being assigned as "I do not know". This can be explained by the study's limitation, as mention on the methodology chapter, regarding the possible bias generate from assuming the experts would have understood the meaning of each element, as no detailed description was provided.

Nevertheless, the matrix offers the opportunity for project managers and policy makers to distinguish those elements that were crucial for the development, also possibly for the sustainability, of the social innovation initiative, highlighting the strengths and supporting lessons learning processes for actors intending to start a social innovation in a similar context. In parallel, the relevant limiting factors and the "less important" elements identified could provide food for thoughts for the project improvements, when exploring the implementation of new mechanisms, for instance, such as *Informal trainings and skills development* that could further increase the success of projects in adding collective value to local actors.

Moreover, the matrix could suggest starting points for more detailed case studies. In order to address further research preposition, a case study strategy could be based on "how-why" questions (Stoecker, 1991; Yin, 2003) together with a situation analysis *prior* and *pos* the implementation of the social innovation to identify, compare and measure the impact of each element in increasing local livelihoods.

4.4 A preliminary analytical framework on governance elements relevant to social innovation

The framework described in the previous section enabled us to unveil, in a preliminary way, the factors which are most commonly found in the literature as addressing pre-conditions, limiting factors, mechanisms and drivers of social innovation in the field of forestry. In the present section, we draw from such a conceptual framework those elements that can be considered directly linked to governance-related issues, and we detail a preliminary set of questions for analysing governance.

The analysis proposed can be functional to encourage social innovation in rural areas. Our basic assumptions are the following: 1) specific governance components can be used to (positively) leverage social innovation (e.g. by policy makers); 2) often, these governance components are neither described, nor analysed with enough detail: thus, they remain vague; finally 3) in order to identify specific governance interventions that may to support social innovation, detailed information is needed on the data and variables which compose the governance system.

The present section presents a very preliminary list for analysis that both policy analysts and researchers can use to improve understanding of such governance-social innovation interlinkages. The basic elements of the framework connecting governance and innovation include: the specific sub-elements of governance – the focus of attention (second column); possible policy or research related questions (third column); information needed in order to respond to the questions (indicators - fourth column) and ideas/suggestions about tools that could be adopted for the analysis (fifth column).

Table 4.5 – What to analyze when exploring the links between governance and social innovation

| Governance element important for SI | Specific sub-elements of governance to be analysed | Key questions | Possible specific indicators | Possible analytical tools |
|---|--|--|---|---|
| a) Pre-conditions | | | | |
| Institutional and thickness capacity | Institutional actors | <ul style="list-style-type: none"> Who are they? What are their capacities? Specifically, what are their capacities in terms of adaptability, resilience and self-organization? | <ul style="list-style-type: none"> List of public organizational institutions in a certain territory. Procedures and instruments to reduce and manage risks (e.g. multiple funding sources). Financial and human resources available. Attitudes of managers to deal with changes. | <ul style="list-style-type: none"> Stakeholders' matrix analysis. Internal documents analysis. Budget allocation analysis. Interviews to managers of the institutional organizations. |
| Participatory and democratic governance system | Participatory approaches (PA) used in decision-making. | <ul style="list-style-type: none"> Is a PA used in taking decisions? How the PA process is organized? Is the PA process effective in involving stakeholders and "the public"? | <ul style="list-style-type: none"> Existence of mechanisms to take decisions in a participatory way. Mechanisms and procedures for the identification, involvement and engagement of stakeholders. Stakeholders and the public are really involved in the process and their | <ul style="list-style-type: none"> Documents analysis. Stakeholders' interviews. Direct observations. Social Network Analysis. Contents analysis of media, newspapers, online social networks. |

| | | | | |
|--|---|---|--|--|
| | | | <p>level of satisfaction with respect to the PA.</p> <ul style="list-style-type: none"> • Networks among stakeholders (created by the adoption of PA). | |
| Local informal networks | Networks among local actors. | <ul style="list-style-type: none"> • Are there self-organized informal networks among actors at local level? • How do they work? | <ul style="list-style-type: none"> • List of local actors. • Existence of local informal networks. • Structure of local informal networks. | <ul style="list-style-type: none"> • Stakeholders' interviews. • Local discourse analysis. • Social Network Analysis. |
| Social Capital | Features of social organizations that facilitate cooperation and coordination | <ul style="list-style-type: none"> • What are the social organizations that facilitate cooperation and coordination? • Are there initiatives based on coordination and cooperation? • Are there close networks (that cannot be accessed by external new actors?) | <ul style="list-style-type: none"> • List of actors. • Networks among actors. • Initiatives based on cooperation and coordination among actors and their networks. • Accessibility of networks to new actors. • Cultural and mental attitudes of community. | <ul style="list-style-type: none"> • Stakeholders' interviews. • Social Network Analysis. • Analysis of statutes, regulations, rules for the creation and management of networks. • Anthropological studies. |
| Network governance | Partnership-based governance structures. | <ul style="list-style-type: none"> • Are there nested, multi-layered and inter-connected structures for decision-making? • Are there private and public actors which are deciding and working together? | <ul style="list-style-type: none"> • Level of decentralization. • Existence and effectiveness of local decision-making bodies able to interact with other actors. • Existence and effectiveness of coordination mechanisms among private actors and public institutions. • Private-public partnerships in place. | <ul style="list-style-type: none"> • Documental analysis (on legal framework and rules of decentralization). • Stakeholders' interviews. • Organizational flow-charts to identify and describe the decision-making process (who takes what decisions at what level). • Private-public partnerships registered as NGOs or businesses. |
| b) Limiting factors | | | | |
| Conventional style of public decision | Top-down decision-making process, based on command-and-control approach. | <ul style="list-style-type: none"> • Are there vertical strong hierarchical-oriented decision-making processes still in place? • Are there very conservative and powerful public administrations? • Are there centralized structures for decision-making? • Are command-and-control instruments prevailing with respect to voluntary- | <ul style="list-style-type: none"> • Distribution of tasks and functions among public administrations at various hierarchal levels. • Legal and institutional framework (e.g. compulsory laws, system of sanction). • Level of flexibility of the decision-making process. • Power distribution among policy-makers. • Level of trust/respect of public institutions. | <ul style="list-style-type: none"> • Document analysis. • Institutional actors analysis (see also first line of "pre-conditions"). • Social Network Analysis for the trust component analysis. • Stakeholders' interview. • Contents analysis of Media, newspaper and online social networks. |

| | | | | |
|---|---|---|--|--|
| | | <p>based incentives to regulate activities and behaviours?</p> <ul style="list-style-type: none"> • What is the level of trust against institutions? | | |
| Fragmented capacities and skills | Fragmented institutions and small actors, without representative capacities and with limited resources. | <ul style="list-style-type: none"> • Are there several fragmented and small actors, both private and public, that do not know each other and/or have not enough capacity to act together? | <ul style="list-style-type: none"> • List of private actors and public institutional organizations. • Available resources, infrastructures, human capital of the various organizations. • Potential access to funds. | <ul style="list-style-type: none"> • Stakeholders' matrix analysis. • Budgets, resources and structures analysis of the various organizations based on internal documents. |
| c) Mechanisms | | | | |
| Platforms to enable local interactions | Open decision-making processes. | <ul style="list-style-type: none"> • Are there physical or virtual platforms that actors can easily access and meet each other and exchange flows of ideas, resources, information? | <ul style="list-style-type: none"> • Existence of physical places and opportunities for actors to meet. • Existence of virtual places and opportunities for actors to meet. • Level of participation of actors to these platforms. • List and analysis of local events that can facilitate exchanges. • Resources allocated to develop platforms. • Policy and programmes developed with this aim. | <ul style="list-style-type: none"> • Online platforms. • IT facilities. • Local events. • Stakeholders' interviews. • Documents contents analysis. • Budgets analysis. |
| New regulatory and legal frameworks | Policy reforms (that allow more participatory and network-based governance). | <ul style="list-style-type: none"> • Have new laws, regulations and rules been introduced, recently, that allow for more flexible and open decision-making processes? | <ul style="list-style-type: none"> • Policy and institutional reforms/changes introduced in the last few years. • Evidence of indirect and direct effects/ consequences of the institutional changes (to be analysed after a certain period of time).x | <ul style="list-style-type: none"> • Documents analysis. • Interviews to stakeholders, institutional actors and "the public". • Policy cycle analysis. |
| d) Drivers | | | | |
| Internal drivers | Cooperation, social interaction, learning within the local community. | <ul style="list-style-type: none"> • Are there collective actions that facilitate mutual interactions and collaborative learning among actors? • Are there citizens engaged in action? • Are there collaborative learning opportunities? | <ul style="list-style-type: none"> • List and analysis of actors (included "the public" or citizens). • Existence and description of collective actions with options for collaborative learning. • Level of engagement of the different groups, included citizens. • Level of exchange within the actors who participate in the process/initiative. | <ul style="list-style-type: none"> • Stakeholders' interview. • Survey to a representative sample of the population. • Document contents analysis. • Social Network Analysis. |
| External | External | <ul style="list-style-type: none"> • Are there policy and | <ul style="list-style-type: none"> • Policy and institutional | <ul style="list-style-type: none"> • Cross-sectoral policy |

| | | | | |
|----------------|--|---|--|---|
| drivers | relations and interactions. Policy and programs at larger scales (e.g. EU- vs. local). | programs at higher institutional and administrative levels that influence the local decisions? • Are there external organizations that can intervene ? | framework at the various hierarchical level and their inter-connections. | analysis. • Multi-level governance analysis. • External vs. internal stakeholders analysis. |
|----------------|--|---|--|---|

Source: Secco *et al* (forthcoming,) EAEPE Conference, Manchester, 2016.

4.5 Final remarks

As already mentioned on previous sections the aim of the analytical framework was not to gain a complete and detailed description of all the elements involving the theme, but rather to get an overview of the main aspects covered in the topic. However it is important to discuss which elements are being integrated in policies and which are not receiving enough attention, and most importantly, to highlight their implications for the development of social innovations in forestry.

The elements highlighted in Table 2 (first column) were drawn from Figure 1 as considered particularly relevant for social innovation and are very connected to each other (sometimes at the risk of being repetitive). For example, a detailed analysis of private and public actors, as well as their interaction, is essential to understanding many of the other elements. In other cases, and quite rightly so, analysis of a limiting factor is complementary to the analysis of a pre-condition (as limiting factors and pre-conditions can be somehow considered as the two sides of the same medal). This is the case, for example, when comparing the structure and mechanisms of network governance (which are more open, flexible and typically bottom-up) with conventional hierarchical-based government interventions (fixed, rigid and typically top-down). The existence of overlaps, repetitions and complementarities among the various elements to be analyzed clearly calls for a broader and more generalizable analytical framework.

Drawing for the analytical framework related to governance, the most frequent aspect identified as being responsible to promote and support social innovation in forestry and rural areas was the intensification and strengthening of multi-level interactions and relations between network actors towards new internal or local synergies (Nybakk *et al*, 2009; Neumeier, 2016). The importance of elements here identified related to this idea, as accessible social capital, network governance, collective action and participation is documented by an extensive theoretical and empirical literature and it is considered already a trend in other fields, such as natural resources management, sustainable

forestry management and development of societies and marginalized areas, thus sustaining the pursue of mainstreaming social innovation in policy and research.

Nowadays, different actors interactions and the creation of partnerships encompassing a variety of stakeholders are required for policy action in many places, including in the field of regional policy and rural development policy, where policy process' phases (elaboration, implementation, monitoring and evaluation) for the development of new programmes are expected to include public authorities, economic and social partners and other appropriate bodies and actors representing civil society (e.g. gender equality bodies). Moreover, in terms of policy implications, some of the elements here identified, such as network governance, have moved up the rural European Union's policy agenda and have been mainstreamed through a wide range of policies, programmes and initiatives. In fact some of the measures that have been introduced by the EU Rural Development Program for the period 2013-2020 (such as for example those connected with the art. 35 on cooperation) are expected to provide financial support to facilitate the creation or consolidation of collaborative and network-based relationships among actors working in rural areas. This is the case for example of both Measure 16 (innovative networks among rural entrepreneurs) and Measure 19 (adoption of LEADER approach and re-foundation of Local Action Groups as network organizations based on public-private partnership). As already mentioned on previous section, the LEADER programme includes in its scope not only fiscal measures such as subsidies to agricultural and forestry production, but also grants for the development of Small Medium Enterprises (SMEs), cooperatives and community forestry (Whiteman, 2005), where bottom-up network governance and social capital are considered essential for the success of programmes' initiatives.

Yet, most European policies remain in a 20th century model where social reform is conceived in terms of national policies (BEPA, 2009), rather than in term of how best to tackle resistant problems by unleashing innovation amongst forest owners communities, NGOs and businesses. Therefore, building up such initiatives, where social capital and participation stand out as a key assets of local development in rural areas, might run the risk of becoming a rhetoric and repeated element, especially in policy discourse, if not accompanied by further research to explore the role of social capital in boosting the provision of ecosystem services and also way of measuring its impact in adding collective value.

Throughout the literature it became evident how social innovation mainly flourish from local initiatives, far from policy and policy-makers, undertaken by rural inhabitants unsatisfied and mistrusting the State and the market. However, such a role should not imply that individual social entrepreneurs or business could solve the world's social problems and be seen as a substitution, but rather as a means to support policy-making bodies in being more effective (Gerometta et al, 2005). A more plausible view sees social innovation as unavoidably bound up with politics, calling up for more research on the alignment and misalignment of social innovation and structural reform, and a more honest debate about the limits of each (Nicholls et al, 2015).

Another interesting debate that could help bring the field of social innovation forward relies on exploring the strategies of innovation agencies on whether social value is being destroyed or created. As History shows, many innovations can be beneficial for certain groups, but also have destructive impacts for others. Moreover, the plurality of actors within associations and collective spirits that derive from a variety of shared historical experience becomes crucial for social innovation to know if and how this plural structure is either causing fragmentation or producing a shared sphere of reciprocal responsibility and solidarity (Gerometta et al, 2005). Therefore, who social innovation empowers and benefits, who is marginalized, and what the potential trade-offs are, constitute important reminders of the need to carefully balance relations of power and inclusion of the powerful, in the field of network governance and public-private relations.

Finally, when exploring the elements of social innovation exclusively based on the perspective of forestry and rural development, the multitude of overlapping elements with other fields of research becomes evident as expected. Therefore, even if specifically focused on forestry, most of the identified elements are general and may be applicable and valid also in other sectors such as the field of rural development but also in urban-rural (peri-urban) and, perhaps even in urban contexts. The general categories of the elements that are to be analysed (e.g. actors and networks) are the same in any contexts. What may differ are: i) the categories' characteristics (e.g. profiles, values, dimensions, capacities, needs, etc. of rural actors are typically dissimilar from those of urban actors); and ii) the approaches and instruments for their analysis. For example, using an online survey to explore the stakeholders' satisfaction with respect to a new participatory-based process can be very effective in a urban context, where IT facilities are widespread, but less operative in a rural one, where people are more aged or simply less connected.

In terms of elements that were not sufficiently described, the literature mentioning the diversification of local economies as pre-condition for social innovation to emerge were not able to provide empirical evidence of the cause-effect links between social innovation and economic performance in forestry and other rural-related activities. Therefore, phrases such as *inclusive green growth*, *a green economy*, and *decoupling economic growth from social and environmental impacts* are running the risk to become buzzwords in mainstream economics and global institutions such as the World Bank and United Nations agencies, as emerging paradigms to push the sustainable development agenda. Getting these paradigms more widely adopted requires new public policy that addresses social needs along with economic needs, which calls for more research on the cause-effect link between social innovation and economic, environmental and social performance to address this specific gap¹

While the very preliminary nature of the proposed analytical framework is acknowledged, it may help to further assess what the implications of these and other complex processes are, i.e. how external drivers influence local governance systems, how these in turn impact social innovation, and thus, communities and landscapes in rural areas. These reflections may represent a starting point toward debating a more consistent approach to analyze specific governance elements that may be used to promote (or not hinder) social innovation. Furthermore, the analytical framework developed on the basis of rural-oriented research and studies can be useful also for application in other contexts, where further improvement for its application in rural contexts can be achieved by enlarging the literature review and collection of experiences on the connections between governance and social innovation.

¹ "SIMRA: Social Innovation in Marginalized Rural Areas", part of Horizon 2020 of the EC, seeks to advance understanding of social innovation (SI) and innovative governance in agriculture, forestry and rural development (RD), and how to boost them, particularly in marginalized rural areas across Europe.

5. CONCLUSION

The first objective of this study was to show the relevance of social innovation in forestry and the scientific interest in the research topic through literature review. It was found that the last years have seen an increase, but not sufficient, scientific interest in the topic, with the need to further explore cause-effect links and indicators to measure the impact of social innovation in adding collective value being mentioned by the articles. Through Scopus only 25 articles were found specifically about the research topic, where mainly all studies work with qualitative data and with few studies exploring the social dimensions of innovations in order to improve the livelihood of forest-dependent and rural communities, calling for future research on the topic. However, the idea of social innovation based on the promise of offering solutions to global and local societal challenges is growing rapidly in policy discourse by a large range of institutions worldwide, suggesting social innovation as unavoidably bound up with politics as a means to support policy-making bodies in being more effective also for the field of forestry and rural development.

Regarding the second objective, in order to extract the key elements that can allow for social innovation in forestry, pre-conditions, limiting factors, mechanisms and drivers were identified (Figure 1) from the literature review. As remarked in the methodology paragraph, these propositions must be considered to be *sensitizing* concepts instead of *definitive* ones, because of the great complexity and lack of scientific knowledge of the matter and the lack of empirical base used not allowing to really show how specific elements may be used to promote (or not hinder) social innovation.

Despite the elements' limitations, the development of the third objective, which was the overview on the validity of the elements based on forest experts' review and case studies, provided an important first step for a more inclusive empirical research agenda in the future. Although experts were quite heterogeneous when assigning a weight to each element, their review was mainly coherent with what was found by literature survey, highlighting a participatory and democratic governance tightly connected to social innovation support. As for the case studies, local contextual forces which tend to create distinctive set of challenges and dynamics becomes evident when analyzing the weight of each element. Elements of social innovation can be more intensely directed to improve the effectiveness of local business, and less concerned with improving public services depending on the socioeconomic context. The case study approach has been mainly

intended to stimulate a further exploration of the emerging issues related to social innovation usefulness and applicability, therefore the matrix presented here may offer an opportunity for project managers and policy makers to distinguish those elements that were crucial for the development, also possibly for the sustainability, of the social innovation initiative, highlighting the strengths and supporting lessons learning processes for actors intending to start a social innovation in a similar context.

Finally, the last objective intended to analyze the specific governance elements that are likely to support social innovation in rural areas and in the field of forestry as a basis of a preliminary analytical framework (Table 4.5). While the very preliminary nature of the proposed analytical framework is acknowledged, the conceptions presented in this study show that the framework has the potential to have implications for thought leaders, researchers, policymakers, funders and practitioners by: (1) specifically addressing social innovation as a new and promising area of research in forestry and rural development more broadly, which shifts the focus away from technologically oriented definitions towards a broader concern for sustainable trajectories. (2) It sketches a preliminary approach to highlight those elements of governance which may specifically support social innovation, specifically addressing what governance is, how it is structured and what its mechanisms of function are. (3) Finally, it may allow to identify elements for comparison studies in a structured way and in different regions and contexts, thus filling an important gap in literature and practice.

Furthermore, the analytical framework developed on the basis of rural-oriented research and studies can be useful also for application in other contexts, where further improvement for its application in rural contexts can be achieved by (1) enlarging the literature review on the connections between governance and social innovation and (2) more in-depth analysis from the expert review and field-testing in order to address the coherency and explanatory value of the elements from the conceptual and analytical framework.

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Simms, J.R. 2006. Technical and social innovation determinants of behaviour, Syst. Res. Behav. Sci. 23 (2006) 383–393.

Annex 1. List of publications selected for the literature analysis

| Key words | Number of articles | Title | Year | Source title | Authors |
|---|--------------------|---|------|---|---|
| social innovation AND forests | 7 | Antecedents to forest owner innovativeness: An investigation of the non-timber forest products and services sector | 2009 | Forest Ecology and Management | E. C. Nybakk, P.;Hansen, E.;Lunnan, A. |
| | | Barriers to institutional learning and innovations in the forest sector in Europe: Markets, policies and stakeholders | 2011 | Forest Policy and Economics | G. K.-B. Buttoud, I.;Slee, B.;Weiss, G. |
| | | From innovation to adaptation: Lessons from 20 years of the SHIFT forest management system in Sanming, China | 2004 | Forest Ecology and Management | Y. W. Song, G.;Burch Jr, W. R.;Rechlin, M. A. |
| | | Regional forest organizations and their innovation impact on forestry and regional development in central Switzerland | 2011 | Forest Policy and Economics | K. G. Seeland, J.;Hansmann, R. |
| | | Robustness, adaptation and innovation: Forest communities in the wake of Hurricane Dean | 2012 | Applied Geography | M. L. R. DiGiano, A. E. |
| | | Shades of green: A social scientific view on bioeconomy in the forest sector | 2014 | Scandinavian Journal of Forest Research | D. L. Kleinschmit, B. H.;Thorsen, B. J.;Toppinen, A.;Roos, A.;Baardsen, S. |
| | | The practice of entrepreneurship in the non-wood forest products sector: Support for innovation on private forest land | 2016 | Forest Policy and Economics | A. T. Ludvig, V.;Dickson, A.;Evard, C.;Kurttila, M.;Cosovic, M.;Chapman, E.;Wilding, M.;Weiss, G. |
| social innovation AND rural development | 15 | Identifying social innovations in European local rural development initiatives | 2016 | Innovation | Bosworth, G., Rizzo, F., Marquardt, D., Strijker, D., Haartsen, T., Aagaard Thuesen, A. |
| | | Social innovation in rural development: Identifying the key factors of success | 2016 | Geographical Journal | Neumeier, S. |
| | | The Leader programme 2007–2013: Enabling or disabling social innovation and neo-endogenous development? Insights from Austria and Ireland | 2016 | European Urban and Regional Studies | Dax, T., Strahl, W., Kirwan, J., Maye, D. |

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|------------------------------------|---|---|------|---|--|
| | | Rural Marginalisation and the Role of Social Innovation; A Turn Towards Nexogenous Development and Rural Reconnection | 2016 | Sociologia Ruralis | Bock, B.B. |
| | | Sustainable rural development: The role of traditional activities in Central Italy | 2015 | Land Use Policy | Gobattoni, F., Pelorosso, R., Leone, A., Ripa, M.N. |
| | | Transition Management and Social Innovation in Rural Areas: Lessons from Social Farming | 2014 | Journal of Agricultural Education and Extension | Di Iacovo, F., Moruzzo, R., Rossignoli, C., Scarpellini, P. |
| | | New family farmers for abandoned lands | 2014 | Mountain Research and Development | Varotto, M., Lodatti, L. |
| | | Why do Social Innovations in Rural Development Matter and Should They be Considered More Seriously in Rural Development Research? - Proposal for a Stronger Focus on Social Innovations in Rural Development Research | 2012 | Sociologia Ruralis | Neumeier, S. |
| | | Identifying social innovations in European local rural development initiatives | 2016 | Innovation | G. Bosworth, F. Rizzo, D. Marquardt, D. Strijker, T. Haartsen and A. Aagaard Thuesen |
| | | LEADER and innovation | 2008 | Sociologia Ruralis | L. Dargan and M. Shucksmith |
| | | Transition Management and Social Innovation in Rural Areas: Lessons from Social Farming | 2014 | Journal of Agricultural Education and Extension | F. Di Iacovo, R. Moruzzo, C. Rossignoli and P. Scarpellini |
| | | Financing Social Innovation for Poverty Reduction: A Case Study of Microfinancing and Microenterprise Development in Bangladesh | 2014 | Science, Technology and Society | I. Mahmuda, A. Baskaran and J. Pancholi |
| | | Seeds and Sprouts of Rural Development: Innovations and Nested Markets in Small Scale On-Farm Processing by Family Farmers in South Brazil | 2015 | | S. Schneider and M. Gazolla |
| | | Women's agricultural co-operatives in Greece: A comprehensive review and swot analysis | 2015 | Journal of Developmental Entrepreneurship | P. Sergaki, M. Partalidou and O. Iakovidou |
| social entrepreneurship AND forest | 2 | Enhancing agroforestry in Vanuatu: Striking the balance between individual entrepreneurship and community development | 2016 | Forests Trees and Livelihoods | Addinsall, C., Glencross, K., Rihai, N., Kalomor, L., Palmer, G., Nichols, D., Smith, G. |

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|--|----|---|------|---|--|
| | | Rural development and forest owner innovativeness in a country in transition: Qualitative and quantitative insights from tourism in Poland | 2012 | Forest Policy and Economics | Sikora, A.T., Nybak, E. |
| social entrepreneurship AND rural development | 12 | Social entrepreneurship in tourism: applying sustainable livelihoods approaches | 2016 | International Journal of Contemporary Hospitality Management | Laeis, G.C.M., Lemke, S. |
| | | Local development in the rural regions of Eastern Europe: Post-socialist paradoxes of economic and social entrepreneurship | 2011 | Journal for East European Management Studies | Grancelli, B. |
| | | Are rural health professionals also social entrepreneurs? | 2009 | Social Science & Medicine | Farmer, J., Kilpatrick, S. |
| | | Community gender entrepreneurship and self-help groups: a way forward to foster social capital and truly effective forms of participation among rural poor women? | 2010 | Oxford University Press and Community Development Journal | Torri, M., C. |
| | | Community social capital and entrepreneurship: analyzing the links | 2014 | Journal of the Community Development Society | Roxas, B., H., Azm, F. |
| | | Entrepreneurship and regional development in Europe: A comparative, socio-anthropological case study in Germany and Spain | 2013 | Anthropological Notebooks | Pfeilstetter, R. |
| | | Entrepreneurship for social impact: encouraging market access in rural Bangladesh | 2007 | Coorporate Governace | Mair, J., Marti, I. |
| | | Factors Influencing the Development of Rural Entrepreneurship A Case Study of Iran | 2013 | Advances in Environmental Biology, | Baniasadi, N., Mohammad, E., M., Sadegh, Ahmad, K., S. |
| | | Local development in the rural regions of Eastern Europe: Post-socialist paradoxes of economic and social entrepreneurship | 2016 | Journal of East European Management Studies | Grancelli, B. |
| | | Social entrepreneurship in tourism: applying sustainable livelihoods approaches | 2015 | International Journal of Contemporary Hospitality Management, | Christoph, G., Lemke, M., L., S. |
| | | Supporting Female Rural Entrepreneurship: A Case Study of WiRE (Women in Rural Enterprise) | 2014 | Contemporary Issues in Entrepreneurship Research | Warren-Smith, I. |
| | | Women's eco-entrepreneurship: a possible pathway towards community resilience? | 2015 | Journal of Depopulation and Rural Development Studies | Pallarès-Blanch, M. |

| | | | | | |
|-----------------|---|---|------|--|---|
| GREY LITERATURE | 5 | Social Innovation Impact-review No. 9. | 2015 | Seventh Framework Programme (grant agreement 613034), European Union. Brussels: Third Sector Impact | Baturina, D., Bežovan, G. |
| | | Theoretical Approaches to Social Innovation - A Critical Literature Review. A | 2014 | 'Social Innovation: Driving Force of Social Change' (SI-DRIVE).- European Union under the 7th Framework Programme. | Howaldt, J., Butzin, A., Domanski, D., & Kaletka, C. |
| | | Growing the field of social innovation in Europe. | 2014 | A deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE), | European Commission – 7th Framework Programme, Brussels |
| | | Guide to social innovation | 2013 | European Commission | |
| | | Empowering people, driving change: Social innovation in the European Union | 2011 | European Commission | BEPA - Bureau of European Policy Advisers |
| | | The open book of social innovation. | 2010 | NESTA and the Young Foundation | Murray R, Caulier-Grice J, Mulgan G |

Annex 2. Questionnaire for forest experts

Erasmus Mundus Master Course in “Mediterranean Forestry and Natural Resources Management”
(MEDfOR)

Questionnaire for forest experts

Topic: Social innovation in forestry: preliminary analytical framework

Master student: Nathalia Formenton Cardoso

Supervisor: Dr. Laura Secco

An analytical framework with elements (pre-conditions, limiting factor, mechanism and drivers) of social innovation in forestry was developed from the literature. The following questionnaire is intended to include the forest experts’ opinion about the relevance and importance of each sub-element under the core groups, as well as to integrate any element that might not have emerged from the literature. It will provide a preliminary overview on the validity of the framework, and also assign a weight to the different elements (some of them can be considered strictly necessary, others might be less important - and this analysis is out of the scope of the literature review).

The data will be analysed in an aggregated way and kept in confidentiality, and used only for the purpose of my thesis. The expected time of completion is 15-20 minutes.

Thank you in advance for your help!

PERSONAL INFORMATION

1. Name and surname:

.....

2. Institution:

.....

3. Position within your institution:

.....

PRELIMINARY TEST OF THE ANALYTICAL FRAMEWORK

The following sections explores the main characteristics of the elements to be validated that can support or hinder social innovation in forestry; identified as:

- Section 1: Pre-conditions
- Section 2: Limiting factors
- Section 3: Mechanisms
- Section 4: Drivers

SECTION 1: PRECONDITIONS

Preconditions are here understood as the elements that should be in place for social innovation to happen. Something that should exist before and within which social innovation cannot happen without. The preconditions were identified under the following core groups:

- A) Institutional environment;
- B) Financial environment;
- C) Cultural environment.

A) Pre-conditions: Institutional environment

1. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Institutional thickness and capacity | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Network governance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Accessible Social Capital | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Actors interaction: weak and strong ties | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Local informal networks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feedback loops decision making | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2. Can you identify any other elements you might judge is missing under "Institutional environment"? If yes, please assign a rank as the table above.

.....

B) Pre-conditions: Financial environment

3. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Nested markets | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Local informal networks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Co-production initiatives | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mixture of salaried and voluntary labour | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. Can you identify any other elements you might judge is missing under "Financial environment"? If yes, please assign a rank as the table above.

.....

C) Pre-conditions: Cultural environment

5. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Learning cultures: adaptive management | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Diversity and history of risk taking | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Strong sense of collective and territorial identity | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Valuing local knowledge | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Independent from government | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

6. Can you identify any other elements you might judge is missing under "Cultural environment"? If yes, please assign a rank as the table above.

.....

SECTION 2: LIMITING FACTORS

Barriers or constraints that might hinder social innovation in forestry. The limiting factors identified can be divided in:

- A) Institutional;
- B) Financial;
- C) Others.

A) Limiting factor: Institutional

7. Based on your opinion, please rank the specific elements to hinder social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Conventional command and control of public decision making | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Pre-existing clientalistic power relations | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Lack of trust between institutions and actors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Lack of coordination between institutions and actors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Fragmented capacities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Restrictions on informal activities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risk averse culture of administrators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8. Can you identify any other elements you might judge is missing under "Institutional limiting factors"? If yes, please assign a rank as the table above.

.....

B) Limiting factors: Financial

9. Based on your opinion, please rank the specific elements to hinder social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Dependency on grants | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Lack of source of long-term funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Lack of specific funding policy for the forest sector | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reduced public funding for local development | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Risk capital and scaling up for social enterprises | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

10. Can you identify any other elements you might judge is missing under "Financial limiting factor"? If yes, please assign a rank as the table above.

.....

C) Limiting factors: Other

11. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Strict requirement to be innovative from rural development programs | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Difficulties in motivating and mobilizing the actors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Lack of assets and rights of marginalized groups | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Knowledge gaps | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

12. Can you identify any other elements you might judge is missing? If yes, please assign a rank as the table above.

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SECTION 3: MECHANISMS

The mechanisms explore operational procedures underlying social innovations and affecting their initiation, implementation and diffusion. What should happen in practice. The mechanisms were divided in:

- A) Political and institutional measures;
- B) Economic measures;
- C) Technology-related

A) Mechanisms: Political and institutional measures

13. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Creation of platforms for local interaction and information flow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Informal trainings and skills development | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Development of schemes and programs context-specific | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Legislative proposal for the re-use of long-abandoned lands | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Collective land tenure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Policy instruments that foster cross-sectoral interaction | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| "Bricolage": recombination of resources for new purposes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

14. Can you identify any other elements you might judge is missing under "Political and Institutional measures"? If yes, please assign a rank as the table above.

.....

B) Mechanisms: Financial measures

15. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Implementation of different forms of public budgets | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Exemptions and assistance for social enterprises (e.g, tax relief) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Funding through co-operative subscription, Crowdfunding, Microcredit | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Systematic identification of key financial disincentives | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Philanthropic investment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ethical Banks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

16. Can you identify any other elements you might judge is missing under "Financial measures"? If yes, please assign a rank as the table above.

.....

C) Mechanisms: Technology-related

17. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Availability of access to computer networks in rural areas' | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Realization of 'virtual proximity' through the construction of high-speed internet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Online platforms for collective action | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

18. Can you identify any other elements you might judge is missing under "Technology-related"? If yes, please assign a rank as the table above.

.....

SECTION 4: DRIVERS

Drivers are here understood as fostering elements to social innovation process. The aim was to identify further factors that may be leveraged to stimulate social innovations. The drivers were divided in:

- A) Internal;
- B) External

A) Drivers: Internal

19. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Innovators: capable, charismatic, creative, committed individuals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Citizen engagement and collective action | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Resistance and socio-political opposition | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Desire for social change | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dissatisfaction with the quality of services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Pro-active learning | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Different knowledge forms | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

20. Can you identify any other elements you might judge is missing under "Political and Institutional measures"? If yes, please assign a rank as the table above.

.....

B) Drivers: External

21. Based on your opinion, please rank the specific elements to support social innovation in forestry:

| | Irrelevant | Not important | Important | Extremely important | I do not know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Availability of information on innovations | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Different knowledge forms | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Withdraw of the State | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Neo-endogenous development | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Nexogenous approach to rural development | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Initial impetus for innovation is triggered by external factors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Rural-urban linkages | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Return migration and urban-rural migration | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

22. Can you identify any other elements you might judge is missing under "Financial measures"? If yes, please assign a rank as the table above.

.....

Thank you for you collaboration!

Annex 3: Case Study collection

Topic: Social innovation in forestry

Master student: Nathalia Formenton Cardoso

Supervisor: Dr. Laura Secco

An analytical framework with elements (pre-conditions, limiting factor, mechanism and drivers) of social innovation in forestry was developed from the literature. This case-study approach intends to preliminarily test its completeness and feasibility and also to show how the framework can apply in practice, by asking experts to fill the analytical framework, ranking the elements based on the case study provided. It mainly consists of a short questionnaire to briefly describe the case's general information, followed by a matrix to be filled in (the analytical framework).

GENERAL INFORMATION

Please describe to the best of your knowledge the following information about the project:

1. Project's name:

.....

2. Geographical area:

.....

3. Year (duration):

.....

4. Agenda (objectives):

.....

5. Innovative feature:

.....

6. Innovators and actors involved:

.....

7. Main activities:

.....

MATRIX – ANALYTICAL FRAMEWORK

Based on the case study described above, which of the following elements can you identify when supporting social innovation (or hindering, in the case of limiting factors)? Please, provide an evaluation of their importance by ranking them in: 5 – the most important, 1 – the least important, 0- not important at all. *Attention: in case the described element is not clear to you, or you do not know what to reply, please report “IDK” (I don’t know) instead that a score.*

| | CORE GROUPS | ELEMENTS | RANK (0-5) |
|------------------|---------------------------|---|------------|
| PRE-CONDITIONS | Institutional environment | Institutional thickness and capacity | |
| | | Network governance | |
| | | Accessible Social Capital | |
| | | Actors interaction: weak and strong ties | |
| | | Local informal networks | |
| | | Feedback loops decision making | |
| | Financial environment | Nested markets | |
| | | Accumulation of Ecological Capital | |
| | | Co-production initiatives | |
| | | Valorisation of local assets and exploitation of unused resources | |
| | | Mixture of salaried and voluntary labour | |
| | Cultural environment | Learning cultures: adaptive management | |
| | | Diversity and history of risk taking | |
| | | Strong sense of collective and territorial identity | |
| | | Valuing local knowledge | |
| | | Independent from government | |
| LIMITING FACTORS | Institutional | Conventional command and control of public decision making | |
| | | Pre-existing clientalistic power relations | |
| | | Lack of trust | |
| | | Lack of coordination | |
| | | Fragmented capacities | |
| | | Restrictions on informal activities | |
| | | Risk averse culture of administrators | |
| | Financial | Dependency on grants | |
| | | Lack of source of long-term funding | |
| | | Lack of specific funding policy for the forest sector | |
| | | Reduced public funding for local development | |
| | | Risk capital and scaling up for social enterprises | |
| | Others | Strict requirement to be innovative from rural development programs | |
| | | Difficulties in motivating and mobilizing the actors | |
| | | Lack of assets and rights of marginalized groups | |
| | | Knowledge gaps | |

| | | | |
|-------------------|--------------------------------------|--|--|
| MECHANISMS | Political and Institutional measures | Creation of platforms for local interaction and information flow | |
| | | Informal trainings and skills development | |
| | | Development of schemes and programs context-specific | |
| | | Legislative proposal for the re-use of long-abandoned lands | |
| | | Collective land tenure | |
| | | Policy instruments that foster cross-sectoral interaction | |
| | | "Bricolage": recombination of resources for new purposes | |
| | Financial measures | Implementation of different forms of public budgets | |
| | | Exemptions and assistance for social enterprises (e.g tax relief) | |
| | | Funding through co-operative subscription, Crowdfunding, Microcredit | |
| | | Systematic identification of key financial disincentives | |
| | | Philanthropic investment | |
| | | Ethical Banks | |
| | Technology-related | Availability of access to computer networks in rural areas' | |
| | | Realization of 'virtual proximity' through the construction of high-speed internet | |
| | | Creation of online platforms for collective action | |
| DRIVERS | Internal | Innovators: capable, charismatic, creative, committed individuals | |
| | | Citizen engagement and collective action | |
| | | Resistance and socio-political opposition | |
| | | Desire for social change | |
| | | Dissatisfaction with the quality of services | |
| | | Pro-active learning | |
| | | Different knowledge forms | |
| | External | Availability of information on innovations | |
| | | Different knowledge forms | |
| | | Withdraw of the State | |
| | | Neo-endogenous development | |
| | | Nexogenous approach to rural development | |
| | | Initial impetus for innovation is triggered by external factors | |
| | | Rural-urban linkages | |
| | | Return migration and urban-rural migration | |

Additional comments:

Thank you for your collaboration!