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EXPLORING BRIDGING PROCESSES BETWEEN RESEARCH AND POLICY COMMUNITIES IN TRANSNATIONAL CONTEXTS
A case study of the Sumforest ERA-NET

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Contents

Chapter 1
Introduction

In contemporary society, forests as ecological systems have received increasing attention from a wide range of actors like citizens, policy makers, media reporters, scientists, environmental movements, etc. Because of the huge importance that they have for a wide range of services (timber, food, recreation, energy, medicines, etc.), using but at the same time preserving them have appeared as a matter of concern for political institutions devoted to assuring their sustainability for present and future generations. These concerns come together with the hegemonic frame of science as the most suitable activity for providing direct or indirect advice on how to employ forest resources in a context of increased uncertainty and complexity about how human being's interactions with nature will look like in the future. Numerous studies have thus provided careful accounts on how the dialogues between those two elements (science and policy) have been developed in different situations. Those accounts have pictured science as an institution that not only has been, but also has to be the right hand of forest politics at the moment of providing good advice and monitoring. They have tried to develop a rationale on how science institutions should call the attention of political ones in order to translate its most common inscription, rhetoric and discursive devices to the political logics.

However, it is important to do an analysis on how the co-production relations between science and society take place in further specific, complex and not so studied scenarios. This thesis thus argues *for increasing the understanding of the transnational intermediary spaces where scientific and political institutions collide structuring co-productive interfaces.* In the European context, ERA-NETs coordination tools could be considered precisely as spaces where representatives of research and policy communities embark in exchanges to build knowledge valuable for decision making, but also for the development of research activities. However, this understanding is just starting to be recognized and explored by certain organizations surrounding them. These organizations have currently developed a wide range of studies intended to evaluate the impact of ERA-NETs. According to those studies, that impact might be increased by engaging, or calling the attention of policy communities, a task that is not commonly assumed to be part of their repertories.[1]

[1] **Specifically, increasing research skills is not a matter of international research collaboration alone, but also of adequate policy attention and support at national level**. Quality of research is a matter of skills and resources and of international collaboration; however, collaboration at the national level among different agencies also plays a role. **Solving societal challenges is not a matter of research alone, but also of influencing European/international agendas. As a result, to achieve their ultimate goal, ERA-NETs need to focus on excellence, but at the same time, they need to pursue objectives beyond that, by increasing efforts to attract policy attention and support primarily at the national level so that they become influential actors at the European/international arena** (ERA LEARN platform, 2015, p. 3).

From an empirical point of view, *the realization that the impact of ERA-NETs has been seen as related with establishing connections or bridges with policy communities, gives a great importance to understand how those connections could be established*. In that line of thought, studying forest science and forest policy institutional configurations in the national and European context, is relevant in pragmatic terms since those two realms are currently embarking in discussions around how to achieve environmental policy and economic goals (for example, reinforcing Sustainable Forest Management principles and developing a Bio economic society). Moreover, EU and forest research institutions of countries are keeping dialogues on how to structure more efficient, effective, and profitable common research activities intended to achieve them. It is then an important task to understand how certain institutional arrangements (in this case, ERA-NETs), are being organized to manage these kinds of science-policy hybrid spaces in a transnational context. Again, the pertinence of addressing ERA-NETs through these lenses has been recognized by research coordination platforms in the EU scale.[2]

The 'SUMFOREST' ERA - NET is a good example of those kinds of configurations. Its motto, ´Tackling the challenges in the implementation of Multifunctional and Sustainable Forestry through enhanced Research Coordination for Policy Decisions ', expresses the goal of improving research institutions for non-research goals; but in the process of working on the policy level, researchers also accomplish some of their own goals. Further research is required about the explicit and implicit understandings of the science-policy dynamics inscribed into the enacting and addressing processes of those networks between and in the national and regional scales. That research should analyze accounts of the participants of the project, as well as those inscribed in particular Sumforest documents. This focus might make possible to capture possible alternative, or non-stated roles, that such configurations could have on science – policy bridging processes. In that sense, focusing on a specific case study, the Sumforest ERA-NET from the inside, could bring important conclusions on how those bridging processes have been enacted and addressed. At the same time, it might open discussions on the particularities of science – policy interfaces in the field of Sustainable Forest Management in the national and European levels. Thus, investigating this object of study might accomplish the double task of helping to improve the understanding of how research coordination arrangements could impact political levels; and to increase the comprehension of how research and policy communities could, and are cooperating to reach certain goals in the European context.

[2] "The ERA-NET instrument is placed under the framework of EU policies including ERA, the Innovation Union as well as a series of sectoral strategies and policies. Within this framework the examination of the effectiveness of the instrument is important in relation to achieving European policy objectives, namely creating a critical mass of resources, the level of embeddedness in a wider European strategy for tackling societal challenges, and the level of integration in national policy contexts" (ERA LEARN platform, 2015, p. 3).

From an STS point of view, understanding how processes of connecting research with policy are viewed and addressed, is an important task due to the conclusions they might bring for the establishment of boundaries between research, policy making and society spheres. Intermediary organizations or configurations managing those boundaries (considering Sumforest as a kind of them), are thus spaces having the task to display channels, procedures, guidelines and knowledge able to make science – policy exchanges more fluid and effective. *One analytical aspect to point out in here is the framing of them, proposed here, as elements making science portable to policy, and policy portable to science.* Ultimately, STS studies could profit from an increased insight on the wide range of configurations types conducting this process in the transnational level. As the relation between research and policy decision is not so obvious and recognized in ERA-NETs, they could then be considered as appropriate cases of study about such dynamics. While this study doesn´t claim to be complete, it aims to be an exploratory tool to delineate the main rationales sustaining the process of connecting science with policy.

To tackle this research goal, the thesis will start with an overview of the main problems about interactions between research and policy delineated in literature, as well as those ones related to the study of ERA-NETs. Such State of the Art (chapter 2), is intended to open the possible research paths for this project. Next, chapter 3 will present the case study for approaching the research problem, while chapter 4 will state the research questions guiding the analysis. Then, chapter 5 will introduce and explain the theoretical background employed to frame and make sense of further reflections, which are encompassed into the frameworks of co-productive capacities, science-policy interfaces and Boundary Organizations. After it, chapter 6 is an explanation of the methodological procedure followed to analyze the data coming from all the sources, which include data collection and data analysis procedures. Before presenting the thesis results, chapter 7 describes the institutional framework surrounding Sumforest work, in order to set the stage of the context of the case study.

Information from the chapter 8 to the chapter 11 presents the thesis results. Chapter 8 tries to analyze the main goals of the addressees and drivers of Sumforest work. Then, chapter 9 explain the main gaps between them and forest research organizations as explained in Sumforest documents and understood by interviewees related to the ERA-NET. Chapter 10 analyses how the outputs of Sumforest are intended to link research outputs with policy communities; and finally, chapter 11 accounts for the linkages between communities of the forest research sector and policy ones as present in the development of particular Sumforest settings and activities.

Chapter 2

State of the Art

Below, I am going to explain some of the main topics and problems addressed by those studies which have paid attention to the dynamics displayed between actors and institutions from the scientific and the political realm, with a focus on environmental research and policy. This analysis will be focused on the conceptualizations and interpretations delineated around key frameworks, issues, questions and concepts regarding those dynamics. In addition, I will focus on those studies related to ERA-NETs and topics related to them. During the chapter, and especially after it, arguments will be made on my position towards those studies, particularly on the lines of inquiry they open for making this project.

2.1 Science-Policy interactions as a general topic

From an STS perspective, it is valid to say that most of the study of science - policy interactions have touched dimensions of the co-production; and what can be called science - society boundary work/organizations/objects frameworks.

From these two, however, more explicit efforts have been made to integrate science-policy interactions into the first element: the co-production framework. With that purpose in mind, an important distinction about the two main uses of the term 'co-production´ has been brought into bear by some authors: Co-production as an idiom (Jasanoff, 2004 – 2006) and co-production as an "agenda" (Van Kerkhoff and Lebel, 2015, p. 2). These two meanings will be further discussed in the theoretical section. For now, it is important to say that, in relation to science-policy interactions in environmental research and policy structures, some authors have combined both understandings, (emphasizing the second), to develop the term 'co-productive capacities'. In this second understanding, co-production could be understood, according to these authors, as 'an agenda´, a call to reconfigure and conduct our knowledge decision making processes ways, yet poorly defined but essential to support a transition to global sustainability" (Van Kerkhoff and Lebel, 2015, p. 2). This is a more empirical co-production orientation that drives the attention to distinguishing between contexts, settings and scales where knowledge is produced and incorporated into environmental governance structures (Van Kerkhoff and Lebel, 2015, pp. 3 - 5).

Co-production, one can say, is thus understood as a goal or an achievement of institutional structures to increase the collaboration between scientific and policy spheres. Perspectives as this could be taken as complementary tools for the more holistic and broad co-production conceptualizations made by Jasanoff, which refers to it as a way to see science – technology – society relations from a symmetric and non-deterministic way. This understanding has started to

be present in studies of those authors and others along the last decade (Van Kerkhoff and Lebel, 2006, Kirchhoff, Lemos and Dessai, 2013, Wyborn, 2015).

Lemos and Morehouse (2005) also address the topic of the science - policy interactions through the lenses of this kind of empirical co-production orientation. Their analysis also tends to conceive co-production, one can say, as an institutional goal, which should be achieved by the development of specific practices. More in particular, they try to establish notions on how scientific impact on policy should be enhanced and achieved by regional climate assessments. In that sense, the most important condition for such pieces of information to achieve social impact is to reach a great degree of 'iterativity', between the different actors that formulate assessments and distribute them to different audiences (Lemos and Morehouse, 2005, p. 62). They understand 'iterativity' as a term that "emphasizes the need for assessment models to build effective internal and external networks, including the capability to sustain ongoing flows of information and participation between science and decision makers from the public, non-governmental, and private sectors" (Lemos and Morehouse, 2005, p. 61). In that sense, co-production lies in the capacity to keep those networks and information flows between science and decision makers spheres working smoothly. More narrowly, 'Iterativity' lies on the center of three components that climate assessments should have: interdisciplinarity; interaction with stakeholders; and production of usable knowledge. At the same time, the degree into which iterativity of those three components is achieved depends on "the level of 'fit' between state of knowledge production and application, disciplinary and personal flexibility, and availability of resources" (Lemos and Morehouse, 2005: p. 58).

The notion of 'Iterativity', it is valid to say, has been further developed by other authors like whose studies are more focused to the topic of the concept of the 'science-policy interfaces' (Sarkki, 2015). More in general, however, studies like the two ones sketched until now, understand the quality of science policy interactions as a matter of increased codependency between scientific and policy institutions. They provide some dimensions to observe whether that co-dependency has, and could be achieved. This analysis is useful to know if political and scientific institutions have effectively engaged with each other; and specially to locate the level of engagement.

Now, of course, there have been studies besides the co-production tradition which have can also be considered to touch on the connections between science and policy. For instance, the drawing of boundaries between science and society has been a constant topic in the STS approach, into which studies about 'Boundary Objects' (Star and Griesemer, 1989) are the most prominent examples. Although this concept could be applied by many disciplinary orientations besides STS, it has been applied in that tradition due to the explanatory possibilities it brings to explain how experts and non-experts make sense of science and technology products and artifacts. A similar case is the one of 'Trading Zones' (Galison, 1997), which has been employed to understand the

spaces into which different communities (mostly scientific ones) encounter to exchange meanings about certain scientific or technological developments; or 'standardized packages' (Fujimura, 1986), which refers to the standardized set of technologies that shape certain scientific definitions (Fujimura n/d).

However, if one narrows the view, STS studies mostly dealing with the case of science *policy* interactions, are inserted into the framework of 'Boundary Organizations theory' (Guston, 2001; Miller, 2001; Cash, 2003). From my point of view, this theory has mostly dedicated to the study of science-policy interactions more narrowly than to science *society* interactions in a broader sense. In addition, it has mostly analyzed interactions and boundaries between scientific and non-scientific experts, in contrast to the other three theories, which mostly have presented analysis about how boundaries have been drawn between scientific expert communities (disciplinary affiliations), following scientific aims.

As it is going to be better explained in the theoretical section, boundary organizations theory and studies have focused, broadly speaking, on how the boundaries between research and policy are managed in Boundary Organizations structures to accomplish aims of scientific and nonscientific communities (Guston, 2001; Cash, 2003). Precisely, they exist because they help to accomplish those binary (and could be said, multiple), aims of such communities; or because they could be considered as being "all things to all people" (Parker and Crona, n/d). *The process by which they do* so has also been clearly conceptualized in multiple ways, mostly as 'Hybrid Management' (Miller, 2001); or as 'Boundary Management' (Cash, 2003); as well the specific *functions they perform* (for example: communication, translation and mediation according to Cash).

From my point of view, Boundary Organizations theory is a fruitful tool to make sense on how ERA-NETs may link research and policy communities aims. It is this linkage process dynamics the one which have been discussed through time, sometimes evolving or at least matching/overlapping with other related concepts dealing with science-policy cooperation links and quality. For instance, systematic discussions in that regard are encompassed in studies about "science-policy interfaces" (SPIs), a concept that has slowly gain an important position in the research about science and policy interactions.

2.2 Science - Policy interfaces: definitions and approaches

A central concept to study the interactions between scientific and political institutions is the "Science - Policy Interfaces". Broadly speaking, in my general view, most of those studies have understood them as the concrete dialogical spaces where actors from the scientific and political communities have encounter with the aim of incorporating science in decision making.

Now, science-policy interfaces have been defined in the literature in many ways, being the most complete ones developed by Koetz, Farrell and Bridgewater (2011), Van den Hove (2007) and Bremer & Glavociv (2013). As will be shown in the conclusions, all these three definitions, while similar, can be distinguished according to the analytical focusses they make possible to address. Thus, the first one point out more at an understanding of the interfaces as institutional configurations that produce and enable certain practices between scientists and policy makers; while the second is more oriented towards understanding the actual exchanges between both communities, and the knowledge produced as an outcome of them. Meanwhile, the third definition looks at how the boundaries between what is science and what is policy have been constructed.

Undoubtedly, the three of those aspects are important when dealing with the interactions between scientific and policy-making communities, and are often overlapped. The study of Van den Hove (2007), for instance, proposes a framework/scheme for the study of science policy interfaces in which those three aspects are integrated. In this study, she first tries to comprehend which are the main *intersections between science and policy* and what are the *aspects of science* (outputs, processes, actors and contexts) that have contributed to create them; then, she addressees the *theoretical problems*, *questions* and *normative requirements* arising into those intersection spaces. Finally, she provides and outlook on the topics that require further investigation for understanding science-policy interfaces (from now SPI´s). An example of an intersection would then be "*The results of science influencing policy prioritization*"; and the aspect of science contributing to create it, is "*The process of organization and funding of research*" (Van den Hove, 2007, p. 7). At the same time, an example of a theoretical problem is the existence of "*complexity, uncertainty and indeterminacy*", and a normative requirement she poses for solving that problem is "*To allow for articulation of different types of knowledge: scientific-, local-, indigenous-, political-, moral-, and institutional knowledges*" (Van den Hove, 2007, p. 15). Finally, some of the topics she mentions are *the transparency and accountability of actors*; *how knowledge is translated into decision making*; or the *institutionalization of the interfaces* (Van den Hove, 2007, p. 16).

The scheme proposed by this author opens the possibility to tackle science policy interfaces from different angles which haven't been sufficiently addressed. There are some authors dealing with the problem of studying perceptions about the SPI itself, or in other words, how actors (for instance, water managers) imagine the intersections between science and policy (White, et. al. 2008). However, more than trying to provide theoretical conclusions about the whole range of known angles of the SPI concept itself, most of the studies have performed concrete case studies touching one or two of those aspects. Summarizing those studies, it is valid to say that they have followed two lines of inquiry which are inextricably linked: One oriented towards *the understanding of SPI's quality*; and a second, one oriented to *the incorporation of*

scientific knowledge into policy making in SPIs, which implies the rationales used by researchers to make that translation.

2.2.1 SPI's quality studies

About this line of inquiry, studies of Cash et al. (2003), could be considered as the most important and fundamental ones. The most important output of this study is the employment of the concepts of credibility, relevance and legitimacy to understand how scientific information can be perceived to be effective in influencing social responses (Cash et al. 2003, p. 8086). An important accent is put on the "knowledge systems", into which that information is handled, and how they use it to connect science and technology with action, together with the boundaries between them, in a way that, precisely, considers all those three criteria (Cash, et al. 2003, p. 8086). He calls this process "Boundary Management", and at the end, names the most important functions of that process; together with three important features of the 'Boundary Organizations' that oversee it (credibility, relevance and legitimacy). I will categorize it in the theoretical session.

Employing these three categorizations to evaluate science policy interfaces, has been commonly been understood as the making of a 'CRELE' analysis (credibility, relevance and legitimacy), an analytical tool deployed by some projects dedicated to the study of the science-policy interfaces for practical purposes. One of them is the 'Spiral Project'; a project of the European Union, inserted into the Framework Program 7 for research and innovation (from now, FP7); which aims to "enhance the connectivity between Biodiversity Research and policy making to improve the conservation and sustainable use of biodiversity"

In terms of the Science - Policy interfaces literature, an important outcome of this project has been the production of briefs and reports exploring science policy interfaces, while also scientific papers on that topic (Sarkki, et al. 2014; Sarkki, et al. 2015; Tinch, et al. 2016; Waylen and Young, 2014; Young, et al. 2014; Nesshöver, et al. 2013). As they follow the thematic orientation of the Spiral Project, the most of them focus on the development of what they consider better science-policy interfaces for biodiversity conservation projects. It is valid to say that some of them adopt a primarily conceptual focus concerned on the design and evaluation of SPI's quality.

For instance, Sarkki (2014), drives his attention to empirical cases of biodiversity SPI's to typify the most important tradeoffs that emerge in their management when dealing with the three dimensions of CRELE. He identifies four trade-offs, (for example, *the scientific provision of clear or strong messages vs the communication of uncertainties*) and at the end, exposes conclusions on how contextual factors around the interface may or not provide solutions to them. The analytical accent here is located, again, on the SPI's institutional design and whether is it possible for it to solve those tradeoffs. In some cases, he says, tradeoffs can be solved, while in

others they are "fundamental" of the SPI's. In this regard, he then encompasses the tradeoffs under the categories of 'fundamental', 'resource dependent', 'context specific', or ´dynamic' ones (Sarkki, 2014; p. 10). The reflections and implied recommendations to solve the tradeoffs, done in the end of the text, can be interpreted as intended to improve the quality of the SPI. At the same time, as it was mentioned before, this author further integrates the Lemos and Morehouse concept of 'Iterativity' into the previous three criteria (CRELE + IT), with the aim of understanding SPIs processes better (Sarkki, et. al. 2015).

Koetz, Farrell and Bridgewater (2011) could be considered as following the same line of inquiry than Sarkki. Their study, while not being part of the Spiral Project, also focuses on the topic of Biodiversity, and how the SPI's could be improved for the Intergovernmental Platform for Biodiversity and Ecosystem Services. In addition, the accent is also put on the organization or design of the SPIs, which are understood as institutions for interfacing science and policy processes (Koetz, Farrell and Bridgewater, 2011, p. 1). Further on, the three CRELE categories are also included in the analysis as criteria to evaluate, precisely, the way they are designed. However, instead of considering the problems that emerge for the design of a good science-policy interface as "trade-offs", it considers them as 'Institutional Mismatches'. This concept was taken from Young (2009) which understood them as "incompatibilities between the nature of a governance problem and the institutional arrangements established to address it". According to Koetz, Farrell and Bridgewater, the fault of such incompatibilities lies in the application of linear models of environmental governance (that is, the move from basic to applied research and then to its application for social benefits) which has been detrimental for building quality science policy interfaces, an argument also shared by other authors as Fernandez (2016).

In opposition to that model, they then argue in favor of a "Collaborative Model" that "presumes complex interrelations between science and policy and recommends deliberation, collaborative evaluations and critiques that reach across epistemic frameworks", and that instead of the rationale 'speaking truth to power' is replaced by the collaborative aim of 'reasoning together'" (Koetz, Farrell and Bridgewater, 2011, p. 7). This collaborative model, paraphrasing Fernandez, is also understood as one that conceives multiple actors as the knowledge holders (not only scientists), and one that doesn´t establish a clear distinction between information supply and demand, but rather a co-production on what knowledge counts as an important one from the beginning (Fernandez, 2016, p. 173). The low quality in the design of the interfaces, one can say, lies in this case on the lack of coordination or harmonization between policy goals and the institutional ways to achieve them, which could be considered as a synthon of the linear model.

Now, while an analysis of the SPIs guided by the CRELE criteria has thrown important conclusions about them, it leaves open the question on the meanings and motivations that actors inscribe to such criteria. In other words, it does analyses some of the main problems related to

achieve credibility, relevance and legitimacy (through participation, coherence and integration of SPI's components); but it leaves the question open on *how actors define those dimensions*.

To fill that gap, with a focus on the context surrounding science-policy interfaces, Heink (2015) put over debate the concepts of credibility, relevance and legitimacy (CRELE framework), and how have they been defined and employed to evaluate what he considers to be the science - policy interfaces effectiveness. The conception of effectiveness employed by them is the one used by Davidson (2015), who describes it as "the extent to which an evaluand (an object or procedure to be evaluated), produces desired or intended outcomes" (Davidson, 2005, p. 122). As I am trying to show, legitimacy, relevance and credibility have been the three main components used to decide if an interface has been designed with quality and produce good outcomes. However, Heink goes a step further and provides a clarification of such terms based on the existing literature. His argument points out that the employment of those dimensions in the evaluation processes relies on *how they are defined by actors in concrete interfaces*. At the end, the way the CRELE analysis is understood and employed for evaluation is considered as dependent of three elements: "the properties of the information being imparted, the process by which this information is conveyed and the personal disposition and perception by the recipients" (Heink, 2015, p. 679).

New studies are needed to operationalize those dimensions in concrete cases. What is important to remark here is that the idea of evaluation guided by the CRELE analysis is put under contextual scrutiny, rather than taking it is a set on stone tool. Effectiveness, relevance, credibility and legitimacy could then be approached as terms which phrasing and employment in environmental governance settings (in this case, forest related ERA-NETs) is a topic of study on its own right.

2.2.2 Incorporation of scientific knowledge into policy in the SPIs

Now, according to the literature consulted, CRELE criteria has been commonly employed (one or the other of its criterium), to make reflections about the effectiveness of research organizations oncoming's to policy making ones; may it be to improve those organizations goals or performances, or to communicate the information they produce in better ways. Mostly, those studies have observed the case of scientific assessment organizations.

Touching on this point, there is the study of Keller (2009), who addressees the effectiveness of science-policy coordination from the point of view of science assessment organizations. According to her, while interacting with political institutions, scientific assessment organizations have two difficult tasks: to acquire political relevance while keeping scientific credibility. The main question emerging from this conceptualization is whether strategies to approach political realm (linking strategies), conflict with those related to keep scientific credibility (buffering strategies). By focusing on strategies associated with the National Research

Council (NCR), the National Acid Precipitation Assessment Program (NAPAP), and the Intergovernmental Panel on Climate Change (IPCC); Keller concludes that is not necessary the case, but instead "organizations can pursue buffering and linking strategies simultaneously to support the organization´s twin goals" (Keller, 2016, p. 381).

Important in this last study is the attention paid to the contexts into which science-policy interfaces come into play. For instance, one can say, it is almost evident that the importance provided to linking strategies in an organization varies in a direct proportion on how dependent are they from resources of adjacent political or economic organizations. In addition, Keller guides us to the important problem of defining boundaries between science and policy in the interfaces crafting; a topic widely debated in STS under umbrellas like boundary work, boundary organizations or trading zones.

Also from the point of view of science assessment organizations, Joyce (2003) has studied how information flows between forest science and forest policy institutions. Her thesis is that among time, scientific assessments have been accurate in a scientific sense, but hard to communicate to political structures. To solve that problem, she claims for the inclusion of three considerations in the creation and application of scientific assessments in the communication process: assessment capacity; stakeholder participation; and the articulation of uncertainty considerations (Joyce, 2003, p. 340). These considerations are intended to make viable the scientific information flow across different areas, this to assure, again, the inclusion of CRELE criteria: the scientific credibility, ensuring practical saliency and legitimizing the process to multiple participants (Joyce, 2003, p. 340).

What is important to mention here is that studies about forest science-policy interfaces have given a lot of attention to what policy makers are looking for in forest research, while also what forest researchers perceive to be important for forest policy makers. Janse (2007), for instance, prepared a survey focused on both scientists and political actor's perceptions about communication between them. The survey comprised which are the main information sources, channels, types and topics of information displayed by researchers and policy makers. The results were intended to provide accounts on policy maker's expectations for science, and scientists' estimations on what policy makers consider relevant topics of scientific information (Janse, 2007, p. 183). This focus can be seen in the ways the article constructs the notion of types and topics of information. At the end, Janse states that:

> "Most of the recommendations given by scientists and policy-makers in this study emphasize: the importance of increasing personal contact and networking between scientists and policy-makers; that scientific information should be presented in shorter and easier to comprehend formats; and that scientists should be involved more and earlier in policy advisory" (Janse, 2007, p. 193).

In a similar line, De Koning, et.al (2014), put the accent on how Forest Managers perceive and use information about climate change ecology for their management practices. Their main finding consists on arguing that Forest Managers don´t deny the importance of problems like climate change for their daily practices, but still have some reservations on how available research knowledge on climate change might be useful for them (De Koning, et. al. 2014, p. 3658). The central problem studies as this one consists on knowledge utilization of Forest Managers, what could be considered as a focus more related to the management and not scientific side of the interface.

As it can be seen, studies about SPI's quality have expressed a wide range of preoccupations and study problems. Most of them have extendedly employed the CRELE criteria to think on how they should be designed, or else on how scientific input (broadly speaking) could approach to, or be taken by the political and management realm in better ways. Another important factor to consider is the importance provided to the contexts into which SPI's are born (Heink), which could determine how CRELE might be defined by concrete actors. Finally, one can see that the objects of analysis have commonly being scientific assessments organizations; or else to spaces that have been recognized as SPI's by its participants (IPBES, IPCC, for instance).

In this thesis, (and this could be considered as its innovative character), the aim is to analyze an instrument that hasn't been recognized as a SPI by its creators and participants. The purpose of the next sub-heading is to look at how ERA-NETs have been studied so far to extract conclusions on what aspects of them can be approached through the SPI framework lenses; and as a co-production and Boundary Organizations matter. Of course, before touching on ERA-NETs directly, I will present and overview on reflections about topics of Transnational Research Coordination, which has a strong relation with those tools. These reflections will then lead to the structuration of the research questions.

2.3 Transnational European Research Coordination

ERA-NETs could be considered as activities prepared to improve research coordination across a group of the European and associated countries. Questions can be thus raised on how literature has approached the topic of transnational research coordination; which means, how the research cultures of different countries have been put under dialogue by using EU related guidelines. Precisely, literature touching in this point has been oriented towards a comprehension of the dynamics between national and transnational innovation cultures, and *how they assign certain responsibilities and competences among countries and regional institutions as the European Commission* (Kuhlman, 2001; Könnölä, Brummer and Salo, 2006, Kaiser and Prange,

2004; ETEPS[3], 2008). Following this focus, other studies have specifically looked at the methods employed by transnational EU institutions that surround ERA-NETs and similar frameworks, to *craft research agendas and projects* (Brummer, et.al, 2008; Brummer, et. al. 2009; Haegeman, et.al, 2015). As some of those institutions have had a role in assisting EU configurations in the understanding of certain research topics, they can also be studied into the framework of scientific advice, an area of study that includes authors as Jasanoff (2005), but specially Wilsdon (2015), as its main representatives. Finally, there are some papers analyzing ERA-NETs themselves; especially regarding *their results, evaluation* (Perez, 2010; Maskina, 2009; Martínez de Arano, 2014; Amanatidou and Guy, 2008), and *communication methods* (Maoz, 2005).

2.3.1 National and Transnational Innovation cultures: trends and methods of Research Coordination

Questions about the dynamics between national and transnational innovation cultures have been encompassed into the framework of innovation governance and policy in Europe. *The leading addressed problem is how to combine national with transnational criteria when developing policies for research and innovation, and research orientations derived from them.*

Kuhlmann (2001), for instance, starts from the notion that the strengthening of organizations as the EU, has changed the set of responsibilities and competences that specific Nation States previously had about whether and how to manage innovation policies and systems. More and more, those nations have adopted governance mechanisms guided by guidelines of supra-national structures, rather than the ones of their own nation states. The problem faced by the author in this regard is how those governance mechanisms and principles will derive in a European Innovation Policy scenario managed by a monolithic institution; or in the opposite, if a fragmentation of innovation policy goals of the various countries that compose Europe and the EU will exist. Even though, the author also considers the possibility of a middle ground scenario, in which EU institutions are not central authorities of innovation policies, but rather work as mediators between member countries in their search of developing more coherent and innovation policy plans.

This alternative scenario matches with concepts like "Multi Level Governance", in which local, regional and international expectations about innovation should be fulfilled by various means. In author's words: "Interwoven national and transnational governance mechanisms may feed the development of a transnational political system, including and building upon transformed national systems, fulfilling both "local" (i.e. regional or national) and "supra-local" functions at

[3] European Techno-Economic Policy Support Network (2017). *Official site of the Institute.* Retrieved January 10, 2016, from: http://www.uia.org/s/or/en/1100037044

the same time" (Kuhlmann, 2001, p. 956). And further: "The EU is a political system without a formal hierarchical government, but with a body of legal norms that confine the room for maneuver of member state governments; moreover, it produces binding decisions in a growing number of issue areas and guarantees, at least to a high degree, compliance" (Kuhlmann, 2001, p. 957).

In scenarios like those, innovation policies in Europe (including those ones from member states), will always need to include an "European Added Value", which means that they should pursue common interests of the whole union. Further on, transnational institutions as the EU may have an intermediary role between research organizations, programmes and orientations of different countries. The constitution of the ERA-NET reflects the pursue of those intermediary functions (Kuhlmann, 2001, p. 970-971).

In a certain way, it is possible to trace the changes in the internationalization of the European Innovation Policies in arguments made in further publications about the same topic. Thus, afore mentioned Kuhlmann's arguments regarding EU intermediary role have materialized in the situation that more recent studios present. For instance, Könnölä, Salo, and Brummer (2006), focus on the topic of how particular countries had adapted their innovation systems to broader European institutional configurations and contributed to the realization of their goals. With the recent development of multinational research networks, they say, "local, regional and national innovation systems are challenged to define and pursue their internationalization strategies" (Carlsson, 2005, cited in Könnöla, Salo and Brummer, p. 3 2006). The central point here is, moreover, that EU institutions have taken a new role in those processes of national policies opening. ERA-NETs, precisely, as they mention, "provide support for European coordination and mutual opening-up of national policies" (European Commission, 2004a). This process, at the same time, "are indications of the transformation of the EU innovation policy from the provision of financial resources to the facilitation and monitoring of stakeholder processes (...) while central to this transformation, coordination tools have been managed by the stakeholders largely through processes of *self-organization*, whereby the Commission has provided documents only on general guidelines and routinely applied governance principles (e.g., effectiveness, coherence, accountability, participation and openness; European Commission, 2001)" (Könnöla, 2006 p. 7).

In summary, studies like the one of Könnöla shows that with the aim of facilitating coordination efforts, *EU has faced the challenge of being a mediator between the great array of interfaces that exist between member countries and EU policy orientations, constituting what they call "Post National Innovation systems"*. As they textually say: "It is therefore pertinent to revisit the methodological demands that derive from the multiplicity of interfaces in ´Post National Innovation Systems´ (Könnöla, Salo and Brummer, 2006 p. 22). This means that the increased interdependence of national innovation systems has originated a huge array national - EU

interfaces which coordination are complex and as such requires the development of coordination methodologies.

Following this line of thought, studies have observed the methodological practices employed in the EU to coordinate research sectors of the different Member Countries. In the last years, the EU has created international Research Programmes based in the "Open Method of Coordination"[4] (from now, OMC); which at the same time is based on the "Multi Criteria Analysis"[5] of research issues and collaboration networks previously consulted to actors. The use of the OMC for the coordination between EU framework programmes and national research programmes, and to improve Trans-national research coordination, has been studied in a document by the 'European Techno-Economic Policy Support Network' (ETEPS, 2006) in relation to many EU instruments for research coordination, as the ERA-NETs, the 'COST ACTIONS', 'EUREKA', 'EUROCORES' and the Nordic Cooperation. The most important outcomes of this study are the creation of recommendations on how that method could virtually improve actions regarding governance and information flows, but also regarding accomplishing information needs, and allowing to think on further models and actions of research coordination reporting (ETEPS, 2006, p. 57); which are meant to consolidate the OMC and the EU in general as important actors in the relations between countries research orientations.

As it was mentioned, the EU has recently adopted a mediating role between research sectors of different countries rather than being a central regulatory structure one. In that sense, the development of the Open Method of Coordination is "congruent with the ongoing transformation where the EU is increasingly seen as the facilitator of the international collaboration activities (Brunner, Könnöla, Salo, 2008, p. 494). However, some related reflections seem to be more skeptics when it comes to achievement of that sort of ideal complementarity between country's innovation systems, and EU Policy orientations. According to those reflections, "the multilevel character of innovation policies (which is related to the application of 'Multi-level Governance' mechanisms) and the diversity of innovation systems, together with the highly competitive character of this policy area" (Kaiser and Prange, 2004, p. 261, the parenthesis is mine); are perceived as "stumbling blocks", or problems, that have difficulted the achievement of the goals that the Open Method of Coordination (from now, OMC) was meant to pursue. In other words, an improved coordination and mutual learning between actors of different countries

[4] "The Open Method of coordination" (October 2014). *European Parliament*. Retrieved January 10, 2017, from: http://www.europarl.europa.eu/EPRS/EPRS-AaG-542142-Open-Method-of-Coordination-FINAL.pdf

[5] "Multi – Criteria Analysis" (2005 – 2007). *European Commission.* Retrieved January 10, 2017, from: http://forlearn.jrc.ec.europa.eu/guide/4_methodology/meth_multi-criteria-analysis.htm

were presented as endeavors not yet accomplished; and recommendations on how OMC could still do so were presented.

In the context of this thesis, this method is important because it is at the core of the consultation processes of ERA-NETs and other European coordination tools (Brunner, Könnölä, Salo, 2008, p. 484). *Consultation processes refers in this case to the questions and discussion topics submitted to the stakeholders involved in such tools to decide which are the best research topics, research challenges and knowledge gaps for the creation of new International Research Agendas.* Precisely, this study takes WOOD WISDOM, a forest ERA-NET, as a case study to understand those processes, which makes it more relevant to contextualize this thesis (Brunner, Könnölä, Salo, 2008, p. 483).

In summary, it is possible to say that these studies about transnational innovation and research in Europe picture the actual European Innovation landscape as one intended to match interests of the country's research sectors, but making possible for them to decide on the links the will establish between themselves (funding arrangements, research topics, mobility of researcher structures, etc.).

The establishment of priority setting for topics in transnational research arrangements, for instance, has called the attention of Haegeman, et. al (2015) which pictures that process as an important task for the aim of finding common answers to common societal challenges. More in particular, the focus is centered in the methods that could virtually be employed to effectively include and asses the interests of diverse stake holder groups in foresight exercises. In words of the authors, "the paper aims to advance the existing knowledge base on models for organizing collaboration across borders in research programming for addressing multifaceted and interconnected societal challenges considering the interests of diverse stakeholder groups, with a specific focus on thematic priority setting" (Haegeman, et. al, 2015, p. 202). *At the last pages of the document, important conclusions are made on how a specific model for including diverse opinions on that priority setting process could help to increase the political impact of the foresight exercise performed into an ERA-NET.* This is an important document to contextualize and set the basis for this thesis project, as it draws a line between an ERA-NET activity (The Foresight Exercise), and its possible policy implications, a task that summarizes my general purposes for the present project. It is mentioned that: "Showing that foresight results are based on a solid structured approach may increase trust in the foresight outcomes, which may in turn increase policy impact of the foresight exercise" (Haegeman, et. al, 2015, p. 209).

ERA-NETs would then be, thus, results and examples of such linking processes. Again, it is particularly interesting that Forests ERA-NETs have been taken as examples of such endeavors. For instance, "Foresterra", another forest related ERA-NET, has managed to establish a Forest Research Agenda just for the Mediterranean Region. In their own terms, it´s goals have been to "set up a permanent structure for joint research programming and funding in the Mediterranean"

(Martínez de Arano, 2014, p. 64). At the center of this structure, they consider the strengthening of the science-policy interface as a fluent dialogue between science and policy based on the diffusion of publications and the cooperation with regional forestry committees.

In relation to this, studying ERA-NETs as tools that could strengthening relations between research and policy communities (science – policy interfaces), could also make possible to see them as providing a certain type of scientific advice for policy. In that sense, the topic of scientific advice can be traced back from the studies of Shelia Jasanoff (2005), who focusses mainly on how different states use science and expertise for decision making, coining the term 'civic epistemologies' to understand that process. More concretely to the European case, authors as James Wilsdon (2015), have pointed out at the difficulties to create a European Scientific Advice orientation in the continent, since there are lots of countries with their own cultures in terms of science policy relations. In the context of this thesis, Wilsdon reflections are important since they reflect upon the constitution of 'High Level Groups' of scientific advice in the EU. These mechanisms of scientific advice have gained space from others like the 'Chief Scientific Adviser' (CSA). Consequently, it has been analyzed how this new orientation has produced a wide variety of committees and networks which pretend to be more democratic and participative for European countries. It is mentioned that units as the "Science and Technology Options Assessment Unit (STOA)[6], and then a new International Network for Government Science Advice (INGSA)[7], have been structured to define agendas, motivated by "a real appetite to promote evidence-informed policy through innovative techniques, foresight, and engagement with the democratic process" (Wilsdon, Doubleday, et al, 2015, p. 12).

Now, in the view of the authors, eight challenges for the new European Scientific Advisory Mechanism are emerging right now: To meet demands and rhythms of the policy process; The need to distinguish between science for policy and policy for science; The need for advisers to act as intermediaries, brokers and communicators; The difficulty of solving value conflicts through appeals to facts; an increased reliance on multi-disciplinarity and interdisciplinarity expertise; The need to link Scientific Advice to wider developments in evidence informed Policy Making; The emerging opportunities to link science policy research more closely to practice; and, the need to strengthen exchange and across different systems (institutional networks) (Wilsdon, Doubleday, 2015, pp. 17-22).

It can be thus seen that core studies about scientific advice have reflected upon the formal mechanisms of scientific advice that are currently being developed in the EU context. However, it is also possible, and would be interesting, to approach the ERA-NET tool (concentrating of

[6] "Science and Technology Options Assessment (STOA)" *European Parliament.* Retrieved on January 11, 2017, from: http://www.europarl.europa.eu/stoa/cms/home/about/network
[7] "International Network for Government Science advice" (INGSA), (2017). Retrieved on January 11, 2017, from: http://www.ingsa.org/

course in the case of study), as configurations that include a sort of 'informal scientific advice' to the EU configurations surrounding them (as the European Commission). *This endeavor would be more pertinent since institutional configurations acting as creators or drivers of ERA-NETs work, understand themselves as "sources of advice for European research*"[8]. In that sense, it is possible to understand some of the case study outputs as intending to increase the EC knowledge about certain research areas and orientations; as well as embedding certain participatory principles of the EU innovation policy landscape as the inclusion of policy makers, researchers, stake holders and other groups when finding solutions to policy or societal problems.

Now, with the aim of digging up more on how ERA-NETs have been studied, let's, check the most relevant literature related to that.

2.3.2 ERA-NETs as an object of study

As an object of study within academic communities, ERA-NETs instrument has received very limited attention. Most of the papers related to them are documents created to advise the European Commission on good practices to manage those institutional arrangements, rather than enriching discussions in the social sciences field. In that regard, the focus of such documents has been oriented to understand on how better employ ERA-NETs processes and methods; as well on getting learnings to internal and external audiences about some of its most important outputs.

A good starting point to explain these orientations is the study of Perez and Schwarz (2009), which aims is "to present an analytical framework for mapping, monitoring and assessing trans-national R&D collaboration programmes in Europe, focusing on the case of the ERA-NET scheme" (Perez and Schwarz, 2009, p. 11). At the same time, that aim is intended to be useful to the Member States participating in them, as well to EU strategies framed in the constitution of the European Research Area (from now, ERA) (Perez and Schwarz, 2009, p. 12). However, the final goal of this study is to contribute in the implementation of the NETWATCH[9] (Nowadays, ERA-LEARN), a EU platform intended to monitor the development of ERA-NETs and another similar EU initiatives.

At the end, Perez and Schwarz managed to sketch specific recommendations for the implementation of an analytical framework intended to accomplish those monitoring processes, which mainly refer to the collection of data about the different phases of the development of ERA-NETs (formulation, implementation, evaluation, collective evaluation and impact assessment);

[8] For instance, the "Standing Committee on Agricultural research" is a configuration dealing with bio economy and agriculture research which contributed to the creation of the Sumforest ERA-NET. "Standing Committee on Agricultural Research (SCAR)". *European Commission Research and Innovation*. Retrieved from: https://ec.europa.eu/research/scar/index.cfm?pg=home

[9] "NETWATCH and ERA-LEARN supporting information exchange and mutual learning" (April 2013). *European Commission – European Research Area: Coordination of research programmes.* Retrieved on January 11, 2017, from: http://ec.europa.eu/research/era/era-net-netwatch-era-learn_en.htm

and to place some questions related to the dynamics of the transnational collaboration schemes, the Joint Calls, and the funding models of them (Perez and Schwarz, 2009, pp. 65 – 68).

Also in relation to the NETWATCH, and to a tool called the ERA-NET Learning Platform (Both now integrated into the ERA-LEARN 2020 support action[10]), Amanatidou and Guy (2008), presented a report about the launching of those two initiatives. This document contains information about discussions regarding the further directions of those two initiatives, which gravitated around issues like the Impacts and Leverage Effect of ERA-NETs; their Future Issues; and the establishment of common procedures from Joint Call Preparation, Project Monitoring and the Selection of High Quality Proposals (Amanatidou and Guy, 2008, pp. 7 – 16). At the same time, recommendations for the Commission, ERA-NET participants and Member States are described in the final chapters. For example, Member States are recommended to "Consider the development of national guidelines for the implementation of transnational joint calls" (Amanatidou and Guy, 2008, p. 18).

While these authors have proposed an analytical framework for different ERA-NETs elements, Mashkina (2009) has done a similar analysis about Environmental ERA-NETs as a case study of transnational research programmes on environment but narrowing the focus on the study of experiences around the preparation of Transnational Joint Calls within those instruments. Here, again, the aim is getting recommendations on good practices for the European Commission (EC) and the Member countries. As she says: "The aim of this report is to analyses experiences of the environmental ERA-Nets in the process of preparation and implementation of the transnational (joint) calls, and based on this experience to develop 'good practices' for the future transnational calls" (Mashkina, et. al. 2009). This preoccupation is encompassed into the broader objective of the ERA-NET scheme, which according to the document is:

> "...Increasing the cooperation and improving the coordination between national and regional research institutions and activities. The strength of these transnational research initiatives is in bringing together experiences and knowledge of researchers from different countries. In the environmental research sector, many issues cannot be researched only at the national level. Because of the nature of many environmental problems they do not respect national borders, and are too vast and complex to be solved by any one country alone. Thus, the collaboration of several countries is vital" (Mashkina, et al, 2009, p.12).

The preparation of Transnational of transnational Joint Calls within ERA-NETs pictured as process by which that cooperation and coordination between research institutions and researchers from many different countries can be achieved. Consequently, thinking on good practices for Joint Calls preparation is conceptualized as something important to foster those cooperation and coordination endeavors. At the same time, such good practices are different for

[10] ERA-LEARN 2020. Retrieved on January 11, 2017, from: https://www.era-learn.eu/

each of the ERA-NETs types considered in the document, which are: ERA-Nets with strong common planning; ERA-Nets with strong national rules ERA-Nets with common planning and with high user-involvement (Mashkina, et. al. 2009, pp. 8-9). Thus, in general terms the study gravitates around topics like how to improve partners' participation for the calls; deciding on funding schemes; and agreeing on procedures for proposals evaluation, among others, for each of those types of ERA-NETs.

As one can see, the focus relates to how particular outputs of the ERA-NETs (transnational joint calls) could be better planned and developed. From another point of view, Maoz has centered in the analysis of information and communication technologies (ICT) methods employed to improve coordination between research programs involved in agricultural research related ERA-NETs. According to the author, the most important benefit of the adoption of those technologies is the facilitation of "practical initiatives to coordinate regional, national and European research programs in specific fields, pool fragmented human and financial resources and improve both the efficiency and the effectiveness of Europe's research efforts." (Maoz, n/d, p. 2). In summary at the end, his analysis about two ERA-NETs that deal with the Ethical, Legal and Social Aspects (ELSA) in GM controversies in Agricultural Research, by using ICT (in his inner activities and in communication with external actor's activities), concludes that ICT has allowed for the achievement of harmonious integration of agricultural research, management and coordination (Maoz, n/d, p. 16).

Whatever it is the focus on ERA-NETs methods, activities or outputs, the literature just mentioned has had the purpose to provide advice to the EU configurations that surround and configure them. From that point of view, studies touching ERA-NETs have tried to present, sort of say "states of the situation" regarding the things their activities, with the aim of enriching discussions of how they should look like in the future. The same happens with those studies dealing with the broader institutional configurations into which those instruments (the studies of the subheading 2.3.1). In a certain way (except for Haegeman), their audiences (explicit or implicit ones), are the European Union related institutions. In that sense, aspects of those studies that can be approached through the SPI framework and co-production lenses, are the interests and motivations of the forest research sectors of the different countries participating in Sumforest, and how they link/interface with the EU Innovation Policy interests or orientations embedded in that ERA-NET. It could be also possible to do an own evaluation of Sumforest as many of the papers mentioned did.

However, as it comes to do research that fills research gaps, it won´t be that much fruitful to do an evaluation of Sumforest communication processes, Joint Calls or foresight methods; as those endeavors have been already widely studied, don´t sufficiently relate to STS considerations, and have been configured to satisfy EU evaluation goals. Rather, it will be more interesting to study the Sumforest ERA-NET as a space where interests of persons, groups, and institutions

associated with research and political motivations included into the EU Innovation Policy framework, but also beyond and different from them, collide and are expressed. In other terms, to study how the linkage(s) that exist between forest research and forest related policies in the Sumforest context, are perceived to be strengthening there. This means not solely understanding how the interactions between forest research sectors and EU innovation policies are embedded in Sumforest; but rather to capture what are other prominent forest research – research/innovation policy "betweens" that exist there, and the conceptualizations on how they should be strengthening in effective ways.

Together with this, it is important to capture how scientific inputs could be incorporated into policy agendas (as those scientific inputs are multiple and variable in an ERA-NET), and how that incorporation process is understood in general terms. Borrowing one of the CRELE criteria (that will be explained later), it can be useful to take the criterium of relevance and understand how the inclusion of relevant knowledge is understood in the Sumforest framework. Understandings about that problem could provide conclusions on what is the role of Sumforest in science-policy linking processes, and how that role *could be* evaluated or assessed as suggested by different sources.

To operationalize these reflections more concretely, lets now jump into a description of the case study, where a clearer picture on how those dynamics are expressed in Sumforest, might start to be drawn.

Chapter 3
Case description

3.1 Sumforest general description and basis

Sumforest is so far, the third ERA-NET specifically related to forest topics. As it started to be formulated before 2014, it was sponsored by the European Framework Programme 7 (FP7), under the grant agreement no 606803. Now, however, it is encompassed into Horizon 2020, and more particularly, into the 'Societal Challenge 2': 'Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bio-economy'[11]. As such, it is also framed into four policy areas 'Research and Innovation'; 'Agriculture'; 'Fisheries and Maritime affairs'; and 'Food Safety'.

This ERA-NET is coordinated by the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW); but a key actor of it, and the vice coordinator is the 'European Forest Institute' (EFI). Besides them, it includes 11 more institutions, or partners, who in general are ministries or research institutions who count with public funding. Each of them have to manage specific activities of the ERA-NET, encompassed into the next seven 'Work Packages' (from now, WPs). Those Work Packages have tasks that which I will now sketch.

3.2 Sumforest Orientations

According to the presentation of the project, Sumforest is inscribed into the context of "Global Change", which poses "New challenges for multifunctional demands on European forest resources and their Sustainable Management"[12]. In that sense, the need to create an initiative as Sumforest is framed in terms of the "non-existence of a common forest policy, which is still fragmented, complex and sometimes contradictory"; as well as in terms of the "wide diversity of ecosystems, three species, different goods and services", which makes necessary to "increase the understanding of regional differences". The combination of those two dimensions is considered as the achievement of a "Mutual understanding of sustainable forest management and multifunctional forestry, which constitutes solid basis for policy decisions".

[11] Horizon 2020. The UF Framework Programme for Research and Innovation. What is Horizon 2020? *Official site of the European Commission.* Retrieved from: https://ec.europa.eu/programmes/horizon2020/en/h2020-sections

[12] CORDIS: Community research and development information system. Sumforest: Tackling the challenges in sustainable and multifunctional forestry through enhanced research coordination for policy decisions. *Official site of the European Commission.* Retrieved from: http://cordis.europa.eu/project/rcn/111483_en.html

In relation with the broader framework into which Sumforest is inserted, it will try to "Deepen the mutual understanding of sustainable forest management and multifunctional forestry, providing a scientific basis for policy decisions in the framework of the Europe 2020 Strategy, and for the new EU Forestry Strategy" and to "Improve coordination and integration of national research activities". Yet, referring to more internal related aims, the major task of the Sumforest is expressed in the ERA-NET's slogan: "Tackling the Challenges in sustainable and multifunctional forestry through enhanced research coordination for policy decisions". More narrow aims are:[13]

- Coordinating European, national, and regional research programmes and priorities
- Connecting research institutions and centers of excellence
- Creating joint research facilities and pan-European networks of large scale research Infrastructure
- Launching joint calls
- *Strengthening science – policy – practice interaction*
- Fostering innovation

In addition, its expected impacts are:[14]

- Improved coordination of national as well as EU relevant research
- Critical mass and better use of limited resources
- New knowledge generation and innovation based on transnational research cooperation
- Long term contribution to structuring the ERA
- A more coherent forest related policy framework
- Internationalizing European forest research

3.3 Sumforest Partners and Actors

The Sumforest Consortium consists of 23 partners; 3 associated states; 2 international institutions and 10 observers. Additionally, it also tries to establish close relations with other relevant initiatives. Some of the most relevant of them are the ERA-NET Foresterra, the Standing Committee on Agricultural Research (SCAR) group on Forestry, the Wood Wisdom ERA-NET+, or the JPI FACCE (explanations about this groups in further chapters). However, as listed in the

[13] Annabelle Amm, Jean-Luc Peyron – GIP ECOFOR. "ERA-NET SUMFOREST Tackling the Challenges in the Implementation of Sustainable and Multifunctional Forestry through enhanced Research Coordination for Policy Decisions" January 2014 – December 2017: http://www.efiatlantic.efi.int/files/images/efiatlantic/events/6_sumforest_efi_atlantic_amm.pdf

[14] Newsletter ERA-NET Sumforest. ERA-NET Sumforest, July 2014. https://www.sumforest.org/wp-content/uploads/2014/07/Sumforest_Newletter_July_2014.pdf

web page, they are twenty of them in total.[15] It also establish connections with other forest owner and industry associations and COST actions.[16]

An important partner of Sumforest, due to its position in the European context as a whole, is the ―European Forest Institute (further referred as ―EFI")[17]. This is the most important organizational body at the moment of coordinating forest research and forest policy in Europe. It was established under the 1992 United Nations Conference on Environment and Development, and under the 1993 Finnish Law (as it has its headquarters in Joensuu, Finland). The main goals of the organization are to:

- ✓ Provide science based knowledge to decision makers;
- ✓ Offer foresight and identify emerging policy relevant information needs;
- ✓ Improve the understanding of policy makers on strategic and cross-sector forest policy issues based on scientific knowledge; and
- ✓ Enhance science-policy dialogue.

The last of these four goals is carried out by an institute´s unit, called 'Think Forest'[18]. Now, the goals of EFI are carried out in relation to two thematic programmes: 'Sustainability and Climate Change' and 'Forest for Society'. Research is done by collaboration of the 115 Associate Member organizations distributed on 36 European associated countries; as well as by six regional offices, one of which, the ―Central-East and South East European Regional Office of the European Forest Institute (EFICEEC-EFISEE), has its offices in Vienna[19].

Now, a better comprehension of the Sumforest orientations, partners and activities could be seen in its seven Work Packages, each of them counting with tasks, and managed by some of the afore mentioned partners. The documents produced by those Work Packages represent the core information of the ERA-NET, and they contain information of a wide set of problems. Now, that information is not always related to the research problems placed here, so that is why it was necessary to choose only some of them for the analysis. The criteria to decide on which of them are the most suitable ones for the analysis was applied after a first reading of them, intended to identify how abundant were the references about the relevance of Sumforest work for policy decisions. At the same time, the first interview, made to the ERA-NET coordinator, was valuable to have a clearer picture on what are the documents containing more valuable information to

[15] "Sumforest Links". Retrieved on January 15, 2017, from: https://www.sumforest.org/links/
[16] Sumforest, Tackling the Challenges of Multifunctional Forestry through enhanced research coordination for policy decisions. *Information Flyer*. Retrieved from: https://www.sumforest.org/wp-content/uploads/2014/03/sumforest-flyer.pdf
[17] European Forest Institute. http://www.efi.int/portal/home/
[18] European Forest Institute. Think Forest http://www.efi.int/portal/policy_advice/thinkforest/
[19] Central East and South-East Office of the European Forest Institute (EFICEEC). http://www.eficeec.efi.int/portal/

answer the research questions. A more precise description of the documents which will be described in the 'Materials of Analysis' chapter.

Chapter 4
Research Questions

As one of the stated Sumforest aim is to strengthen the science-policy-practice interactions, it is valid to understand it considering the science-policy interface framework. My intention is to focus on that specific Sumforest aim. Of course, it won´t be here analyzed if that aim is accomplished or not. Rather, the central idea is that Sumforest has a role to play in strengthening the cooperation between scientific and policy communities in the field of forests. Consequently, the derivate question is how the ERA-NET is intended connect decision making objectives with research ones. In more concrete terms:

'How is the bridging process between forest research and policy oriented communities addressed in the Sumforest ERA-NET framework?'

Connecting forest research with policy communities' goals and orientations is thus understood as a 'bridging process', a term that, at the same time, is conceptualized more according to the sensitizing concepts exposed in the next section. At the same time, talking about forest research communities means embracing the general notion of European forest research as an entity of inquiry. Since some Sumforest documents (see materials section) effectively work with that notion, it is possible to consider forest research communities in that broad understanding. On the other hand, when talking about policy communities, the focus goes to the institutions intended to implement decision making activities in the short, middle, or long term. The starting point is that communities considered in the Sumforest framework are not necessarily forest policy communities, but also those ones that could be influenced by outputs of forest research (for example, innovation, energy or climate change policy communities).

Now, coming back to the State of the Art, it was shown that ERA-NETs analyzes have almost always tried to produce recommendations for the European Union on how to evaluate them, either regarding their coordination methods, their outputs (Joint Calls, Foresight Exercises, etc.), or their monitoring methods. At the same time, it was also shown that studies regarding transnational research coordination (what ERA-NETs primarily do), have framed those coordination processes as a matter of complementarity between EU and Member Countries innovation policies dealing with the preparation of transnational research programs and orientations. These two findings clearly show that the EU is the most prominent audience to which ERA-NETs should direct their research prioritization outcomes to. However, a point of departure, or maybe a hypothesis for this thesis, is that ERA-NETs, and specifically Sumforest, embed interests of another political

audiences besides the ones of the EU, interests that should be considered if ones wants to do a complete analysis on what research-policy links are *contained in* this ERA-NET. In that sense, an important task is to determine who they are and what are the gaps between them and the forest research landscape. Thus, an important sub-question is:

- ✓ What are the most important policy addressees of Sumforest work, and what are the gaps between forest research communities and them?

This first sub question should start by looking at the actors explicit in Sumforest documents statements, while also the implicit ones and the perceived in the opinion of Sumforest related actors. When answering this question, important conclusions could be made about who are the most prominent addressees in the national, the regional and the European scale. In that sense, to make a more precise analysis, it could be useful to put examples of the Austrian case and other countries participating in Sumforest.

Now, the notion that Sumforest work is addressing certain policy addressees, brings the concomitant idea that those outputs should be incorporated in those "someones" agendas. Sumforest has embedded some notions on how could help it incorporate those outputs. Such notions could be contained in the persons that participated in Sumforest, or in some of the documents produced by the Sumforest activities. In any case, it is valid to ask:

- ✓ How does Sumforest contribute to bridge the gaps between forest research and policy communities in the national and the regional scales?

It is not the aim here to judge if Sumforest is actually bridging those gaps. Rather, the aim is just to understand how the ERA-NET is supposed to bridge them, and how it might contribute to do that in the eyes of related actors. At the same, it is necessary to be aware of at the multiple, and possible conflicting roles attributed to the ERA-NET. It is also important to make distinctions between the perceived roles and the concrete ones, those explicitly stated in documents and exercises. What's more, one has to be aware about the how those roles might vary for the policy related addressees, and in different time frames.

Finally, another point of departure is that implicated and surrounding actors having a stake or participation in Sumforest, might have certain notions about how to evaluate its work (formally or informally). While some of those actors are not formally evaluating the ERA-NET, it is nevertheless valid to understand what might be their rationales to do so. Regarding this, the focus will concentrate on how they might evaluate the process of incorporation of relevant research work for policy decisions (leaving aside other possible evaluation criteria for Sumforest). In the State of the Art, it was mentioned that understandings of relevance were present in the CRELE framework. Thus, as Sumforest can be conceived as an instrument of research

prioritization for policy decisions, the most applicable CRELE criteria is the one of relevance of research (political relevance). Thus, the concomitant question is:

- ✓ How does the effectiveness of the Sumforest work could be understood, in terms of the incorporation relevant knowledge for policy decisions?

My intention with this question is then to understand how that notion of effectiveness is enacted in Sumforest documents and in persons participating in the ERA-NET. This mean leaving aside enactments and opinions present in materials and persons external to that framework; which is a limitation of this project since external actors are the often the ones doing a formal evaluation work. However, having the perspective of the participants it is also valuable, since they might have clues on what criteria could be followed to understand Sumforest outputs and quality according to how were they performed and produced

As a summary, there are many different questions that arise when conceptualizing Sumforest as case study to address transnational science-policy dynamics. Some of these questions include analytical angles that might be hard to tackle at a first glance. The next chapter, precisely, is destined to synthetize, problematize and canalize those approaches through a coherent conceptual framework.

Chapter 5
Theories and sensitizing concepts

To understand the cooperation between scientific and policy making institutions embedded in the Sumforest ERA-NET, I consider the frameworks of science-policy interfaces (SPI's), Boundary Organizations and co-production as appropriate ones. While the first one helps to understand the nature of our object of study (that is, 'ERA-NETs as SPIs'); the second one is suitable as a tool to make sense of how expert and policy oriented communities influence each other's. Both frameworks contain important dimensions and concepts to contextualize further observations.

5.1 Co-production

When talking the study of how scientific and political communities interact, it is possible to adopt a focus related to the existent or perceived connections they try to establish. This focus is mostly related to the theoretical framework of co-production. Shelia Jasanoff, in the field of STS, has been the researcher that has mostly developed that framework. Co-production, as it can be noted in the book 'States of Knowledge', is a concept that emerged from a revision of many studies referred to the relations between science, technology and society. The primary intention of Jasanoff and the authors, one can say, was to develop concepts and categories aimed to 'fill the void' that existed in explanations regarding how the realms of nature and society are linked (Jasanoff, 2004, p. 28). As an outcome of this endeavor, co-production appeared as an 'idiom', intended to provide more insightful views on that relation.

Employing this idiom to frame and contextualize the literature dealing with science and technology studies, a division appeared on whether those studies follow two different traditions about co-production: the constitutive and the interactional, which differ in the focus of their analysis. Authors related to the Actor – Network Theory like Latour, Law, Andersson and Scott are placed as indirectly following the first tradition, according to whom, in general terms, the division between human and non-human, or natural and social, are results of the stabilization of networks arrangements (Jasanoff, 2004, p. 28). On the other hand, other authors are pointed out as more related to the interactional tradition, like Shapin Schaffer and Collins (1985), Gieryn (1999), David Noble (1984), Guston (2001), Winner (1986), and Haraway (1989 – 1997).

These two traditions differ in their focuses. In words of Jasanoff: "If constitutive analysis focuses in the emergence of new facts, things and systems of thought, then the interactional strain concerns itself more with knowledge conflicts within worlds that have already been demarcated, for practical purposes, into the natural and the social" (Jasanoff, 2004, p. 37). This means, one can say, that constitutive accounts try to understand how certain entities acquire their status of reality as part of the natural or the social order; while the interactionist on knowledge discussions

between entities that were already been classified, discussion into which that sort of science-society distinctions are confronted.

For the analysis proposed in this thesis, the *interactional tradition* is the most suitable one. Paraphrasing Jasanoff, in the case of the constitute tradition, what is at discussion are philosophical ideas about regarding "what does it mean to be natural or social, human or non-human; but in the interactional tradition those distinctions have already been pragmatically established and the problem is to understand how are they reorganized (Jasanoff, 2004, p. 36-37). My work will be devoted on understanding the dynamics of an ERA-NET that has already an established idea on the main differences, and similarities, between scientific and political activities, which of course are linked. This idea is expressed in the differentiated diagnosis it gives about the situation of forest research and forest policy in Europe; and in the description about the goals it does in the web page. In my interpretation of the institution's aims, such exercises are designed to produce certain "infrastructures" able to hold and to develop scientific and policy related activities over time.

The operationalization of the interactional tradition, however, is not a straightforward matter, and to be disaggregated to match with the object of analysis of this work. In this regard, the empirical field here chosen, and the institutional configurations embedded there, are mostly dealing with processes of bringing science and policy processes together. In a more concrete sense, it tries to prioritize scientific inputs for policy decisions. As explained in previous chapters, ERA-NETs are arrangements that try discerning what research is being done in a transnational context, to coordinate it and, in some cases (as it happens in Sumforest), think on better ways to integrate it for policy decisions. This process can be understood as one dealing with what research is more appropriate for being considered in policy institutions, which according to Jasanoff, is a problem that can be framed as topic of co-production. As she says referring to the interactional tradition:

> "In this view of co-production, human beings seeking to ascertain facts about the natural world are confronted, necessarily and perpetually, by problems of social authority and credibility. Whose testimony should be trusted, and on what basis, become central issues for people seeking reliable information about the state of a world in which all the relevant facts can never be at any single person's fingertips" (Jasanoff, 2004, p. 56)

In this line of thought, discussion on what knowledge is deemed to be prioritized by science deals with the topic on how much objective and reliable it is:

> Objectivity is understood and institutionally embedded in a given political system have enormous implications for the sponsorship of science by the state: it influences the kinds of work that are deemed appropriate for public funding (…) as well as the organization of scientific research (…) In turn, concepts of objectivity and reliability affect the uptake of science and technology by state institutions: how the results of research are construed in public domains (for example, as persuasive, biased, irrelevant or inconclusive); how they are factored into the framing and "solution" of public problems; how new technical discourses are constructed to legitimate policy; and so forth (Jasanoff, 2004, pp. 64 - 65)

Of course, objectivity and reliability are not the only aspects to be considered when deciding how scientific input should be addressed to improve policy making work. The dimensions of relevance and legitimacy should also be contemplated (scientific work can be considered as credible, but not necessarily relevant and legitimately constructed). In that sense, the co-production framework matches with the present problem of analysis in the sense that it calls to understand how notions such as objectivity, while also relevance and legitimacy in the structuration of knowledge for policy decisions, are co-produced between research and policy communities. In other terms, what is being co-produced here (could be said), are criteria to evaluate or judge the appropriateness of a certain knowledge for policy decisions. A theoretical starting point could be stated that knowledge in SPIs, as well as criteria to evaluate its quality, are instances co-produced by scientific and policy oriented organizations. This is a kind of information, a *knowledge* produced by the ERA-NET as programmatic action, which counts whit: "with experts and users 'co-producing' a shared body of usable knowledge" (Mitchell et al. 2004, p. 109).

Now, in my interpretation of Sumforest, this is an ERA-NET that creates recommendations to build "infrastructures" able to hold and to develop scientific and policy related activities over time. Those infrastructures could be assumed to be four ordering instruments that Jasanoff talks about: *making identities; making institutions; making discourses; and making representations*. Although in different degrees, it is valid to say that some of those four ordering instruments are present in the Sumforest framework. For this thesis, the accent will only be put on the 'representations' of how work between forest research should contribute to achieve policy goals and how policy actors could influence forest research.

It is important to say that, in my interpretation, Sumforest is not only co-producing something in the discussions and exercises it designs, but also trying to create the conditions, guidelines or recommendations for further co-production in the future. Therefore, my aim is not only to understand how information for policy decisions is co-produced in Sumforest, but also what understandings of co – production between forest research and policy communities are embedded in that process. In a certain way, the research field sketched in the following section is a "co-production infrastructure" which triggers these processes. This aim of "co-producing" co-production can also be considered as one of themes of this framework, particularly that one referred to how science cultures are organized into wider contexts, which is mentioned by Jasanoff.

> We observed as well in Chapter 1 that work in the co-productionist idiom has tended to cluster around four recurrent themes. These are the emergence and stabilization of new techno scientific objects and framings, the staple concern of constitutive co-production; and, on the interactional side, the resolution of scientific and technical controversies**; the processes by which the products of techno science are made intelligible and portable across boundaries; and the adjustment of science's cultural practices in response to the contexts in which science is done**. (Jasanoff, 2004, p. 72)

Now, in the case of ERA-NETs, 'science's cultural practices' are understood as the patterns of research coordination between research institutions and programs. On the other hand, talking about 'contexts in which science is done', means referring to national, regional and European institutional arrangements that make possible and re orient those coordination patterns. Thus, an analysis about ERA-NETs as a co-production matter, requires understanding how the coordination of research activities for policy decisions, (considering it as a set of research cultural practices), is co-produced into a context or institutional regime.

From the co-production framework, the hypotheses here made is that Sumforest has an incidence on how the forest research landscape in Europe works and performs, and how policy oriented communities do. *The aim of the thesis is precisely to understand in what sense Sumforest might do that*. This carries the assumption than arrangements like ERA-NETs could be assumed to have this kind of, let's say, "co-production agenda" which can be studied considering some of the theoretical lines mentioned early. For instance, the notion of '*co-productive capacities*' (Van Kerkhoff and Lebel, 2015; Wyborn, 2015) mentioned earlier in the state of the art section, is going to be used for the thesis.

Co-productive capacities are understood here as "the combination of scientific resources and governance capability that shapes the extent to which a society, at various levels, can operationalize relationships between scientific and public, private, and civil society institutions and actors to effect scientifically-informed social change" (Van Kerkhoff and Lebel, 2015, p. 2). This concept embeds the notion of capacity as one "concerned specifically with capacities to create, access, interpret, and apply scientific and research-based knowledge; and capacities to combine science with existing, localized knowledge, practices, and governance to effect change" (Van Kerkhoff and Lebel, 2015, p. 2). In other terms, is hypothesized here that the Sumforest ERA-NET is a space where research based knowledge and capacities are meant to be combined with policy related ones to produce tackle certain challenges (challenges referred to 'Sustainable and Multifunctional forestry', as the Sumforest motto states). The challenge is to investigate in what degree, and it what ways it might effectively do that.

It is important to say that it is not going to be evaluated whether Sumforest structure co-productive capacities in good ways. Rather, the aim is just to have a picture on how this ERA-NET is perceived to combine research and policy capacities in better ways, and how this problem is addressed there.

5.2 Science-policy Interfaces

The concept of science – policy interfaces has been widely related to others like 'Boundary Organizations' (which will be important for the next sub-heading), and it is a good framework to study bridging processes between research and policy from an STS perspective. The definition of them was done by Koetz, Farrell and Bridgewater (2011), who defines science - policy interfaces (SPI´s), as ―institutional arrangements that reflect cognitive models and provide normative structures, rights, rules and procedures that define and enable the social practice of linking scientific and policymaking processes (Koetz, Farrell and Bridgewater, 2011, p. 2). Similarly, Van den Hove (2007) conceives them as "Social processes which encompasses relations between scientists and other actors in the policy process, which allow for exchanges, co-evolution, and joint construction of knowledge with the aim of enriching decision making" (Van den Hove, 2007: p. 8). Thirdly, there is also a definition that conceive them as "a socially constructed and negotiated 'boundary' between two social groups; the scientific and policy communities" (Bremer & Glavociv, 2013, p.45).

Now, According to Van den Hove, for studying the SPI's it is first important to conceptualize which are the main *domains of intersection* between science and policy. Something was already said in the State of the Art section regarding those intersections, but in this point, it is important to explain how they can be suited for the analytical purposes of this thesis.

In the paper consulted, Van den Hove created a table distinguishing between 4 '*Aspects of Science'* (outputs, processes, actors and contexts), which derive in 14 '*Domains of Intersection between science and policy*'. Later, she also explains 11 '*Theoretical problems of the science policy interfaces*' (encompassed in the 4 aspects of science), which derive in 15 '*Normative requirements/challenges for the science policy interfaces*'. For a better understanding of this, the complete tables can be consulted in the paper (Van den Hove, 2007, pp. 7, 15). Here it is not worthwhile to include these two tables, but rather just consider which of the elements contained there are more pertinent for the analytical object here presented.

The analytical object of this thesis, as mentioned before, is the Sumforest ERA-NET.

To study 'Sumforest as a Science Policy Interface' it could be important to adopt two approaches: first, focusing on the activities displayed into the framework of the Sumforest as a project; that is, those interactions coordinated by the Sumforest staff and partners in order get short-term results (more on this in the materials for analysis section). These activities, as it is going to be explained afterwards, include and embed multiple interactions between researchers, stakeholders and policy makers. Second, one can focus on the objectives of Sumforest, which are main supposed to tackle and solve some challenges in Sustainable Forest Management (from now SFM). These outputs could be also perceived ones.

It is thus important to make always the distinction on whether the Sumforest activities or the Sumforest objectives are being analyzed. From a theoretical point of view, this distinction is grounded in the conceptualizations by Sarkki et.al (2015). This author defines SPI's as:

> "…organizations, initiatives or projects that work at the boundary of science, policy and society to enrich decision making, shape their participants' and audiences' understandings of problems, and so produce outcomes regarding decisions and behaviors. We define outcomes as the impacts produced by SPIs on science, policy and on the actors within and beyond the SPI" (Sarkki, et. al. 2015, pp. 505-506)

As we can see, the focus of Sarkki is mostly related to the outcomes of the science – policy interfaces. Analyzing them is considered as something important in terms of understanding whether SPI's are successful, and one can say that successfulness is perceived by participants and external audiences. However, to understand if those outcomes have been produced efficiently, it is important to address SPI's according to other categories that participate in their creation. Thus, Sarkki sketches four categories to examine SPI's (Sarkki, 2015, p. 507).

- ✓ *SPI structures* as the institutional arrangements that have been set up and developed to achieve the objectives or functions of an SPI.
- ✓ *SPI objectives and functions* as the stated aims of the SPI, and in some cases also 'realized' functions that depart from the stated objectives. Objectives provide basis and scope for SPIs to influence selected target audiences.
- ✓ *SPI processes* as the actions and interactions through which SPIs produce outputs and endeavor to influence behavior.
- ✓ *SPI outputs* as the specific products developed through the processes, including reports, recommendations, meetings, scenarios, indicators, databases, websites, press releases, and so on.

Considering this categorization, *I understand the Sumforest activities as the processes through which it produces certain outputs* (point three and four of Sarkki); and *the Sumforest objectives or functions as the stated or realized aims of Sumforest* (point two of Sarkki). This categorization to will guide my analysis in the sense that I will analyze things that Sumforest did and produced; as well as in the things that Sumforest is perceived to do with them outside its boundaries. Of course, I will also describe the structures into which Sumforest was born.

Here, it is possible to see that the categorization of Sarkki seems to be quite relatable to the categorization of Van den Hove (outputs, processes, actors and contexts). However, one of the most important features of the conceptualizations of Sarkki these topics, is his distinction between the knowledge produced in the interface, and the operations of the interface. When it comes to an assessment of the interface quality, most of the studies have touched on the aspect of the knowledge produced and circulating into the interfaces. In the case of Van den Hove, for instance, outputs, processes, actors and contexts are considered as 'aspects of science', and not as

'aspects of the SPI's'. In contrast, the perception of Sarkki is more oriented towards an understanding of the mechanisms by which the interface itself operates. "Our hypothesis is that SPI performance can be better assessed and improved by focusing on CRELE of the SPI and its processes and operations, rather than by focusing on the CRELE of knowledge itself" (Sarkki, 2015, p. 506). This orientation matches with this thesis since it won´t to analyze statements about SFM, but rather how those statements are addressed and employed to conceptualize forest research – policy relations.

In this point, it is valid to ask: could be Sumforest understood as one single interface, or are there main interfaces contained there? If there are many, what kind of SPI's does Sumforest include? (related to the first and second sub-questions) What kind of criteria to judge the effectiveness of those SPI's could be found in this ERA NET? (third sub question). What elements of the ERA-NET should be analyzed to understand that criteria?

In this regard, I will start with the hypothesis that Sumforest contains many interfaces. In other terms, there are an explicit or implicit cooperation(s) between research and policy embedded in Sumforest; as such, certain principles on whether and how that cooperation should be performed in good ways are enacted in Sumforest documents and by Sumforest participants. It is precisely an aim of this thesis to understand which they are and how their effectiveness might be understood (sub questions 2 and 3).

To tackle this task, appropriate conceptualizations might be the ones of Heink (2015). Understanding interfaces effectiveness according to this author will depend on "the properties of the information being imparted, the process by which this information is conveyed and the personal disposition and perception by the recipients" (Heink, 2015, p. 679). This distinction is nevertheless useful to establish more narrow views on what aspects to consider when dealing with Sumforest objectives and outputs. More particularly, the task to understand how the quality of Sumforest could be judged, should start with a comprehension of those actors whose judgement counts (Heink, 2015, p. 682), which relates to the aspect of the disposition of the recipients, and the processes by which information is conveyed. In that sense, for the case of the study of the Sumforest ERA-NET, it is needed to distinguish who are the actors who could evaluate it from an external point of view, and the ones who are doing it from an internal point of view (the participants). In other words, it is important to distinguish what position is being considered when making reflections about Sumforest quality in a science – policy bridging process, whether is the perspective of persons external to the Sumforest or those ones involved in it.

At the same time, there are many factors which change who those actors are: the relation of the SPI to the potential users of results; the different stages of knowledge processing in SPI's; the type of knowledge at issue; and the certainty of knowledge and agreement on values (Heink et al. 2015, p. 682 - 683). For instance, in the case of the potential users, it is noted that they have more influence when a SPI is producing a "*demand-driven*" knowledge than in than a "*supply-*

driven" knowledge (Sarkki, 2014). In both cases, what should be done is to understand the judgements of those to whom the SPI is accountable for, or else those judgements of the participants in the interface.

Together with these reflections regarding the actors who are supposed to evaluate the SPI, Heink also insist in considering how the evaluation changes in different contexts and rationales. Such rationales are the ones who determine "how knowledge is considered to best support decision making" (Heink, et al. 2015, p. 683). According to a categorization he included in his reflections, there are three rationales for public participation in environmental policy and governance: *instrumental, substantive, and normative*. Heink doesn´t establish standardized definitions about these three rationales, so they I will paraphrase them now.

- ✓ In the *instrumental rationale*, knowledge is used only to make the application of policy decisions more viable. A decision has mostly been accorded and knowledge is mostly required to convince or get consent about its implementation.

- ✓ On the other hand, *the substantive rationale* aims at acquiring knowledge that adds quality to the criteria used to decide on something, for example, when scientists are consulted on sustainability options for the environmental quality of a technological option.

- ✓ Finally, following the *normative rationale*, knowledge from scientists and other stake holders are meant to be considered due to the fulfillment of participation and democratic principles: the consideration of their opinions is itself important, and the SPI is effective when many sorts of concerns are considered (Heink, et al. 2015, p. 683).

In summary, the analysis about the interfaces contained in Sumforest will focus on understanding how the information that pertain to them might be conveyed by certain audiences, and of course what the dispositions of those audiences are. Following, reflections will be made on how those audiences may evaluate (formally or informally) that information and the accomplishment of the objectives into which they are inscribed. Ideas should then be structured on how that evaluation goes more in accordance with an instrumental, substantive or normative rationale.

In this point, it is convenient to say again that the central point of analysis here is not the information produced in Sumforest itself, but rather how it is presented (in documents) and perceived (by Sumforest related actors) as an outcome to improve the effectiveness of those interfaces enacted in the ERA-NET. Questions then may arise, like how Sumforest outcomes may transform into inputs for policy audiences? How those inputs might be different in relation to the national or the European scale policy audiences? What are the time frames into which the effects of those inputs might become visible and how they vary? Who might monitor their

accomplishment? What criteria to evaluate interfaces between forest research and policy communities does Sumforest make possible to think of and what are left behind?

Now, a further important question in all of this would be: what do I mean when I say "effectiveness" of the interface. Although effectiveness is something to be conceptualized precisely by the data for analysis, which are Sumforest documents and interview transcripts, it is appropriate to have a previous conceptual basis of what effectiveness would mean as an approach to speak to the data. Into the SPI's framework, it was already mentioned that the concept of effectiveness has been conceptualized in line with three criteria first developed by Cash (2003), which are *relevance, credibility* and *legitimacy*. When Cash started to develop these concepts the idea of the SPI was not fully developed, so he related the CRELE criteria to what he called as Knowledge Systems, and how could they mobilize the information the produce in better ways. It was portrayed in the following way:

> Our second point of departure is based on evaluations of scientific advice in general and environmental assessments. It suggests that scientific information is likely to be effective in influencing the evolution of social responses to public issues to the extent that the information is perceived by relevant stakeholders to be not only credible, but also salient and legitimate. In the sense used here, credibility involves the scientific adequacy of the technical evidence and arguments. Salience deals with the relevance of the assessment to the needs of decision makers. Legitimacy reflects the perception that the production of information and technology has been respectful of stakeholders' divergent values and beliefs, unbiased in its conduct, and fair in its treatment of opposing views and interests (Cash, 2003, p. 8086).

As mentioned in the State of the Art section, analysts have employed the criteria of credibility, relevance and legitimacy to analyze the SPI's (Sarkki, 2014; Koetz, Farrell and Bridgewater, 2011; Heink, 2015) and science policy interactions more in general (Van Kerkhoff and Lebel, 2015; Lemos and Morehouse, 2005). Although all these three criteria are important, *effectiveness of the interface is only going to be analyzed in terms of the relevance of research coordination and research coordination outputs for policy audiences.* In other words, I will only question how Sumforest documents and Sumforest related persons understand the effectiveness of the interfaces in terms of setting notions on what research is more relevant or more influencing for policy decisions, for whom, why, and in what time frames. The reason for this choice is that ERA-NETs are mainly dealing with establishing visions on how research should be networked, and what research should be funded. These functions relate to the problem of relevance, as Van de Hove points out when explaining the division between *aspects of science*, the *domains of intersection between science and policy,* and *normative requirements* mentioned by Van de Hove that (2007, pp. 7 and 15). For instance, questions could arise on how decisions on what research should be funded are driven by political considerations of relevance.

Another important topic is related to other reflections done by Sarkki (2014), who sketched 14 'Features explaining influence of SPIs on target audiences', together with their respective explanations on 'what to asses' about them (Sarkki, et.al. 2014, p. 3). From them, the

most important to be employed is 'Capacity building', and what to assess about them is explained by Sarkki as "Helping policy-makers to understand science and scientists to understand policy-makers, building capacities for further SPI work" (Sarkki, et.al 2014, p. 3). ERA-NET's activities can be understood as a matter capacity building phrased in these terms, as one of their aims is to give advice (to the EU) on how to improve research capacities through funding. Hypothetically speaking, research capacities should be increased for that kind of research that could contribute to make policy decisions more effective. That is one important relation to dig in here, but of course, it is hoped that data will provide information of what to assess according to Sumforest documents and Sumforest related actors.

5.3 Boundary Organizations, Boundary and Hybrid Management

At this point, it is important to ask, what is the role of the framework of *Boundary Organizations*? Regarding that, it is possible to say that, while the concept of the SPIs refers to the intermediary spaces between science and policy; the concept of Boundary Organizations is a concept that has studied the characteristics of the organizations or institutional arrangements that manage those intermediary spaces, and how they do so. It is valid to say, roughly speaking, that Boundary organizations manage science policy interfaces.

The concept of Boundary organizations was first employed by Guston, who refers to them as spaces where scientific and non-scientific institutions collide, mimicking certain norms and practices from each other. The main particularity of boundary organizations strives in their intermediary role in the interaction processes taken by institutions on both sides of the boundary. Boundary organizations are not managed by those institutions, nor they are dependent of their resources and practices. Rather, they provide them their own resources, and perform certain activities they couldn´t do by themselves, thus assuming an active role in the policy making process. In other words, boundary organizations hold control of certain activities that were delegated to them previously (Guston, 2001, p. 402).

This doesn't mean, however, that they remain closed or isolated. Instead, as Guston says, "the boundary organization draws its stability not from isolating itself from external political authority but precisely by being accountable and responsive to opposing, external authorities" (Guston, 2001, p. 402). The functions they perform are intended to accomplish goals of different actors in the most successful possible way. For example: To the scientific principal, it says, 'I will do your bidding by demonstrating to the politicians that you are contributing to their goals, and I will help to facilitate some research goals besides." To the consumer, who is also a principal, it says, "I will do your bidding by ensuring that researchers are contributing to the goals you have for the integrity and productivity of research (Guston, 2001, p. 405).

Together with Guston, other authors like Cash (2003), (who has explicitly studied both Boundary Organizations and SPIs), have summarized Boundary Organizations features:

> (1) they involve specialized roles within the organization for managing the boundary; (2) they have clear lines of responsibility and accountability to distinct social arenas on opposite sides of the boundary; and (3) they provide a forum in which information can be co-produced by actors from different sides of the boundary using ‘‘boundary objects’’ (Cash et.al, 2003, p. 8089).

At the same time, Miller (2001) understands boundary organizations as “Social arrangements, networks, and institutions that increasingly mediate between the institutions of science and the institutions of politics” (Miller, 2001, p. 482). In contrast to Guston, he tries to extend the concept beyond the national context into which it was born (the U.S. society); and use it to understand transnational and even global institutional scenarios with a great level of complexity.

In a more specific sense, the functions and activities of Boundary Organizations have been explained in different ways by these two last authors. For Cash, what Boundary Organizations do is what he calls ‘*Boundary Management*’. This last concept refers to the management of the boundaries between knowledge and action in “ways that simultaneously enhance the salience, credibility and legitimacy of the information they produce” (Cash, et. al, 2003, p. 8087 - 8088). At the same time, there are three functions that constitute or contribute to Boundary Management: ‘*Communication’ ‘Translation’ and ‘Mediation*’.

Cash does not provide explicit definitions of those three functions (Cash, et. al, 2003, p. 8088). Thus, I will paraphrase them as:

- ✓ *Communication*: to mobilize scientific knowledge for action
- ✓ *Translation*: to facilitate the mutual understanding between experts and decisions makers
- ✓ *Mediation*: to arbitrate in the discussions and trade-offs between actors about the saliency, credibility and legitimacy of their interactions.

For Cash, then, it is the task of Boundary Organizations to implement this function when working with expert and decision-making communities. On the other side, for Miller the most important task of Boundary Organizations is to do what he calls ‘*Hybrid Management’*. This notion derives from the concept of ‘*Hybrids*’, science/society constructs produced kinds of Environmental Governance frameworks. Better explained, Hybrids are born because of the environmental problems addressed by what he calls the ‘Climate Regime’. In his own terms, Hybrids are defined as:

> “social constructs that contain both scientific and political elements, often sufficiently intertwined to render separation a practical impossibility. They can include conceptual or material artifacts (e.g., the climate system or a nuclear power plant), techniques or practices (e.g., methods for

> attributing greenhouse gas emissions to particular countries), or organizations (e.g., the SBSTA or the Intergovernmental Panel on Climate Change)" (Miller, 2001, p. 480).

In that sense, he introduces the concept of *`Hybrid Management´* referring to those activities intended to construct, take apart, demarcate and order Hybrids. Specifically, Hybrid Management is constituted by four elements. As Miller doesn't define explicitly those elements, I will paraphrase them here.

- ✓ *Hybridization*: accommodating scientific and political judgements for the creation of standards, procedures or tools (e.g. of Miller: standards to measure carbon emissions).
- ✓ *Deconstruction*: unpacking value-laden assumptions embedded in the hybrids when presenting them to interested audiences.
- ✓ *Boundary demarcation*: creating boundaries and jurisdictions between interacting organizations to establish authority and responsibilities.
- ✓ *Cross domain orchestration*: creating links between interacting institutions and activities of their common concern.

As I said, the main task of Boundary organizations is to make Hybrid Management; which means, precisely, displaying these four elements in an institutional configuration. Thus, considering Miller's and Cash's conceptualizations, it is possible to reflect on the similarities and differences between the functions of 'Sumforest, and those from boundary organizations. In other words, *on whether and how Sumforest plays an intermediary role between science and policy institutions in a similar way than Boundary Organizations do*. The starting hypothesis here is that Sustainable Forest Management (SFM) could be understood as a '*Hybrid*', because it combines orientations of scientific and policy making communities: it is about forest research but also about forest management. Miller's four elements could be thus represented in the Sumforest Work packages. Of course, this is a very synthetized way of seeing the process, but it is precisely the aim here to understand that processes and how are they expressed in the activities described in the Work Packages. The purpose, theoretically speaking, would be to analyze what similarities and what differences have they with Hybrid Management practices.

For doing this, it is worth saying that it doesn't matter if ERA-NETs are not 'organizations' strictly speaking, as far as they meet certain similar or related functions, or contain smaller institutions that could be understood as such. As Cash says referring to his objects of study:

> Our work also emphasizes that such organizations need be neither formal nor unique. It is the performance of boundary management functions that matters. We found that many effective knowledge systems are characterized by multiple boundary organizations, or multiple organizations that perform specific functions in managing boundaries of complex systems. (Cash, 2003, p. 8090).

Thus, even in the case that the Sumforest ERA-NET present differences with the Boundary Organizations characteristics, it can be studied in line with that concept. Which functions science – policy functions of Sumforest are like the ones of Boundary Organizations and which are different? By focusing on these functions to understand 'Sumforest as a Boundary Organization', my intention is to get reflections around the Boundary Organizations theory by contrasting it with an empirical case. Empirically speaking, the aim will be to reflect on how ERA-NETs could contribute to create specific kinds of cooperation between research institutions of different countries and political orientations of nations or the continent, and how it does so.

Chapter 6

Material and Methodological considerations

6.1 Methods of data collection

For the analysis of the problems previously described, the chosen materials were Sumforest documents and interview transcripts. Before explaining the methods for collecting and analyzing the material, an explanation is going to be done on which were the documents and interview partners chosen, which of course should include an explanation on the reasons for those elections.

Documents

First, the documents mentioned bellow have important information about how ideas of how bridging processes between forest research organizations and policy related communities are enacted in Sumforest. However, due to the extension of them, only some of their sections were studied deeply with the methods of data analysis mentioned bellow. What's more, those sections were the ones which are relevant to answer the research questions. There are aspects that could be studied in relation to all the documents, while there are others which were more particular one or another of them. What follows is a description of those documents and what information they provided to solve them.

Work Package 3 – Document 3.1: European Forest Related Policies – A cross-sectoral review

The document presents an analysis of the European Policies which have an influence in the utilization of forests. It tries to identify the key forest aspects that those group of policies are touching on. In other terms, this document aims to realize how the employment and management of forest resources is understood in them, in order to have a clearer perspective of the 'forest related policy' framework. The result is an overview of the group of sectoral policies which have forest management implications inserted.

At the same time, the analysis of the policies is followed by a discussion of the main problems faced for the structuration of clear forest policy orientations in the European level. In that sense, it was a valuable text to increase the comprehension of the possible political addressees and drivers of forest research in the continent. This comprehension had a crucial role in the study of science-policy interfaces placed here, since it made possible to extract conclusions on the policy demand side orienting and influencing forest research communities work; and the gaps opened in that orienting process.

Work Package 3 - Document 3.2: Sumforest Foresight Panel and Foresight Workshop Results on Emerging Issues in European Forest-Based Sector and Research Priorities'

Provides a description of the process followed to define what are the issues in European Forest-Based Sector with high policy relevance in the opinion of researchers, stake-holders and ministry servants. Summarily, that process consisted in the nomination of experts (forest researchers) to be consulted. Then, they received a first questioner asking them to define those issues (a first questionnaire). After that, the resulting 63 issues were grouped in the ten most important ones by members of the European Forest Institute (EFI), who then sent those ten issues to the previously nominated experts asking them to prioritize the 5 most important ones (a second questionnaire). Finally, the results of that second consultation process were discussed in a Foresight Workshop which consisted of Sumforest partners (mainly, forest related ministry civil servants and representatives of national research funding agencies).

Before the explanation of that process, the document provides an introduction which states the purpose of the foresight panel and the foresight workshop, stating the relevance of such exercise for the broader forest based sector context. Of course, it also explains the results of them. Those results include arguments about the causes of those emerging issues, the sectors involved or affected by them, and why they need to be more addressed more by policy sectors. So, in synthesis, what the results do is to present the issues and what is happing with them in the actual moments; a sort of "states of the situation". Finally, at the end of the document, a list of the ten most prominent emerging issues, identified and prioritized by those actors, is provided.

This document was analyzed because it mentions the policy groups that influenced the creation of emerging issues. It helped to answer the question about the imagined policy audiences for forest research embedded in Sumforest, and the conceptualizations of policy relevance associated to them. What´s more, it made possible to see the degree of participation of research and policy actors in the definition on what is relevant; and the consequent degree of co-productive interactions between them.

Work Package 3 - Document 3.3: 'Future forest policy and policy makers knowledge gaps'

This document has three main sections. After the introduction, the first one reflects on the challenges of building a 'forest-policy on research', a task which implies also presenting important approaches to make the incorporation of research results for a 'sustainable and multifunctional forestry', and putting examples on how those implementation processes could be performed in the national, regional and European levels. This can be taken as a "monography format" kind, of section, which presents information based on bibliography analysis. Secondly, there is a section dedicated to explaining the basis of a survey 'on the implementation of existing research results in forest policies and emerging issues in the forest-based sector'. That survey was

destined to policy makers related to forestry, who were consulted to prioritize the emerging issues previously identified in the Deliverable 3.2. The results of that survey are presented in statistical graphs and tables which present an overview of the response rate by country, and how they agree or not about the importance of each of 5 first emerging issues in a five levels scale (strongly agree, agree, neither agree nor disagree, disagree and strongly disagree). Those results were also discussed in terms on how relevant were they for the policy makers in light to their answers to the survey. Finally, there is a third section that does reflections about the future outlook of the implementation of research results in policy making actors and communities.

This document was useful because it includes statements able to answer the question about the principles to incorporate forest research input for policy decisions in effective ways, and how Sumforest addressed them. More concretely, statements contained in the future outlook make possible to see how Sumforest envisioned certain problems for the science policy interfaces and intended to tackle them. Furthermore, it was possible to determine whether policy makers consulted in the survey considered the issues of Work Package 2 to be relevant and in what terms.

Work Package 4: 'Report from the workshop on strategic activities Part 1: SWOT analysis of Forest research in Europe'

The main purpose of this document is to explain how a SWOT analysis for the European Forest sector was developed. It presented the process by which that analysis was structured (how it was assembled), as well as it results. In a certain way, this exercise integrated results of previous Sumforest activities to constitute basis for Sumforest strategic activities (next two documents). In that sense, it was studied to understand how Sumforest understand certain problems related to science-policy interfaces in the forest sector, and how may contribute to solve them with a future oriented perspective. It is important to say that this document was really crucial to identify the main gaps between the forest research communities in Europe, and policy making ones. What's more, those gaps were contrasted with statements of the interviews in order to structure the case on how Sumforest contributed, and could contribute to bridge them. The SWOT analysis was a valuable one, even more, because it materializes how the ERA-NET assembled certain science – policy issues and concerns from previous work packages, to transform them in research orientations (see chapter 9).

Work Package 4 - Document 4.3: 'The Sumforest Strategic Action Plan 2016-2018

Finally, this document is a synthesis of all the work done by Sumforest to identify needs, priorities, issues, challenges and strategies. Thus, this document was studied as the final output of Sumforest. Many of its statements were carefully read and analyzed, but that analysis were constantly contrasted by results of the previous documents, since they illustrated how the

statements of the Strategic Action Plan were assembled (the process). At the end, this document was important to understand how Sumforest framed the importance of its work in relation to certain changes in forest ecosystems and political drivers and addressees (Sumforest structure and functions). At the same time, it showed the main purposes of Sumforest work as expressed in the Work Packages (Sumforest processes), and in the strategic topics for the Sumforest projects (Sumforest outputs). As this document contained information of all the ERA-NET elements, it was the first one analyzed to have a panoramic view of the case and thus know what others could provide better answers.

In total, all the analyzed material from documents included around 50 pages, a manageable amount of information in the context of this project. Regarding the access, it was not a problem since all of them were published in the Sumforest web page open to the public. Thus, there was no need to ask for them to the Sumforest coordinator or other organizers.

Interviews

Since Sumforest is a big network with many participating persons differing in their tasks and responsibilities, it was important to decide very carefully on who to address. I considered the next persons to be the most suitable ones to answer my questions. All of them are actors of the forest sector who actively participated in different Sumforest activities. Those activities are those summarized in the documents mentioned above. What's more, some of these persons figure as co-authors of those documents. Now follows a sketching about the institutions they are working, their participation in Sumforest and the questions asked to them.

Dr. Martin Greimel:

- ✓ Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) – Vienna, Austria
- ✓ Sumforest Scientific Coordinator
- ✓ Participant in the "Workshop on Strategic Activities" (WP4.1)

As being the Sumforest coordinator, most of the questions dedicated to him were destined to understand roles and responsibilities of persons and institutions participating in the ERA-NET. Due to his strong relation with the Ministry, some questions were asked about the Austrian participation (motivations, challenges and possible problems), in the Sumforest context.

Dr. Lauri Hetemäki

- ✓ European Forest Institute (EFI), Assistant Director (Policy Support), Professor – Joensuu, Finland
- ✓ Planner of D 3.2
- ✓ Participant in the Advisory Group, 'Foresight Panel I' and 'Foresight Panel II' on 'Emerging Issues in European Forest-Based Sector and Research Priorities' (W 3.2)

This interview partner is an important member of the European Forest institute (EFI), and of the 'Think Forest' forum, a key configuration dealing with scientific policy support in the Forest Sector. The European Forest Institute developed the Work Package 3, which as I have explained, produced key materials to understand notions about science policy interfaces in the forest sector. Dr. Lauri Hetemäki provided information about the processes to structure them, and about issues related to the science – policy interactions in the forest sector.

Dipl. Ing. Dietmar Jäger

- ✓ Federal Research and Training Centre for Forests, Natural Hazards and Landscape Direction (BFW) – Vienna, Austria
- ✓ Sumforest Administration
- ✓ Participant in the "Foresight Workshop on Emerging Issues in European Forest-Based Sector and Research Priorities" (WP3.2).
- ✓ Participant in the 'Workshop on Strategic Activities' (WP4.1)

This person is the Sumforest administrative coordinator. He participated in the Foresight Workshop of the Work Package 3, and in the Workshop on Strategic Activities of the Work Package 4. Thus, he provided information on how those activities were conducted from an internal point of view, the benefits from research coming from them, and the possible criteria to understand their quality in relation with their development. He also provided information about the Austrian participation in Sumforest, since he works in the BFW, which is the National Forest Research institute of the country.

Liisa Käär

- ✓ 'TAPIO' (Finnish forestry organization) Project Manager - Finland
- ✓ Planner of D 4.1
- ✓ Planner of D 4.2
- ✓ Participant in the Workshop on Strategic Activities W 4.1

Participated in the key moments of Sumforest, which includes the definition of the topics for the first Sumforest Call. She has knowledge about the topic of the science policy interactions in the forest sector, so it was important because it allowed to understand science – policy dynamics beyond the context of Sumforest.

Dr. Jean-Luc Peyron

- ✓ Public Interest Group (GIP) on Forest Ecosystems (ECOFOR) – Paris, France
- ✓ Planer of D 2.1 and D 4.1
- ✓ Participant in the 'Foresight Panels' and 'Foresight Workshop' on 'Emerging Issues in European Forest-Based Sector and Research Priorities' (WP3.2)
- ✓ Participant in the Workshop on Strategic Activities (W 4.1)

As pointed out, this person participated in many important moments of Sumforest (3 work packages). At the same time, he has also a strong relation with the International Union of Forest Research Organizations (IUFRO), an important institution dealing with forest research networks. As such, the interview tried to understand how Sumforest activities were performed in his view, and about the organization (coordination, collaboration, etc.) of forest research in the European and international context. It produced important information about the gaps and bridging processes made possible by Sumforest, and about general role of ERA-NETs in connecting research with policy making.

Mag. Vera Steinberg

- ✓ Federal Office for Agriculture and Food (BLE) – Boon, Germany
- ✓ Planner of D 3.3
- ✓ Participant in the Workshop on Strategic Activities (W4.1)
- ✓ Secretariat Support for the First Sumforest Call

This person contributed to shape the D 3.3, in which as I have mentioned, policy needs and principles to incorporate forest research into policy agendas, were identified. As being the secretariat of the call secretariat, she had an insight on how researchers participated in there, how their proposals were evaluated and what were the expected results of the selected projects. At the same time, important information was collected about how the effectiveness of the Sumforest bridging processes could be understood. She also had information about important Sumforest organizational issues.

Dr. Bernhard Wolfslehner

- ✓ EFICEEC/BOKU and Think Forest Network – Vienna, Austria
- ✓ Participant with a project in the Sumforest first call

Dr. Wolfslehner is one of the persons participating in Sumforest as a partner for one of the projects funded by the Call. He provided information about how the relevance of forest research for policy decisions is embedded in the projects funded by Sumforest. He had knowledge about Sumforest in general, and about the European Forest Institute, since he is the head of a regional office of that configuration, which has its headquarters in Vienna. In that sense, the interview provided information about Sumforest but also about the European Forest Sector in general, but also about the gaps between forest research and policy communities in Europe and the role of ERA-NETs in bridging them.

Addressing these persons was important because they were involved in the Sumforest exercises, and provided valuable insights on how they managed and reacted to the problems included there. Although getting access to the interviewees was not a straightforward matter, it was possible to

do since most of them were listed as the contact persons in the web pages of the institutes they belong to, as it is the case of SUMFOREST main coordinator.

Now, after defining what actors were consulted, it is also important to explain how interviews were structured in general terms. This goes in accordance with questions like what data was faced, what kind of interviews were the most adequate to collect it, and what kind of questions were asked. By following the categorization that differentiates between structured, semi-structured and open-ended interview (Silverman, 2006, p. 110), I choose the semi-structured one, in the sense it allowed respondents to express their ideas and structure their own frames with more flexibility while talking. In most of the cases the interviews needed to be almost open-ended ones, since it allowed to locate important aspects in the views of the involved actors.

At the same time, according to the differentiation between positivist, emotionalist and constructivist interviews, done by the same author, interviews here done had elements of the positivist orientation, since although in many cases they express perceptions, those perceptions were related to a concrete case or external reality. I don't think mixing a positivist orientation was conflicted with doing semi structured interviews. I know that, in general, positivist interviews are structured ones, and even use prefixed variables and quantitative orientations. However, I think don´t think positivist interviews should *necessarily* include quantitative orientations. Positivist here meant for me to of course, consider certain variables or interview guidelines, but not necessarily so standardized or strict ones.

For the reader to be more acquainted with the kind of interviews that were made, now follows a description of the main orientations of the questions asked to the interview partners. The distinction here proposed distinguishes between the research problems touched, and the spaces into which they were focused.

- ✓ Empirical questions

- Origins of Sumforest
- Characteristics of institutions managing work packages
- Characteristics of institutions surrounding Sumforest
- Actors who can provide information on certain issues
- Characteristics of Sumforest activities

- ✓ Questions about political relevance according to targets

- Relevant topics in the forest sector
- Targets and addressees of ERA-NETs and Sumforest in general
- Targets and addressees of Sumforest projects

- ✓ Questions about evaluation

- Actors evaluating Sumforest, and their criteria
- Actors evaluating Sumforest projects, and their criteria

- ✓ Questions about science – policy gaps

- Science-policy gaps in the forest sector
- Science-policy gaps in the participating countries

- ✓ Questions about bridging processes

- Sumforest role on bridging processes
- Possibilities to translate research to policy through Sumforest

- ✓ Questions about participation of actors

- Challenges for participation of actors in Sumforest planning
- Challenges of participation of actors in the Sumforest discussions (Work packages)

- ✓ Questions about research coordination
- Problems for research coordination in the forest sector
- Role of Sumforest in research coordination in the forest sector

- ✓ Questions about the future of Sumforest
- Stumbling blocks in Sumforest work
- Recommendations to and expectations for the next forest related ERA-NETs

The selection of these aspects was done after a first look at the characteristics of the Sumforest materials, and the profile of the persons to be interviewed. Of course, some of these aspects transformed into the topics to be included into the thesis results, after following a coding process. What´s more, it is important to say that each of the interviews were prepared after conducting previous ones. In that sense, there was not a previous first interview guideline to be effectively used in for all the interviews, but just general guidelines about the topics to be touched. In other words, information retrieved from an interview guided the preparation of the next one, which can be said that goes in accordance with a grounded theory procedure orientation. For that reason, the interview orientations of the previous page are more a summary of the aspects touched, that those ones intended to be touched.

Now, to understand the handling and processing of information coming from them, the next section will explain the methods used in data analysis.

6.2 Methods used in data analysis

As I mentioned in the last section, our methods of data collection were document analysis and interviews. By using document analysis, I wanted to understand the main frames explicitly or implicitly inscribed there to address the problem of what constitutes a bridging process in the Sumforest framework. By using interviews, I got a transcript of the interviewee 's perceptions on how they imagine Sumforest process of establishing bridges between research and policy goals in the case of Sumforest. Interviews were audio recorded, so I had to create an informed consent sheet for the interviewees to grant for permission. The transcription was a "word by word" one, and I did the coding underlining pieces of information with colors and then assigning codes to it in word, a point I will come back to a little later.

Now, about data analysis, studying documents in this case meant addressing them to find and enhancing the comprehension about their understanding and their role in connecting forest science - forest policy interactions. To first interrogate the data, I guided my view by the Guidelines established by Prior (2007), who made her research about how patients in the UK psychiatric hospital came to be classified in different ways through routine procedures. Her conceptualization of document analysis strives in the need of asking about the contents of documents, but also who was intended to read them, for what purpose and how and by whom were they assembled (Prior, 2007, p. 350). These dimensions were especially pertinent in the documents considered here, since they are reports constructed one based on the others, and I wanted to understand what purpose are they serving. A procedure to follow would then mean, for example, understanding how knowledge presented on the documents was constructed by putting together deliberative processes and previous documents outcomes.

Focusing on the functions of the documents meant asking: who were the documents destined to? Were they only external actors, or also the same persons and institutions mentioned in the contents? Were those addressees political or also research ones? Have those addressees (like the European Commission), evaluate the documents in some way? What kind of engagement have been there with those targets? Have Sumforest organizers received certain feedback about them? Does Sumforest establish mechanisms to receive those feedbacks? These questions related to the functions of the documents were empirical ones made in the interviews to Sumforest participants, and were valuable to understand Sumforest activities and processes. Answering them provided clues about how those documents were taken by certain actors around them and into the ERA-NET. Whit this, it was possible to understand how outputs from one document or Work Package were incorporated in another.

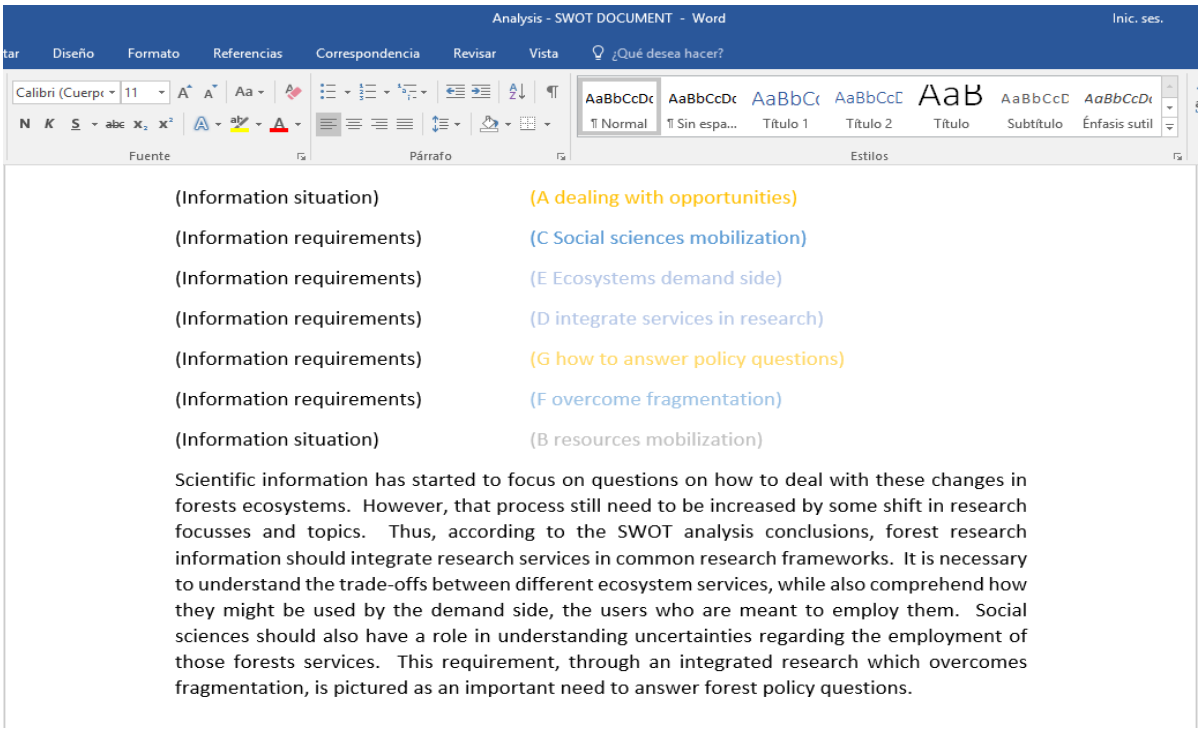
After these steps, I did the core of the data analysis by following a grounded theory procedure (Glasser and Strauss, 1967; Charmaz, 2006). The process of analyzing data from documents consisted in:

1. selecting those pieces of information considered to be relevant to answer the research questions after taking a first look to the documents, and according to opinions of some interview partners.
2. Coping that information in word documents, one document for each source.
3. Underlining pieces of information and coding them with an initial coding.
4. Grouping those pieces in bigger categories.
5. Writing paragraphs about each of the color categories for each of the sources.
6. Combining the paragraphs of the same categories in one unified document about the Sumforest Deliverables.

As it can be seen, a central part of the process consisted in creating the second categories that grouped the initial coding (step four). Those categories were created based on previous ideas about the problem of study. Of course, the categories varied according to the information of each of the sources. However, summarizing their key concerns, it can be said that they concentrated in the following aspects:

- ✓ The *drivers and addressees stated as the targets and guiders* of Sumforest work.
- ✓ The ways Sumforest *framed the importance* of its work for policy decisions.
- ✓ *Problems* for the forest research landscape *about producing* policy relevant research information.
- ✓ *Gaps* in the forest sector *to incorporate* that information in policy agendas or plans.
- ✓ *Ways to connect* information produced in the ERA-NET, with policy communities.

In summary, these were the focusses used to produce the second coding, and thus starting the writing process. Of course, these criteria contained different codding's related to each of them, and one of them were more, let's say, dense than others. In any case, they were sufficiently dense on each of the sources, and along them, to constitute a basis to structure arguments and reflections. The next picture represents the process followed to start structuring the information from the step four to six:



This picture describes how the first codes (at the right side), were related to the second codes (at the left side). At the same time, the paragraph shows how that process started to produce written information related to that linking process. In a certain way, it can be said that such paragraph touches on the third aspect mentioned in the previous page: "problems for the forest research landscape about producing policy relevant research information", which will later transform into information regarding the questions about the science policy gaps as pictured in the Sumforest framework. As said before, paragraphs about this aspect on each source were combined with paragraphs about the same aspect in another source. Sometimes, this produced similar or redundant information, but attention was paid to cut redundant passages and synthetize them in ways that allow to capture the essence of the argument and how it was expressed in the different sources, without being repetitive.

During the writing stage, this process provided a good basis to back up the information coming from interviews, which was analyzed next. In contrast to the documents, information from interviews was analyzed following guidelines of Situation Analysis, a methodology which evolved from previous conceptualizations of Grounded Theory. In that sense, interviews started to be coded topic by topic, taking care of focusing on smaller portions of information. By doing this kind of coding, the intention was to avoid imposing our own judgements and pre- notions about the problem. At the same, time, it was also very useful to employ in vivo codes, in the sense that they reflected in a more precise way interviewee´s understandings. As Charmaz says: "In vivo codes help us to preserve participants meanings of their views and actions in the coding itself (…) In vivo codes serve as symbolic markers of participants speech and meanings" (Charmaz, 2006, p. 55).

Now, after creating a first set of codes, the next step was to create a second one according to the guidelines of Situation Analysis (Clarke, et.al 2015). Summarily, the most differences with grounded theory lies in the importance it confers to reflect about the position of the researcher in the research field, to understand the situation of inquiry, and to create situation maps to locate it.

> In SA, the situation of inquiry itself broadly conceived becomes the key unit of analysis (…) In SA, the situation of inquiry is empirically constructed through making three kinds of maps (situational, social worlds/arenas, and positional) and through doing analytic work with the maps. Such work includes writing analytic memos of various kinds about each map, examining relations among the elements, and often updating the maps to reflect one's evolving analysis of the situation (Clark, et. al, 2015, p. 12)

This means that the most important preoccupation of Situation Analysis is understanding the situation of inquiry through the construction of maps. Making those maps was a task made soon after having all data from interviews. The three different kinds of maps, mentioned in the conceptualizations of Clark, were applied in the analysis:

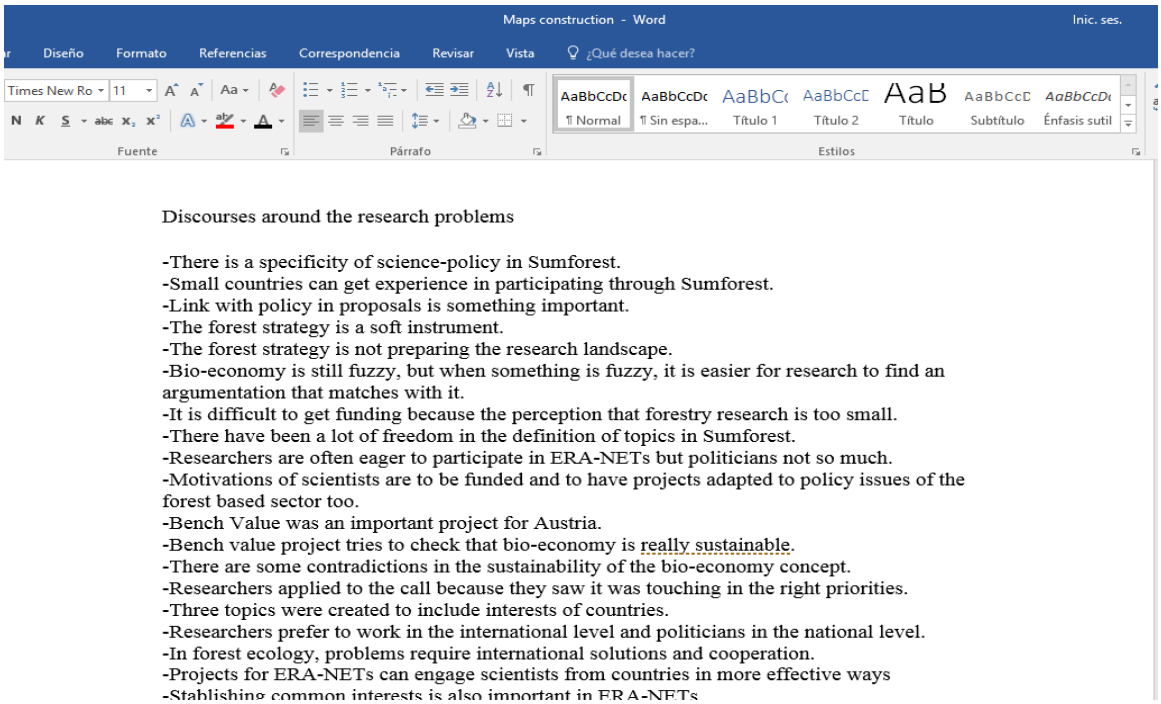
- ✓ Maps of situations: human and non-human elements
- ✓ Maps of social worlds and arenas
- ✓ Maps of possibility along salient analytic axes

These maps were taken as criteria to do the second coding in the case of the interviews. In other words, the first codes from interviews were grouped according whether they talked about actors participating in and around Sumforest; the social worlds they belonged to; and the analytical arguments expressed around the science – policy bridging processes in Sumforest. After grouping those codes, the maps were done; but here, it is important to say that, while the first two mappings were applied to the analysis of each of the interviews, the third one was applied to the seven altogether. The reason for that is the low amount of codes resulting in some of the interviews about the problems proposed to them. This problem, at the same time, was caused by the perceptions of interviewees on whether they were sufficiently suitable to answer some of those questions; which make them be very careful in their answers.

To explain this process in a clearer way, these are the steps followed to analyze information from interviews:

1. Do a first, topic by topic code of the transcripts.
2. Group the first codes according to whether they talk about actors (situation), social worlds and possibilities.
3. Create mappings of actors and social worlds of each the seven interviews.
4. Create a big actors and social worlds map for all the interviews altogether.
5. Reflecting on the previous mappings, create a map of possibility for the seven interviews altogether.

Bellow, there is an example of many of the discourses collected in the structuration of the map of possibility. As presented here those discourses come from many of the interviews and are still not organized.



After having these mappings, they were analyzed according to analytical axes like: the orientation of research relevance according to Sumforest addressees and drivers; the role of the ERA-NET in bridging science – policy gaps; and the participation of actors in the definition of research topics (but not only them). These analytical axes can be considered as a further classification, or coding, after the division of the fragments of transcripts in the three types of maps. Thus, it was the step (6) in the analysis of interviews. Then, next step consisted in organizing that information in paragraphs to have a text for the possibility map, and to do the same with the other two maps (7). As a next step, texts of the three types of maps were combined a have a text for the three maps altogether (8). Finally, this document about interviews was put over dialogue (combined), with text about Sumforest documents, and the final thesis text was written (9 step of the interviews analysis and final step of data analysis).

It is important to say that the final body of the thesis was structured thinking on how information from both type of sources touched on the same issues, and on what aspects and sub aspects of the questions were answered. Information from secondary or back up sources was of course also considered to make some arguments stronger. While following this process, reflections were made on my own position in the situation of inquiry, or what things to consider important to analyze after going through each step. At the same time, attention was put on what problems are not easily addressed by the interview partners (their silences) as this is an important

data for the situation of inquiry (Clark, 2003, p. 561). At the end, results from documents and interviews provided important clues about how actors and documents embed, and envision, notions about the science – policy process in the Sumforest framework. However, before stating the results of the analysis described in this chapter, the next one will provide a view of the institutional context surrounding the case study; a view acquired after a more informal analysis of online sources.

Chapter 7
External actors around Sumforest

This chapter aims to introduce the institutional context that surrounds and provides meaning to the case study: the Sumforest ERA-NET. Referring to the institutional context means here paying attention to the interrelations among different sorts of programs, platforms, committees and institutional orientations that contribute, and have contributed to build what today is known as Sumforest. The heterogeneity of those configurations makes it important to describe their most relevant features and purposes; while at the same time considering, however, that a strict in-depth analysis of them is not the precise focus of analysis of this project. Rather, I will just try to explain how they are constituted and what they do; but specially, what are their roles and their influence in ERA-NETs in general and Sumforest in particular. Some of the institutional configurations are here addressed as significant builders of ERA-NETs (first sub-chapter). Others, meanwhile, as constitutive of those ERA-NETs referred to forestry and forestry related topics; with an obvious special focus on Sumforest (second sub chapter).

7.1 The ERA roadmap

In terms of scientific and technological development in Europe, one of the most widespread initiatives is the structuration of a European Research Area (from now, ERA). To set the basis for particular ERA-NETs, this initiative has needed to link a wide range of smaller ones, so it is convenient to start here for digging into all the institutional networks into which the particular case study of this thesis is inserted and acquire meaning.

The ERA is described in its web page as "a unified area open to the world, in which scientific knowledge, technology and researchers circulate freely"[20]. Member States, Research and Stakeholder Organizations, and the European Commission are the three main partners of the ERA. The creation of this network was first proposed on January 2000, when the European Commission developed the 'Communication from the European Commission to the European Parliament, the Economic and Social Committee and the Committee of the Regions: Towards a European research area'; presented on Brussels on January 18th, 2000.[21]

From this point forward, this network has established tools to coordinate guidelines for investment procedures, mobility of human resources and other elements. In a certain way, *it is*

[20] European Research Area. Coordination of Research Programmes. (2015, December 9). *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/era/index_en.htm

[21] Commission of the European Communities. Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: Towards a European Research Area. Retrieved from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2000:0006:FIN:EN:PDF

valid to say that the most important task of such tools is to avoid fragmentation of research efforts in Europe. Political partnerships as the "Ljubljana Process", for instance, were created to achieve those aims.[22] This process was put over the table as a means to enhance an effective governance of the ERA, based on the objectives of making Europe a "leading knowledge economy and society based on the "knowledge triangle" of research, innovation and education, as major drivers of competitiveness and quality of life".[23] At the same time, those objectives imply developing features as the free movement of knowledge, research networks between universities and other institutions, and the access to high quality infrastructures.[24]

Even though, the most important tool to operationalize ERA efforts is the 'ERA roadmap', a document which has been submitted to many modifications. The last of those modifications was developed by member states in cooperation with ERAC, ERA related groups, the Commission and the European Stakeholder Organizations (I will talk about them some lines later). According to the final ERA roadmap document, completed in April 20th 2015 on Brussels, the main purpose of the ERA roadmap is "to identify a limited number of key implementation priorities which are likely to have the biggest impact on Europe's science, research and innovation systems if all the members of the ERA Partnership get them right."[25] Together with this process of identification of priorities, the ERA roadmap also tries to identify several actions at the national and European levels by which those priorities may be operationalized, as well as monitoring measures and reviewing activities referred to its contents and guidelines.

It is important to mention that the roadmap says that the priorities shouldn't be accomplished as an obligation for the member states. Paraphrasing a document extract[26] it is argued that they can make use of those priorities as guiding tools and not as set on stone prescriptions, while also combining them with particular priorities of member states.

In the next heading, I will explain those priorities in order to understand what the ERA effectively does. For a better understanding of the ERA roadmap, it is important to sketch and explain the content of the aforementioned priorities. The final ERA roadmap, created for the period 2015-2020, includes a total six of them:

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[22]Council of the European Union. Council Conclusions of the Ljubljana Process - Towards a full realization of ERA. Retrieved from: http://www.eu2008.si/si/News_and_Documents/Council_Conclusions/May/0529_COMPET-Lj_proces.pd

[23] Ibid. P.2

[24] Ibid. P.3

[25] European Research Area and Innovation Committee (ERAC) - Secretariat. ERAC *Opinion on the European Research Area Roadmap 2015-2020.* Retrieved from: https://era.gv.at/object/document/1845

[26] European Research Area and Innovation Committee (ERAC) - Secretariat. ERAC *Opinion on the European Research Area Roadmap 2015-2020* (P.3). Retrieved from: https://era.gv.at/object/document/1845

1. - More Effective National Research Systems[27]: With this aim in mind, the ERA basically tries to remove some of the legal barriers on states for the implementation of the network. Referring to barriers in this case implies fostering institutional transformation on the states in a way that they start to apply international principles for the assessment of scientific work (peer review guided by criteria of international quality); and to combine national with structural funding (those coming from transnational funding structures.[28]

2. - Optimal transnational co-operation and competition[29]: Transnational cooperation means, first, coordinating or strategically aligning national and transnational funding strategies, which has a strong relation with the previous priority. Besides that, to achieve transnational cooperation also means defining common priorities and Joint Research Agendas; and Joint Programming-Initiatives. These aims are encompassed as a 2a priority 'Jointly Addressing Grand Challenges'. In addition, member states also compromise to contribute to the construction of research infrastructures, which are instead encompassed on a 2b priority 'Make Optimal Use of Public Investments in Research Infrastructures'.[30]

3. - An open labor market of researchers:[31] Which refers to foster training programs and meritocratic mechanisms for research recruitment among Europe; while also making possible the access to grants and social security for researchers in the whole region. Moreover, creating common European accreditation frameworks, by establishing comparable degrees, is also perceived as an important need.

4. - Gender Equality and Gender Mainstreaming in Research:[32] understood as fostering institutional change, and mechanisms to assess gender imbalances in decision making processes and recruitment practices of research institutions. This includes actions from member states, research and stakeholder organizations and the commission to identify gender biases in their

[27] More effective national research systems (2013, April 30). *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/era/more-effective-national-research-systems_en.htm
[28] Regional Policy Inforegio. European Structural and Investment Funds. *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/regional_policy/en/funding/
[29] Optimal transnational cooperation and competition. (2013, April 19). *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/era/optimal-transnational-co-operation-and-competition_en.htm
[30] Research and Innovation: Infrastructures. (2017, January 31) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/infrastructures/index_en.cfm
[31] An open labor market for researchers: Facilitating mobility, supporting training and ensuring attractive careers. (2014, September 16) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/era/open-labour-market-for-researchers_en.htm
[32] Gender equality and gender mainstreaming in research. (2013, April 30) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/era/gender-equality-and-gender-mainstreaming_en.htm

institutions, to implement strategies to correct those biases and monitor further progress in those regards.

5. - Optimal Circulation, Access to and Transfer of Scientific Knowledge:[33] Refers to creating links between research, business, citizens and education institutions by removing barriers to the access of knowledge between them in the digital and nondigital world. In that sense, member states, research and stakeholder organizations and the commission should define policies and/or establish practices intended to foster knowledge transfer from, and open access for publicly funded research. This implies funding projects related to open access, establishing roadmaps for the creation of e-infrastructures, and to facilitate forums related to the take and use of digital research services.

6. - International Cooperation: Refers to increase the cooperation with third countries associated with the European Union in order to address societal challenges. The purpose of this is to assert Europe´s leading position in research and innovation in the world, by reinforcing multilateral STI cooperation approaches to maximize societal impact.[34]

Now, in order to accomplish these priorities, the ERA has created what they call 'ERA related groups' which work with the three mentioned partners in topics related to research and innovation through the European Council. Each of those 'ERA related groups' relates to each of the priorities of the ERA.[35]

Three groups are phrased as the most important ones in terms of their attributions. First, the "European Research Area Committee" (from now, ERAC) relates to the priority of developing more effective national research systems (priority 1); although in more general terms, its role consist in advising the European Council and member states on research and innovation issues included in the framework of the governance of the European Research Area.[36] The 'High Level Group of Joint Programming' (from now, GPC), is an important further ERA related group, which relates to priority 2a ('Jointly Addressing Grand Challenges'); which in broader terms contributes in the debates and decisions of the Competitiveness Council on Joint programming (we will

[33] Optimal circulation, access to and transfer of scientific knowledge. (2013, April 30) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/era/optimal-circulation_en.htm
[34] European Research Area and Innovation Committee (ERAC) - Secretariat. ERAC *Opinion on the European Research Area Roadmap 2015-2020* (P.3) Retrieved from: https://era.gv.at/object/document/1845/attach/ERA_Roadmap_st01208_en15.pdf

[35] ERA related groups and other related groups. Retrieved from: https://era.gv.at/object/document/1919/attach/COM_ERAC_RTD_Inventory_ERA_groups.pdf (ERA Portal Austria)
[36] European Research Area and Innovation Committee (ERAC). (2016, May 20) *Official site of the European Council.* Retrieved from: http://www.consilium.europa.eu/en/council-eu/preparatory-bodies/european-research-area-innovation-committee/

explain what Joint Programming is some lines below).[37] Finally, a third important ERA related group is the 'Strategic Forum for international S&T Cooperation' (SFIC), which relates to the priority of strengthening transnational cooperation (priority 6), by advising the Council and the Commission on the implementation of a European Partnership in the field of international scientific and technological cooperation (S&T cooperation).[38]

Besides those three configurations, the ERA framework also includes ERA related groups dedicated to each of the other priorities sketched before. For instance, the priority 2b is managed by an ERA related group called the 'European Strategy Forum on Research Infrastructures' 'ESFRI', which advises the ERA partners in topics related to research infrastructures. On the other hand, the "ERA Steering Group on Human Resources and Mobility" (SGHRM) has on its hands the priority 3; the HG (Helsinki Gender group) the priority number 4; and the KT (Knowledge Transfer) the priority number 5.

All these groups are important configurations that mediate between scientific and political institutions because (one can say) they advise the European council, the European Commission and member states when they embark in societal goals for policy orientations and scenarios.

Of course, ERA related groups are not the only configurations created by the ERA. It has also tried to strengthen associations between stakeholders by creating a network of five of them: the 'European Association of Research and Technological Organizations' (EARTO); the 'European University Association' (EUA); the 'League of European Research Universities' (LERU); 'The Conference of European Schools for Advanced Engineering Education and Research' (CESAER); 'NordForsk'; and 'Science Europe'. This six organizations signed a Joint Declaration with the Commission in 2013, in which they accepted to mutually contribute to achieve the goals of the ERA.[39]

[37] Joint Programming: How does it work? (2013, March 5) *Official site of the European Commission.* Retrieved December 14, 2016, from http://ec.europa.eu/research/era/how-does-it-work_en.html
[38] Strategic Forum for International Science and Technology Cooperation (SFIC) (2015, December 4) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/iscp/index.cfm?pg=sfic-general
[39] ERA in partnership (2017, February 10) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/era/partnership_en.htm

7.2 The Joint Programming Framework

It is not the objective of this thesis to make an exhaustive analysis of such configurations. According to an overview of the main elements of the Sumforest ERA NET done in this research, the most important thing is to focus in the Joint Programming elements of the ERA, as they influence ERA NETs in a great degree. The most important appreciation at this point is that broad conceptualizations of transnational research and innovation policies inserted in Joint Programming guidelines, are linked to the establishment of ERA NETs outcomes.

As it was showed some lines above, 'Joint Programming guidelines are' encompassed on the priorities number one and two, thus under ERAC and GPC groups. In general terms, those guidelines try to foster the creation of networks for transnational cooperation and competition on research, which at the same time aim to maximize the impact of public funding on research.

For a better understanding of what Joint Programming actually is for its proponents, let's include the actual definition they do about the concept:

> Joint Programming involves Member States engaging voluntarily and on a variable-geometry basis in the definition, development and implementation of common strategic research agendas based on a common vision of how to address major societal challenges. (...) It aims to increase and improve the cross-border collaboration, coordination and integration of Member States' publicly funded research programmes in a limited number of strategic areas, and thus to help Europe boost the efficiency of its public research funding so as to better address major societal challenges.[40]

Arguments made in the 'Joint Programming communication of the European Commission', point out at the importance of using financial resources more efficiently and effectively, this due to the limited resources of the European Union. In that sense, Joint Programming guidelines try to develop a better research coordination in Europe to assure that those funds are destined to finance well-structured research programs, which results should, furthermore, contribute to the achievement of major societal challenges. Transnational research collaboration is thus pictured as a requirement to assure the efficient allocation of financial resources, and their return in terms of social benefits. In other terms, not collaborating is perceived as a costly attitude for countries as well as for the whole region. The justification for Joint Programming is phrased in this way:

"The lack of cross-border Programme collaboration makes it difficult to address common challenges jointly, complicates the pooling of data and expertise scattered across Europe, hinders cross-border researcher mobility and training, and slows down the international dissemination of research results".[41]

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[40] Commission of the European Communities (July 15, 2018) Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: Towards Joint Programming in Research: Working together to tackle common challenges more effectively. Retrieved from: http://ec.europa.eu/research/press/2008/pdf/com_2008_468_en.pdf

[41] Ibid. (P.4)

At the same time, diagnosis about research collaboration in the European region previous to the design of Joint Programming strategies, generally point out at the insufficient impact of previous collaboration designs, like bilateral agreements between countries, which as the communication says, "has not resulted in concrete national research policy coordination initiatives between Member States or in common agenda setting in areas of strategic importance".[42]

In summary, one can say that Joint Programming aims at achieving structuring effects in the distribution of different sorts of research resources and outputs, in order to make them more efficient, and as a consequence, effective in terms of scientific quality.

Joint calls and other joint research activities are the main means to make those endeavors viable.[43] To make them operational, those who are trying to implement them in a network are required to follow a more or less specific process, leaded by three stages: the first one, referred to the development of a common vision of the research area to be developed; the second one to the definition of objectives of a research agenda according to previously identified competences and capacities of actors; and the third one to the implementation of that agenda in terms of establishing funding, evaluation and monitoring practices.[44]

A first appreciation of Sumforest as an example of an ERA-NET makes valid to say that these steps are followed in the process of structuring them. However, as I said before the relation between Joint Programming guidelines and ERA-NETs should be further addressed.

7. 3 Institutional configurations related to international cooperation in forest research

In terms of the insertion of forest related ERA-NETs into European oriented research configurations, it is noteworthy that they are commonly encompassed into the umbrella of Bio-economy. Sumforest, for instance, is a "Bio economy ERA-NET" which on its web page is defined as:

> "the forum for funders and Programme managers in European Research Area Networks (ERA-NETs) in the fields that make up the bio economy: food, agriculture, aquaculture, fisheries, forestry, climate, biodiversity and biotechnologies. PLATFORM aims to improve exchange and cooperation and to strengthen their impact on the ERA and the European bio economy".[45]

[42] Ibid. (P.6)
[43] Commission of the European Communities (July 15, 2018) Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: Towards Joint Programming in Research: Working together to tackle common challenges more effectively. (P.9) Retrieved from: http://ec.europa.eu/research/press/2008/pdf/com_2008_468_en.pdf
[44] Ibid. (P.10)
[45] PLATFORM of bio economy ERA-NET Actions (PLATFORM) (2017) *Official site of the Platform.* Retrieved from: http://www.era-platform.eu/

In general terms, this platform is the space where actors involved in ERA-NETs related to "Bio economy" (a concept explained in other part of the thesis) converge and link with each other. The participation of Sumforest in the structuration of the ERA, therefore, is oriented towards contributing to those networks related to the European broad goal of becoming a Bioeconomic Society.

Together with ERA-NETs, this platform is also related to the Joint Programming Initiatives and the "Standing Committee on Agricultural Research". In relation to the first ones, the European Research Area web page shows that there are now ten different JPIs, which touch upon a wide range of topics like Demographic Change, Neurodegenerative Diseases or Cultural Heritage.[46] The choice of those topics is done by the 'High Level Group on Joint Programming', which consist of nominees from Member States and the European Commission, together with the consultation of relevant stakeholders. Once the topics for the JP Is are established, Member States can decide whether to participate or not on in them and with what institutions and mechanisms.

The JPI initiative related to forestry research, (which is mentioned in the Sumforest web page[47]), is the "Agriculture, Food Security and Climate Change Joint Programming Initiative" (from now, FACCE-JPI). This particular JPI argues for developing scientific research programmes intended to face problems as the possible food crisis caused by global climate change. Consequently, they say that "Europe has and continues to develop knowledge and technologies to underpin sustainable and competitive food production systems".[48] Based on the importance that forests have for food production systems, it is noted that ERA-NETs as Sumforest requires to set relationships with the FACCE-JPI. However, the way those relation actually works, is a problem that requires more in depth and precise scrutiny.

Meanwhile, the Standing Committee on Agricultural Research (SCAR), founded in 1974, has the aim to advise the European Commission and the Member States in topics related to agricultural and bioeconomic research. This advice includes fostering coordination of research efforts related to the Bio economy area, and relevant to political orientations and programs. As they say:

> "The Committee plays an important role in coupling research and innovation and in removing barriers to innovation, and aims to make it easier for public-public and public-private sectors to work together in delivering innovation that tackles the challenges faced in the bio-economy area.

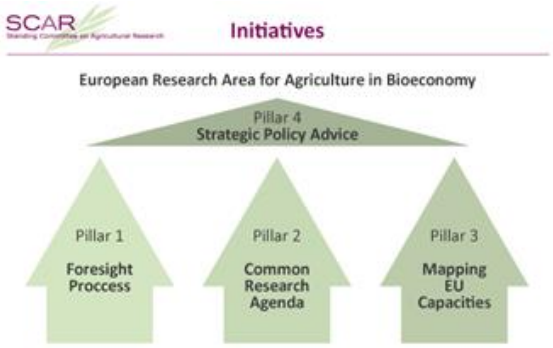
[46] European Research Area. Coordination of Research Programs. "Joint Programme Initiatives" (2013, April 22) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/era/joint-programming-initiatives_en.html

[47] Sumforest links: https://www.sumforest.org/links/

[48] FACCE JPI Agriculture, Food Security and Climate Change (2016, April 27) *Official site of the Joint Programme Initiative.* Retrieved from: https://www.faccejpi.com/FACCE-JPI-Home/Edito

> This has particular relevance with respect to the new growth oriented approach in the horizon 2020 Programme"[49]

This committee has a strong relation with Horizon 2020, since most of its advising practices are oriented to develop ERA building measures related to that framework program. The most important activities encompassed into this aim, are: giving Strategic Policy Advice; Developing a strong foresight process; Developing common research agendas; and Mapping EU capacities. Those activities are sketched in a graph in the committee's web page.[50]



Graphic from "Standing Committee on Agricultural Research" (SCAR) web page

These four pillars are important for the study of Sumforest, and ERA-NETs in general. It is noteworthy how all of them are expressed in Work Packages functions, and the next sections will give clues on how Sumforest is particularly doing so. However, from a panoramic view, it is possible to see that the ERA-NET actually embarks in the development of Foresight Processes (work packages related to the identification of emerging issues), the definition of common research and agendas (by structuring a call and agreeing on relevant research topics), and the mapping of EU Capacities (mapping exercises described in the Work Packages).

In the case of the pillar two, for instance, developing and implementing common research agendas "based on a common vision of how to address major challenges in the field of agricultural research"[51], is the major task; which have been developed by a variety of "Collaborative Working Groups" (from now, CWG), that manage and foster those agendas. Those groups, at the same time, are defined as "fora where members wish to discuss matters of common interest in a specific research area, with a view to a possible multilateral collaboration between funders of research. This allows the building of trust, common ways of working, and the development of common

[49] Research and Innovation. Standing Committee on Agricultural Research (SCAR) What is SCAR? (2015, October 9) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/scar/index.cfm?pg=home
[50] Research and Innovation. Standing Committee on Agricultural Research (SCAR) Our Work (2016, December 2) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/scar/index.cfm?pg=about
[51] Ibid.

research agendas".[52] Important for this particular research is the fact that, as mentioned in the SCAR web page, many of those CWGs have evolved into ERA-NETs. Precisely, Sumforest was a CWG ones before. Back in November 30th, 2010, a Proposal for a SCAR Collaborative Working Group on "European transnational Research Cooperation forest value chain in the light of climate change" ERCF; was submitted to the European Union.[53]

It is explicitly noted in the SCAR web page that such proposal then transformed into what today is the Sumforest ERA-NET. However, the chain of events and translations that transformed that proposal into what is known today as the Sumforest ERA-NET, is precisely a good object of analysis that requires detailed attention. Together with this, it might be important to understand the relations between Sumforest and other configurations as FACCE - JPI. In summary, the task of understanding where Sumforest comes from and how it was created should start from discussing these kind of documents; as they constitute its most important basis. The following graph, also taken from the SCAR web page, illustrates this relation in a good way.

Graphic from the "Standing Committee on Agricultural Research" web page

As one can see in the bottom part of the graph, ERA NETs as Sumforest are outcomes of the SCAR; so, at the end, when tracing its origins and rationales, that committee can be considered as a generative configuration. Of course, it is important to consider that Sumforest was first created for the framework Programme number 7 (FP7), instead of Horizon 2020. However, the rationales of this ERA NET have been connected to Bio economy ones since that time[54]. As such, SCAR have always had an important role to play there.

[52] Research and Innovation. Standing Committee on Agricultural Research (SCAR) What is SCAR? (2015, October 9) *Official site of the European Commission.* Retrieved from: http://ec.europa.eu/research/scar/index.cfm?pg=home

[53] Proposal for a SCAR Collaborative Working Group on "European transnational Research Cooperation forest value chain in the light of climate change" ERCF (November 30, 2010) Austria - Germany. Retrieved from: http://ec.europa.eu/research/scar/pdf/cwg-sumforest.pdf.

[54] Bio-economy ERA-NET actions. *European Research Area Networks of the 6th and 7th Framework Programmes.* Publication of PLATFORM of Knowledge Based Bioeconomy relevant ERA-NETs,

Taking a brief look to the participation of Austria in the ERA scheme, it is to be noted that The Federal Ministry of Agriculture, Forestry, Environment and Water Management (from now, BMLFUW) mentions SCAR when referring to its international cooperation linking practices. Other tools as Horizon 2020, the sixth and seventh framework programmes for research and technology, and the Joint Programming Initiative, are also mentioned. All of them are related to the structuration of ERA networks that work on topics addressed by the Ministry.[55] Sumforest, in that sense, is just one of the seven networks into which the ministry participates, all of them related to topics like forestry, agriculture or GMO's. This example could be valuable to understand how national governments engage with ERA-NETs, although, of course, that process varies from country to country. In that sense, the next section presents institutional configurations related to Sustainable Forest Management as spaces where national institutions could collaborate.

7.4 Institutional configurations related to Sustainable Forest Management

At this point, it is important to explain the institutional configurations that follow from, and are employed to conceptualize, display and monitor the central thematic orientation into which Sumforest outcomes are encompassed. In order to understand the thematic targets and the institutions that hold and make them viable, it is important to come back to its motto: "Tackling the Challenges in the Implementation of Sustainable and Multifunctional Forestry through enhanced Research Coordination for Policy Decisions". This slogan, phrased in other way, points out at the activity of "Sustainable and Multifunctional Forestry", as one that may include different sets of goals which accomplishment may be problematic for different reasons, thus becoming a challenge. Improving "Sustainable and Multifunctional Forestry" is thus the central target of Sumforest ERA-NET. Therefore, it is essential to ask: what is Sustainable and Multifunctional Forestry?

As a politically driven activity, the notion of Sustainable Forest Management (from now, SFM), has been more deeply decomposed than the one of multifunctional forestry (and the term "forest management" more addressed than the one of "forestry"). Multifunctional forestry practices have been defined as "a land use strategy capable of meeting divergent societal interests, supporting forestry practices acceptable to different social groups, and remaining consistent with the principles of sustainable development" (F. Schmithüsen, 2007, p. 294). This definition points out at such practices as ones employed to extract and use the great variety of products and services

European Commission (2014) Retrieved January 31, 2017, from http://ec.europa.eu/research/bioeconomy/pdf/bioeconomy-era-net-actions_en.pdf

[55] International cooperation in research (2015, October 13) *Official site of the Federal Ministry of Agriculture Forestry, Environment and Water Management.* Retrieved January 16, 2017, from https://www.bmlfuw.gv.at/land/land-bbf/Forschung/kooperation.html

provided by forests to satisfy societal needs. To achieve those endeavors, however, the multifunctionality component should be driven according to sustainability principles. Both multifunctionality and sustainability are inextricably linked elements in forest management, but the second one has been deeply inserted into policy throughout institutional definitions and operationalization's of Sustainable Forest Management as an activity. Those definitions have been held by European Forest Policy organizations.

The most important of them, is "Forest Europe", an organization that in its web-site defines itself as "The pan-European voluntary high-level political process for dialogue and cooperation on forest policies in Europe"[56]. This organization is mainly composed by ministries of 46 European countries, who can voluntarily engage and collaborate in discussions and agreements produced there. Protect and sustainably manage forests of all those countries is the most important aim of Forest Europe (which is also called the "Ministerial Conference of the Protection of Forests in Europe"). To do so, ministerial conferences are held where agreements and resolutions are adopted, and indicators created. Those outcomes are not mandatory for the member countries, and each of them can decide whether to adopt them or not. For instance, Forest Europe indicators for "Sustainable Forest Management", could be used or not by ministries of the participating countries. Even more, in most of the cases countries can add certain indicators according to domestic forest sector's needs; which for example is the case of Austria.

Forest Europe held its second Ministerial Conference in 1993 in Helsinki, where they decided to agree in the following definition for Sustainable Forest Management:

> "The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality, and their potential to fulfil, now and in the future, relevant ecological, economic, and social functions at local, national and global levels, and that does not cause damage to other ecosystems"[57] (Helsinki-Resolution H1).

According to this definition, several indicators were created between 1994 and 1995, and revised from 2001 to 2002 in order to monitor if they had been so far achieved. The last version of such indicators, however, was developed in the Forest Europe Expert Level Meeting, held between June 30th and July 2nd in Madrid.[58] They are divided as quantitative and qualitative indicators, which at the same time are encompassed into six different criteria:

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[56] What is Forest Europe? (N.D) *Official site of Forest Europe.* Retrieved January 31, 2017, from http://foresteurope.org/foresteurope/

[57] *RESOLUTION H1 General Guidelines for the Sustainable Management of Forests in Europe*. Second Ministerial Conference on the Protection of Forests in Europe 16-17 June 1993, Helsinki/Finland. Retrieved January 31, 2017, from http://www.foresteurope.org/docs/MC/MC_helsinki_resolutionH1.pdf

[58] 'Updated Pan-European Indicators for Sustainable Forest Management'. Annex 1 to Madrid Ministerial Declaration, as adopted by the Forest Europe Expert Level Meeting. 30 June – 2 July 2015. Madrid Spain: http://foresteurope.org/wp-content/uploads/2016/11/III.-ELM_7MC_2_2015_MinisterialDeclaration_adopted-2.pdf#page=5

- ✓ Maintenance and Appropriate Enhancement of Forest Resources and Their Contribution to Global Carbon Cycles
- ✓ Maintenance of Forest Ecosystem Health and Vitality
- ✓ Maintenance and Encouragement of Productive Functions of Forests (Wood and Non-Wood)
- ✓ Maintenance, Conservation and Appropriate Enhancement of Biological Diversity in Forest Ecosystems
- ✓ Maintenance and Appropriate Enhancement of the Protective Functions in Forest Management (notably Soil and Water)
- ✓ Maintenance of Other Socio-Economic Functions and Conditions

The total of these criteria encompasses 34 quantitative and 11 qualitative indicators. Since the second ones are related to the policy frameworks operating around forests functions, only they are sketched here:

- ✓ National Forest Programmes or equivalent
- ✓ Institutional frameworks
- ✓ Legal/regulatory framework: National (and/or sub-national) and International commitments
- ✓ Financial and economic instruments
- ✓ Information and communication
- ✓ Policies, institutions and instruments to main and appropriately enhance forest resources and their contribution to global carbon cycles
- ✓ Policies, institutions and instruments to maintain forest ecosystems health and vitality
- ✓ Policies, institutions and instruments to maintain and encourage the productive functions of forests
- ✓ Policies, institutions and instruments to maintain, conserve and appropriately enhance the biological diversity in forest ecosystems
- ✓ Policies, institutions and instruments to maintain and appropriate enhance the protective functions in forest management
- ✓ Policies, institutions and instruments to maintain other socioeconomic functions and conditions

As it was mentioned, countries have the chance to introduce criteria and indicators they consider relevant for their respective forest sectors. For instance, Austria introduced one further criteria in the Austrian Forest Report: "Austria's International Responsibility for Sustainable Forest Management"[59], which at the same time contain four indicators.

Again, looking briefly to the case of Austria, it is possible to see how BMLFUW collaborates with research funding and cooperation tools as the responsible authority for managing forest research in the country. For instance, the Austrian Forest report identifies "ThinkForest" (a project of the European Forest Institute); and COST (an European framework supporting transnational cooperation among researchers), as important tools helping to arrange research coordination networks[60]. In that sense, ERA-NETs are just one of the several tools that countries employ to coordinate forest research activities in the field of SFM, and it would be interesting to know what others besides them are phrased as the most important ones for other European countries. However, the central argument of this section relies in their specific role to connect research orientations in countries with specific criteria about why such research is

[59] *Sustainable Forest Management in Austria. Austrian Forest Report* (2015) Republic of Austria, Federal Ministry of Agriculture, Forestry, Environment and Water Management (p. 129). Vienna - 2015.

politically relevant. Precisely, Forest Europe can be considered as the political process which carries those criteria, and ERA-NETs as the space where they are enacted.

According to this last statement, it is possible to identify Forest Europe as an implicit driver of the Sumforest work. This political process should be analyzed together with other specific European policy guidelines touching the topic of Bio economy and climate change, as it was suggested in the section 7.3. Those guidelines could be considered as 'drivers' of Sumforest work. Meanwhile, the institutional configurations related to the constitution of the ERA could be considered as 'addressees', since they may have the task to assess its activities. The next two sections are intended to dig in those relations in deeper and more concrete ways and extract conclusions about them. After them, the final two sections break down the elements of Sumforest contributing to build bridges between research and policy communities in the European and the national scales.

Chapter 8
Addressees and drivers guiding Sumforest work

As it was mentioned in previous sections, an important aim of this thesis is to understand how Sumforest addressees the bridging process between science and policy institutions, an aim that is mainly but not only focused through the conceptual framework of the science policy interfaces (SPIs). In that sense, the conceptualizations of Heink around SPIs, arguing that: "What makes knowledge credible, relevant and legitimate depends on the properties of the information being imparted, the process by which this information is conveyed and the personal disposition and perception by the recipients" (Heink, 2015, p. 679); are pertinent here. From the three CRELE criteria, the topic of relevance is the particular focus of the thesis, and it is the one about which more information was collected. The presentation of the thesis results draws a line from understandings about relevance in relation to the information that Sumforest is aiming to create for policy related actors and purposes; the science-policy gaps that such information is aiming to cover; and the mechanisms and possibilities that Sumforest might provide or foster to incorporate that information in policy community's agendas.

Information about these aspects was retrieved from Sumforest documents and interviews with Sumforest related actors, but also from other sources. Thus, it is first possible to analyze relevance in relation to the information that Sumforest is aiming to create for policy related purposes. Along the explanation, statements will be made on why certain sources were important to retrieve certain data, reflecting on their role in the Sumforest framework.

8.1 Addressees for Sumforest work in the external background: The European Commission

To analyze what are the potential addressees of Sumforest information, it is convenient to analyze those actors that are framing the organization of the ERA-NET as an instrument. This category corresponds to the EU related actors that frame the development of ERA-NETs in general. In a certain way, the most prominent actor in this sense is the European Commission (EC), which structured ERA-NETs with the aim of strengthening the European Research Area (ERA). As such, this organization is an addressee of Sumforest in the sense that some of the objectives that the ERA-NET is perusing, derivate from the broader objectives of EC about structuring the ERA. More in particular, the presentation of the broad problems addressed by Sumforest, in the Sumforest Strategic Action Plan, and the aims implied to solve them, are strongly linked to the ERA ones about avoiding the fragmentation of research in order to tackle societal challenges in more effective ways (Sumforest Strategic Action Plan, 2016).

This aim is linked to the objective of the Joint Programming agenda about avoiding fragmentation, as it was mentioned in a previous section. It is argued in the Joint Programming

that, "European national research programmes are amongst the first and best in the world, but they cannot tackle some of today's major societal challenges alone. Such challenges include, for example, addressing climate change, ensuring energy and food supply or a healthy ageing of citizens"[61]. In that sense, Sumforest is precisely trying to "build cooperation arrangements" to "reduce fragmentation" in order to tackle societal challenges, which in this case, are those ones related to "sustainable forest management and multifunctional forestry" (SSWP, 2016).

Strengthening research relations between European countries was an aspect mentioned in the interviews to Sumforest participants. Three of those interviews addressed the topic of the general aims of Sumforest. It was pertinent to ask those interview partners about that, since they were the ones who could have a good perspective about the whole Sumforest framework: the Sumforest scientific coordinator, Dr. Martin Greimel; the Sumforest Administrative Coordinator, Ing. Dietmar Jäger; and the Sumforest Call secretariat, Mag. Vera Steinberg. Their statements directly and indirectly show the Sumforest orientation towards building cooperation arrangements between countries:

> "In 2005 there was a meeting in Brussels that the Commission cited (…) So I was responsible for that meeting, and it that meeting we decided that in the future we will prolong WOOD WISDOM NET (…) **and at the same time of course there was the idea to include more partnership of the new countries from the East that joined in 2005 the European Union, so it was the original idea to dedicate and ERA NET dedicated to the middle Europe and the Eastern Europe partners.** And in the end when we set down with the Commission again, the Commission said yes you will have to start with building a strategic working group in the SCAR community. Think about topics and how broad you will need to have next ERA NET; and in that committee, the strategic working group committee, **then it was decided to have not only and ERA- NET dedicated to the eastern part of Europe, but to summarize all the eastern part and strengthen more the relation between research and policy. So, this was Sumforest, and Sumforest is dedicated to the enlargement of the Eastern side of the research communities but the second focus of Sumforest was the policy part and the relation between research and policy."**

It can be seen here that an important aim of Sumforest is to strengthening research relations with new EU countries: "include more partnership of the new countries from the East that joined in 2005 the European Union"; "Sumforest is still dedicated to the enlargement of the Eastern side of the research communities". When asked about the specificity of Sumforest, Mag. Vera Steinberg pointed out at the same aims:

> "**And what is also special about Sumforest is that we have some countries participating in an ERA-NET for the first time, and this was very good because we have new research networks then, and we have networks established with the new partner on top**. So, the researchers are connected in a good way, **and the smaller countries who are often a little bit afraid or don´t know how the process work, were also included in Sumforest, and this help them also in Horizon 2020; you know Sumforest started at the FP 7 on the EU** (…) And then the small countries already have experience on how this EU level works, and we believe that this will help them a lot in gaining, or achieving the research money."

[61] "European Research Area: Coordination of Research Programmes" (April 2013). Retrieved from: http://ec.europa.eu/research/era/how-does-it-work_en.htm

Considering this information, it is possible to see that some important aims of Sumforest are those ones framed on the political EU goal of *constituting an European Research Area*. The processes by which Sumforest outputs are interpreted and employed by EU institutions is a problem that escapes to the framework of this thesis. From the information of the interview to Dietmar Jäger, it was mentioned that the EC performs an evaluation of Sumforest, and it was also mentioned that Sumforest submits a scientific and a financial report to them. Besides that, it is necessary to point out at the relevance that the topics of Sumforest outputs have for the EU as an addressee. Mostly, that information is contained in the Work Packages dedicated to the internationalization of research, as pointed out by Martin Greimel. He expressed the following statement when being consulted about the structuration of Work Packages:

> "**Then, one of the ideas to start, at the beginning, was to integrate the Eastern Countries, so we had one Work package dedicated to internationalization, which integrated the Eastern Partnership Countries, like Russia**, to give more connection to that, **and on the other hand the Commission wanted us to have... To build up an European Research Area, so at the same time the Mediterranean countries should be integrated. So, part of the Work Package on Internationalization** was to get connections to **the other ERA-NET Foresterra**, so we built a joint group there. **So that was Work Package VI.**"

We can see here that the creation of the Work Package 6 meant accomplish the EU *goal of the constitution of a stronger ERA*. In that sense, the Deliverable 6.1 aimed to "identifying complementarities, overlaps, gaps, strengths and weaknesses in forest research for providing strategic guidance to the project for future cooperation and forest research coordination activities", with the aim of "defining knowledge gaps and research needs specific for the countries involved" ("Report on existing research capacities in the Russia-Eastern Partnership countries", 2014). Similarly, the Deliverable 6.2 aimed to "integrate the outcomes of FORESTERRA strategic plan regarding emerging priorities in Mediterranean forest research into the more general pan-European research strategies and forest policies pursued by SUMFOREST, in order to maximize synergies (planning joint activities) and avoid overlaps" ("Synthesis report SUMFOREST – FORESTERRA", 2015). To achieve those aims, Sumforest envisioned and established the organization of cooperation exercises with Foresterra (transfer of knowledge, sharing of knowledge, Joint Activities and workshops) between the two ERA-NETs. One important aim of these kind of cooperation arrangements (together with the stated ones), was to *engage partners who doesn´t have so much experience on international collaboration.* This was the opinion of Dietmar Jäger. In particular, he mentioned that:

> … **An aim of such a network of Sumforest is also to bring partners together with different experiences in cooperation, in international cooperation.** So, there are strong partners like EFI who have a lot of experience, but also some partners who participated in such a network for the first time, and they don´t have so much experience. So, that is also a very important task of the network to engage partners; create capacity building, and also to bring countries together into this field of cooperation."

In sum, the task to understand Sumforest work in relation to policy orientations, should start by considering the EU as configuration that might evaluate it according to its innovation policy. Since it is well known that Sumforest is an ERA-NET partly funded by the Framework Programme 7, this could sound as an obvious statement. However, the fact that some of the goals of Sumforest are supposed to match with the integration goals of the EC (constituting the European Research Area), shouldn´t be underestimated since it allows to understand what science-policy interfaces rationales are enacted in the relation of Sumforest with its addressees. Considering the CRELE criteria exposed in the theoretical section, it is valid to think that, if one considers the Sumforest – EC innovation policy as an SPI (which can be considered as one of the SPIs embodied in the ERA-NET), the inclusion of different partners, countries and the creation of capacity building between them; *is a factor that confers legitimacy to the work performed in such interface*.

The effectiveness of the bridging process in the 'Sumforest – EC SPI', might thus be evaluated according to inclusion of different actors who have an interest or a stake in the achieving a better integration between countries and organizations in the framework of the ERA; while not by a priori decided actors. This goes in accordance with the 'normative rationale' of science policy interfaces as understood by Heink, according to whom the idea of effectiveness for that rationale is the "fair consideration of stake holder's concerns" (Heink, p. 684: 2015). Of course, the criteria of legitimacy of knowledge is not the object of study of this thesis, which is rather more related to relevance. However, criteria of what counts as a legitimate knowledge production process might also influence notions on whether that knowledge is considered as relevant or not. About that, some sections forward, it will be explored how this rationale may have the consequences on possible evaluations about the research and knowledge creation in the Sumforest framework.

Something that might be missing to have a good picture of the Sumforest – EC relations, is information on how the EC might evaluate Sumforest outputs, since the Sumforest Deliverables are destined to be read by members of the EU commission. As said before, the processes by which that information is required, integrated and employed by them escapes to the scope of this thesis, so it is not possible to make reflections about the relevance of Sumforest information from a "destinations view", as understood by Heink (2015). Here, the relevance of Sumforest information is being studied in regard to their properties, and mostly with a focus on the stage of knowledge production than in the stage of knowledge exchange and application, although as Heink pointed out, these moments could sometimes be mixed (a point examined later).

Now, together with the aspect about the research collaboration with new countries and different regions, an important novelty of Sumforest, as it could be seen in the quotes too, is the linkage between research and politics. Both Greimel and Steinberg mentioned this topic, but the second did that in a more explicit way when asked about the specificity of Sumforest.

> "One thing Sumforest is aiming for is really the linkage between research and politics. **And I think that is special about Sumforest because a lot of other ERA-NETs always talk about the linkage but they don´t really state it as a specific need in their scope for example.** And when you look at the scope of Sumforest there are **three questions we ask for researchers, they could hand in proposals. It was always very clear that the implementation and the link with policy is very important.**"

An interesting focus of Sumforest, (which at the same time motivated to choose it to study science-policy relations) is its link with policy decisions, which as Steinberg mentioned, was specifically stated in the scope of the ERA-NET. At the same time, she pointed out at Sumforest parts that embed understandings of those relations: the questions asked for researchers to hand in proposals.

In next sections, arguments will be made on how the bridging processes between research and policy is envisioned, and addressed, on the formulation and possible operationalization of those questions in the funded forest research projects. At this point, it is important to first understand what are the Sumforest strategic research drivers, since comprehensions about the relevance of many of the research oriented outcomes of Sumforest, are related to them.

8. 2 Drivers for Sumforest strategic research

When talking about 'drivers', the focus goes to those institutions, processes or strategies that are orienting the Sumforest work in terms creating valuable information for policy communities. In contrast to the addressees, however, and according to the information consulted, they don´t have the stated or perceived task of evaluating or using that information or Sumforest outcomes in general. Rather, they are just factors that contribute to guide, frame or provide sense to information produced in, or resulting from Sumforest activities.

Statements about these drivers are located, in a great degree, in the Sumforest Strategic Action Plan[62], the document that presents an overall but detailed view about Sumforest. At the same time, they are also located in the Sumforest SWOT analysis[63]. The guiding questions in this section is: what are the drivers framing the production of information in Sumforest? What kind of information is considered to be relevant for them? How do Sumforest related persons understand the weight of the Sumforest stated drivers in guiding research agendas, not only in Sumforest by also in the broader European forest research landscape?

To answer these set of questions, information from three interviews and two Sumforest documents was retrieved. The Sumforest documents contain data about how the research structured by the ERA-NET is framed according to drivers related to forestry, while the interviews

[62] Annamaria Marzetti & Elena Capolino (May, 2016). "*The Sumforest Strategic Action Plan 2016 – 2018*". Sumforest Deliverable 4.3, Mipaaf-DISR IV. Retrieved on July 24, from: https://www.sumforest.org/wp-content/uploads/2016/12/Sumforest_D4-3_StrategicActionPlan.pdf

[63] Report from the workshop on strategic activities Part 1: SWOT analysis of Forest research in Europe Jean-Luc Peyron and Annabelle Amm (ECOFOR). Draft, July 2015, 14th

are more oriented to provide clues on whether those drivers are really having a strong role at structuring forest research topics.— At the same time, information of some of the drivers (documents) was employed as secondary sources for the analysis.– These last documents embed understandings about the usage of forests for political and economic purposes, so it is important to understand how the research fostered by Sumforest follows those understandings.

The development of forest related policies is linked to the Horizon 2020 societal challenge 2: "Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bio-economy"[64]. However, *the research coordinated by Sumforest is supposed to be addressing policies and strategies beyond the EU framework programmes*, and to guide the relevance of research to be coherent with them.– Precisely, the Sumforest SWOT analysis about forest research describes the increased policy awareness about forest ecosystems and products for society as an "external opportunity" for forest research (Report from the workshop on strategic activities Part 1: SWOT analysis of Forest research in Europe, 2015).– In that description, those policies have paid attention to the increasing uncertainties, coming mainly from Climate Change and other changes in the weather, that have to be faced to mobilize those forest resources for society.– Considering that, it is possible to talk, at least partially, about a favorable context for forests in terms of the economic and political relevance assigned to their products (Report from the workshop on strategic activities Part 1: SWOT analysis of Forest research in Europe, 2015).

Now, according to this same document (p. 8), and to the Sumforest Strategic Work Plan, the most prevalent drivers dealing with forests in the regional level, from which Sumforest extract meaning, are the 'European Forest Strategy', the 'Bio-economy strategy' and the 'Europe 2020 strategy'.– Thus, the Sumforest Strategic Work Plan (from now, SSWP), states that:

> "Thus, the ERA-NET Sumforest on "The Sustainable Forest Management and Multifunctional Forestry: Implementation of Sustainable and Multifunctional Forestry through enhanced Research Coordination for Policy" started in January 2014. Its ambitions are to build new cooperation arrangements with European and neighborhood regions to reduce fragmentation and maximize the impact of research activities on sustainable forest management and multifunctional forestry providing a scientific basis for policy decisions **in the framework of the Europe 2020 Strategy, and for the new European Forestry Strategy**" (SSWP, 2016 – 2018, 2016, p. 4).

The European Forest strategy is more mentioned in documents, especially because of the role it confers of research and innovation for policy decisions, so it can be considered as an important political driver that encompasses some understandings of the others. In the Sumforest Strategic Work Plan (from now SSWP), statements are placed about its focuses from which the

[64] "Horizon 2020. Food Security Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy" (n/d) *European Commission.* Retrieved on July 24, from: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/food-security-sustainable-agriculture-and-forestry-marine-maritime-and-inland-water

ERA-NET extracts meaning from. The wider discourse taken from that strategy is the importance it provides to position forests in the "Green Economy"[65]. In the document of the strategy, the Green Economy is positioned as an outcome of the employment of renewable resources and materials in the manufacturing of products and goods.

> "The Commission is currently assessing whether additional measures, including harmonized sustainability criteria, should be proposed to address sustainability issues related to using solid and gaseous biomass for heating, cooling and electricity. Thus, forest-based biomass, together with non-wood forest products, which are gaining market interest, **provide opportunities to maintain or create jobs and diversify income in a low-carbon, green economy** (European Forest Strategy, 2013, p. 8)."

To achieve this aim, other key points of the Strategy are placed in the Sumforest Strategic Work Plan (from now, SSWP), like the afore-mentioned focus it puts on research and innovation; but mostly, the understanding of the "value chain"[66], between forests resources and their transformation in products (SSWP 2016 – 2018, 2016, p. 4). In the European Forest Strategy (from now EFS), the "value chain" term (also mentioned in one interview about the focus of actors that meet to first think about Sumforest), is mostly related to the Forest based industries, and is meant to be improved with the aim of contributing to the "bio-based economy"[67] in the framework of the "2020 Forest Objectives" (European Forest Strategy, 2013).

In all the addressees mentioned by Sumforest, it is noteworthy the employment of 'Green Economy', 'Bio based economy', or Circular Economy as terms pointing out at similar phenomena, the transition towards an economy based on the usage of renewable non – fossil materials. Currently, there is the idea that although 'Bio-economy' have nevertheless not completely been positioned on researcher's discourses, *they feel comfortable with that terms since it is flexible to allow argumentations on why certain research is relevant*. For instance, that was the opinion of Bernhard Wolfslehner, who is the head of the Central-East and South-East European Regional Office of the European Forest Institute (EFICEEC – EFISEE); and participated in the Sumforest Call as partner of one the funded projects.

> "Ok, and maybe it was not difficult to define this [the political relevance of the Sumforest funded project in which he is participating] with the other members, right? Because about Bio-economy as far as I understand, there is a common perception that it is something becoming more and more relevant as a political driver sort to say. So, there were no discrepancies in this regard maybe?'
>
> "Well it is always a bit fuzzy, **but when you are trying to find a leading principle and it is fuzzy then it is easy to find an argumentation.**"
>
> "But it is still fuzzy"

[65] Green economy. Retrieved from: https://simple.wikipedia.org/wiki/Green_economy
[66] Value Chain. Retrieved from: https://en.wikipedia.org/wiki/Value_chain
[67] European Forest Strategy. Retrieved on from: http://eur-lex.europa.eu/resource.html?uri=cellar:21b27c38-21fb-11e3-8d1c-01aa75ed71a1.0022.01/DOC_1&format=PDF

> "Yeah, currently there is currently a revision of the Bio-economy strategy so it should have been out, but it is little bit new and it is delayed a bit and a new version of that strategy should be expected still this year. **So, currently people are talking more about the circular economy, which is a related concept but 100% not overlapping. But in principle this is a sort of Umbrella term that we are quite comfortable to move in, and that is quite connected to forests.**"

It is not the point here to do an exhaustive distinction between the terms mentioned, but rather to point out that they constitute the most prevalent concepts in the Sumforest argumentations about the relevance of research topics, as well as in the driver's statements. Wolfslehner recognized this orientation in a brief statement about Sumforest origins: "Forest Bio-economy and Circular economy are one of the topics than then lead to the argumentation of Sumforest, the ERA-NET, because the Forest Bio economy is currently one of the drivers in the political context that is really interesting for us" (Bernhard Wolfslehner).

It can be thus seen that pointing out at the transition towards a Bio economy has been a cross cutting issue in the Sumforest argumentations about the strategic research areas to be fostered; while also in the different drivers that it is touching upon, which includes both the European Forest Strategy (from now, EFS) and the Europe 2020 Strategy[68], (the second one being more oriented to generate economic changes in Europe) (Europe 2020 Strategy, 2010). Due to the importance of these Bio economy orientations, the SSWP places the "Role of the European Forests in the Implementation of the Bio economy strategy" (Sumforest SSWP, p. 11, 2016) as an important strategic research and innovation area:

> "**To valorize the contribution of the forest sector to the transition towards a low emission sustainable Bio economy development, knowledge needs to be** improved on the potential of different species as raw material for integrated wood-based productions and the development and harmonization of accounting methods for CO2 storage in the wood-based products must be supported. (…) **Based on initiatives already in place at European level (EU and ERA-NET's collaborative research projects, SCAR SWGs, Bio economy strategy revision, etc.) in the first joint call that Sumforest has launched in 2016 a specific topic refers to this strategic area** (SSWP, 2016 – 2018, 2016, p. 11)".

In the context of the Sumforest Call, two of the seven funded projects are encompassed into the topic of Bio-economy. For instance, one of them, called 'Bench Value Benchmarking sustainability performance of value chains using ToSIA, the Tool for Sustainability Impact Assessment', was framed into the Bio-economy framework. As Wolfslehner is a partner in that project, he clearly stated the scope of it once being asked about the its characteristics:

[68] "Europe 2020: A European strategy for smart, sustainable and inclusive growth." (Brussels, March 2010). *European Commission.* Retrieved on July 27, from: http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf

> "Ok, and can you explain me a little bit, a small description on what is the project about because I still don´t have the description of it, since in the Sumforest web page there a not yet documents explaining it."

> "Yeah, so in brief, Bench Value is about further **developing a tool for sustainability impact assessment, and particularly in regard to wooden construction of houses. So, this is one of the key elements of the Bio-economy, to have a stronger material use of wood.** And also, to see whether it is feasible economically and also technically to substitute fossil fuels and concrete steal by using more solid wood for wood composites in construction"

After explaining the concrete topic of the project, and pointing out at that it is related to the bio-economy, he referred to the political and social orientations of it:

> "Ok, ok and in that regard who are like the political targets... or how could you describe the political relevance of this project, how did you do to frame the project; you and the other members when you were asked to do it. When Sumforest asked you to define who are the political targets for this."

> "Yeah, I don´t remember in detail but **the leading principle is clear of course, so there is the Bio-economy and the Circular economy, so moving from a fossil based to a natural based economy, and of course there are a lot of different strategies and policies related but this was the overarching topic. So, the sustainable development within the framework of Bio-economy.** And I think that one of the key issues of this Bio-economy concept, is also that we to take care of the Forestry Sector; and it has a strong linkage with this idea that Bio-economic development is really sustainable or not, because it is a very, it is not an alternative economy still you know. It is an economy based on growth, and growth based in forest resources means and increased use of natural resources. **So, there are there some contradictions in the sense that maybe it is not so 'Bio' as the name calls yeah."**

As we can see, the project is clearly inserted into the framework of the transition of moving towards a natural based economy. At the same time, it was also pointed out that it is intended to understand whether and how a bio-economic society is really sustainable, since it presents certain contradictions coming from the intensified use of natural resources that it implies. Later, it is going to be analyzed how this point about the contradictions regarding the use of forest resources is a problem of forest related policies and forest research according to certain Sumforest documents and Sumforest related actors.

According to this information, both in the Sumforest frameworks and its drivers, there is a strong orientation towards understanding how to employ forest resources in markets in a more profitable way. At the same time, this forests economic profits orientation, was put into place and goes hand in hand with other more related with the sustainability challenges affecting them. For instance, this can be seen in the EFS, which touches on the point of the sustainability requirements of that forestry should tackle:

> "Over the last 15 years, significant societal and political changes have influenced the way EU society looks at forests and forestry. (…) A new framework is needed to: (…) Satisfy the growing demand for raw material for existing and new products (e.g. green chemicals or textile fibers) and for renewable energy. **This demand is an opportunity to diversify markets, but poses a significant challenge for sustainable management and for balancing demands.** Demand for

> new uses in the bio-economy and in bioenergy should be coordinated with traditional demands, **and respect sustainable boundaries"** (EFS, 2013).

Combining the multifunctional use of forest resources with sustainable criteria, is precisely what constitutes the thematic line of Sumforest, which as it was said in a previous section, consist in tackling challenges in multifunctional and sustainable forestry. Thus, in the SWWP, the accent is also put on the relevance forests have for the environment as well as for the bio-economic society (preserve bio-diversity, deal with climate change etc.). At the same time, together with those two orientations, the policy related angle of the Strategy was also mentioned. Regarding this, it underlines the relevance of the adaptation of EU policies to the National ones; and to have an "holistic approach" of which are the many policies that affect forests (SSWP 2016 – 2018, 2016). From this point, it is noteworthy the way this target assigns relevance to industry, policy and innovation goals.

In next sections, it will be studied how Sumforest integrates all these orientations in more concrete *forest challenges, and forest research topics*. In this point, it is important to say that, although these drivers have been recognized as important ones to give meaning to certain Sumforest activities, some of them have also been recognized by some actors as still week frameworks at the moment of guiding research orientations; and what's more, influencing how forest resources should be managed. For instance, according to these opinions, a connection between policy orientations and the distribution of research relevance is still weak in the case of the EFS. This is the opinion of Bernhard Wolfslehner. When asked about the role of the strategy on setting criteria to guide the relevance of forest research, his answer pointed out as being skeptical about the existence of that role:

> "Well, this is a very difficult question. The Forest Strategy is a sort of result of a negotiation process between different stake holders, and I think that research is one component in this. **So, we always can use it as a reference to justify why our topics are relevant because they are touching in the Forest Strategy.** But in principle I would say that the Strategy is a very soft instrument, I think not only for research. It is a kind of guiding document to summarize what is important."
>
> "Ok, and this is also a kind of new strategy, right?"
>
> **"Yeah, it is not so new anymore but I don´t have the perception that it is really strong.** Of course, it provides you with the topics and so on. **But in my view, it is not utterly preparing the Forest Research Landscape. Of course, this is my personal view.** And I think it will also be one of our jobs in the future to stronger argue to make the research component more visible in this kind of strategies. Because we are one player among many many interests.

As we can see, the usage of terms as 'soft instrument' refers to the lack of strict criteria on how to manage forests and do research about them. More than establishing guidelines on what actions should be taken to manage forests, the strategy is perceived as a reference to justify the relevance of research, but not to structure it. However, this same actor was very cautious on establishing

any kind of judgements about the impact of the strategy, since there is still not possible to do an evaluation of it: "…But the actual impact of the Research Strategy and how this is implemented is very difficult to say, in particular in this stage. Because that is something we generally do a sort of midterm or ex-post evaluation of such strategies, so it is very difficult to see at this stage."

This cautious view about how the Forest Strategy could eventually guide research orientations was also expressed by another interview partner, Jean-Luc Peyron, who works for ECOFOR, a French partner institution in Sumforest.

> "I wanted to ask you, in the case of the European Union, the European Commission they... What do they think about, or how do they perceive the work of Forest Research organizations? Is it difficult for forest research organizations to establish dialogues with European policies? You know what I mean?
>
> "Yes, at the European level it is not a common forest policy and there is a common Agricultural Policy for example. But there is a forest strategy anyway. And that strategy is not so... important as a policy. But anyway, that is a strategy and things written there are in line with what I have said about an integrated view. (…) **So, in policy making I think the EU forest strategy is known and anyway it is possible to use it as an argument… but for research it is not so easy. But we try to structure the forest issues at the European level as I said it is the right level to do this.**"

Considering this kind of arguments, one should be very cautious when pointing out at this kind of addressees as schemes that are modifying what forest research should be done. Precisely, one the most important arguments present in Sumforest documents (European Forest Related Policies – A cross-sectoral review, 2014), and interviews, refer to the lack of clarity of forests research goals; which at the same time includes the lack of a clear and stronger European forest policy as one of its causes; an European policy that could be considered as a driver. Related to that, Dietmar Jäger also pointed out that in the European environment, there is not a responsibility for forests, which are rather encompassed in other policy areas as agriculture. For that reason, forestry policies continue to be a national task.

Possibly, a more stable structure guiding the establishment of forest research topics is the Forests Europe political process, which, as mentioned in other section of the thesis, provide a set of qualitative and quantitative indicators that Member States can consider when assessing and guiding forest research. However, the role of Forest Europe in the definition of the Sumforest strategic research was not a topic addressed in the interviews, nor was it touched on the documents of analysis, and it is only mentioned as a partner configuration of the ERA-NET.[69] As it involves forest related Ministries on European countries, some of whom are Sumforest partners, it is valid to think that it has an important role to play in mobilizing research topics for policy into this ERA-NET. In addition, it has also a strong relation with the EFS, which is clearly stated there:

> "**Member States are bound by FOREST EUROPE commitments to manage their forests sustainably, according to their national forest policies and legislation. When implementing**

[69] "Sumforest Links". Retrieved from: https://www.sumforest.org/links/

> **this strategy, they should address sustainable forest management baseline**s, improve information exchange and disseminate good practice (European Forest Strategy, 2013)."

Thus, one could say that while the EFS constitutes a guiding document that summarizes what is important and makes possible to justify what research topics are important (in words of Wolfslehner), the FOREST EUROPE process is the tool that operationalize research orientations in more concrete ways. This is so specially since it specifies a group of "Ministerial Commitments" that, by the way, emphasis the topic of developing a green economy and strengthening the value chain as the EFS does[70]; while also the one of protecting forests in a changing environment.[71] As being these Ministerial commitments, can be thus said that FOREST EUROPE presents the characteristics of a more legally binding instrument to put forest interventions and research orientations into place. However, this is a general impression that may require a more detailed study grounded in data. That study should be focused on how research motivations of Ministries, as expressed in forest related ERA-NETs, are linked or not to FOREST EUROPE commitments and guidelines. In other terms, it would focus in a case study of the level of fit (Lemos and Morehouse, 2005) between the state of knowledge production in the framework of ERA-NETs, and its application in accordance to FOREST EUROPE as done by National Ministries; and not in the explorative level that this thesis is dealing with.

With the data provided so far, it is possible to see what are the most important addressees guiding Sumforest strategic research and innovation areas. Those addressees share certain key preoccupations with the ERA-NET regarding research areas, like the focus on the transition towards a non – fossil based economy (encompassing the terms of "bio-economy" "green economy", and "circular economy"); the understanding of changes in forests due to climate change; and to increase the understanding of the policy framework affecting forests. What is still at stake is how those policy related addressees have an influence on how research is prepared, and vice versa. This problem can be framed in relation to the concept of co-productive capacities, as understood by Van Kerkhoff and Lebel (2015). The extent to which scientific knowledge produced in forest research can cooperate with policy to produce changes in the management of forests is a topic studied (in relation to the research: *envisioned*) in Sumforest documents. That study starts with a diagnosis about the policy framework affecting forests, the topic of the next section.

[70] "Madrid Ministerial Resolution 1: Forest sector in the center of Green Economy". 7th Ministerial Conference (Madrid, 2015). Retrieved from: http://foresteurope.org/wp-content/uploads/2016/11/I.-ELM_7MC_2_2015_MadridResolution1_GreenEconomy_adopted.pdf

[71] "Madrid Ministerial Resolution 2: Protection of forests in a changing environment". 7th Ministerial Conference (Madrid, 2015). Retrieved from: http://foresteurope.org/wp-content/uploads/2016/11/II.-ELM_7MC_2_2015_MadridResolution2_Protection_adopted.pdf

Chapter 9

Understanding gaps between science and policy

Establishing a bridging process between research and policy communities, implies having an idea on what are their most important goals. In the case of clearly established or localized science-policy interfaces, it might be clearer what are the research and policy oriented needs into play; but in Sumforest, bridging those two elements start with an exploration on what those needs might be. The next section is, first, an exploration of the Sumforest understandings about what are supposed to be the strategic research addressees that it is pointing out: forest related policies. As Sumforest documents are only analyzing European forest related policies; interviews provide clues about the state of the situation of national forest related policies as well. Second, this section is also intended to show understandings on what are the most important effects of that political situation, in the development of forest research in Europe. The general argument is that both forest related policy and forest research problems, as understood in Sumforest documents and by the consulted actors, co-produce each other, causing particular effects in the research practice.

9. 1 Forest policy and forest research: complexity, fragmentation and contradictions

The Sumforest Deliverable 3.1 (Called: "Characterization of the forest-related policy framework European Forest Related Policies – A cross-sectoral review") accomplish the aforementioned function by doing a mapping of the policy framework related to forests[72]. This document describes and discuss the focusses of forest related policies, and then presents a diagnosis about the problems related to the policy framework, together with possible ways to solve them. This could be also understood as a sort of "state of the situation" about the policy framework affecting forests. The analysis aims to understand whether and how that framework can help to conceptualize more *coherent policy interventions* in the field of Sustainable Forest Management. *Coherent policy interventions*, at the same time, are pictured as something necessary to create common visions on how forests should be managed and might look like in the future ("Characterization of the forest-related policy framework European Forest Related Policies – A cross-sectoral review", 2014).

In the Sumforest Deliverable 3.1, eleven policy areas were mapped as the most important ones touching on forests, like 'Agricultural and Rural Development policy', and 'Energy and Climate Policy'. At the same time, they include both legally and non-legally binding legislations

[72] Filip Aggestam and Nataša Lovrić (2014). "Characterization of the forest-related policy framework European Forest Related Policies – A cross-sectoral review". Sumforest Deliverable 3.3. Retrieved from: https://www.sumforest.org/intranet/?wpfb_dl=79

(documents), which contain guidelines touching on forests ("Characterization of the forest-related policy framework European Forest Related Policies – A cross-sectoral review", 2014) However, the argument of the Sumforest Deliverable refers to the contradictions they present when coming together. The challenge of building coherent policy interventions, according to Sumforest documents, present certain problems like the existence of *conflicting policy goals* and *incoherent policies*. Policies related to forests are characterized as *fragmented, complex and contradictory*. What's more, it is mentioned that governments of member countries are generally not interested on "challenges facing forests". The "forest sector" has not caught the attention of them, so forests have not been included in documents dealing with ecosystem services like the "Water Framework Directive" (p. 26).

Checking information of this source and Sumforest related persons, contradicting policy messages and the visibility of the forest sector in policy agendas were pictured as relevant problems. Both of those issues are pertinent to national and regional contexts. The aspect of the contradicting policy messages, for instance, was mentioned in the interview to Bernhard Wolfslehner. According to him, there are many policies touching on forests, but they put emphasis in different objectives which are not always compatible. Institutions as the European Forest Institute, with forums like 'Think Forest'[73], are aimed to, precisely, bring light on how research could contribute to solve them. In that sense, when asked about the vision of Think Forest about how research and policy should be brought together, Wolfslehner reflected about the ideas upon which it started to work. Those ideas were related to the policies affecting forests.

> "**I think there was the notion that forest related policies in the EU are a sort of very fragmented issue and there is not a clear responsibility for forests.** (…) So, there is agriculture, there is environment, there are different policies in the EU that somehow have a connotation to Forests and this situation of course implies that **very often they provide some contradicting messages and contradicting incentives.** So, they thought about moving to Bioenergy, but now they are moving back because you see that it is too far for the environment that Bio economy is arguing for a more intensive use of Biomass. **So, there are a lot of contradicting issues**."

The 'Think Forest' forum started to work, in that sense, due to the necessity to understand that complex political scenario. In other terms, it was embedded in that institutional framework and had the task to understand it, for science to be able address it in better ways. Think Forest importance in bridging the gap between research and policy was explained in another section of the thesis, since that forum and the Sumforest Deliverables are two separate things. Nevertheless, as the Deliverable 3.1 was prepared by the European Forest Institute, the organizer of Think Forest, it presents some similar preoccupations related to the Forest Policy scenario. As such, in the Deliverable it is mentioned that "as there is furthermore very little coordination, the varying interests create a challenging situation of compliance as the implementation of diverse policy

[73] "European Forest Institute – Think Forest": http://www.efi.int/portal/policy_advice/thinkforest/

instruments leads to incoherence when some policy goals are conflicting (e.g. biodiversity conservation versus biomass extraction for energy)" (Characterization of the forest-related policy framework European Forest Related Policies – A cross-sectoral review p. 24).

Thus, the need to have coherent policies in the EU level, which should be guided by common EU objectives, has been pointed out as a relevant issue. For the moment, however, the setting of those objectives has not been performed in the EU level, an opinion stated there too: "despite the ever-increasing list of demands being placed on forest resources we do not see a major shift in governance arrangements or in how forest issues are being coordinated" (p. 26).

The lack of a clear guiding forest policy in the international arena, is a relevant problem touched by Sumforest documents and perceived by actors related to Sumforest. This problem can be located not only in the Deliverable 3.1, but also in the SWOT analysis of Forest Research prepared as a basis for the definition of strategic activities in the framework of Sumforest. In there, key problems of the definition of clearer policy guidelines are framed as a "external threat for forest research", which at the same time comes from "the general background and other sectors" (Report from the workshop on strategic activities Part 1: SWOT analysis of Forest research in Europe, 2015). The absence of a common European Forest policy, together with the insufficient presence of forest issues in the Directorates of the European Commission, was also understood as a problem for the forest sector, and the EC in the eyes of interviews.

In the SWOT analysis, under a list of threats dealing with the three forest challenges, four of them related with the problem of unclear policy messages: conflicting policy roles and demands; forest policy fragmentation; the absence of a global legally binding instrument; and the absence of shared EU goals. Of course, these four threats are very much connected, but they were phrased as separate entities. From these threats, *conflicting policy roles and demands* was one emphasized by Dr. Jean Luc Peyron. This person participated in many stages of the Sumforest activities, as well as in the preparation of some deliverables. He works in an institution dealing with the forest science/policy interface in France, and his interview brought important information about the problems to find integrated visions about forests management, and its repercussions on forestry research funding (a point touched a bit later).

> "Ok, so in general there are sometimes these sorts of trade-offs between the different purposes that research could have because. Would you say that for example there are conflicts between for example, preserving bio-diversity or using in a more extensive way certain natural resources, do you think that there are certain trade-offs that you also mention.
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> "It is not a conflict by nature I can say. **So, it is not always a conflict, we have also synergies and I think that conflicts come when one objective is to much emphasized**. So, if you are not very very much in favor of biodiversity but you admit some... not to be in natural state but in rather good bio-diversity then you can have many options in order to try to have timber, bio-energy, recreation, and so on. But if you just want bio-diversity very very strongly then it will be difficult to have... The level of other challenges for forestry will be low in fact. So, the problem is not to find the best level... **It is impossible to find the best level for each ecosystem service let's say,**

> **but if you just find acceptable levels... It is possible to find acceptable levels for all these services.**"

As we can see, according to him, the conflicts between policy demands on forests arise when they put an excessive emphasis on one objective related to the employment of ecosystem services. At the same time, he mentions that it is not possible to focus on just one ecosystem service without reducing the possibilities to benefit from the others; so, the key is to find acceptable levels on how to use many ecosystem services at the same time. Further on, on other section of the interview, he supported this opinion arguing that a forest policy should be guided by that principle: "So, we need an integrated view and the best forest policy is not a good bio-diversity policy plus a good a bio-energy policy for example. The best forest policy is a policy that find the right trade- off between (if there is a trade-off), between bio-diversity and bio-energy" (Jean Luc – Peyron).

Precisely, having a clear forest policy is an aim advocated in the Sumforest framework, since it will allow to integrate and conciliate those demands on forests. This is stated in the SWOT analysis:

> "Ecosystem services and underlying ecological functions are analyzed by scientists but mainly service by service and more from the supply side than from the demand side. What is really at stake today is research on how to integrate several of these services, taking into account synergies and trade-offs among them, and advocacy towards a clear forest policy not only at the national scale, but also at European, pan-European and World levels ("Report from the workshop on strategic activities. Part 1: SWOT analysis of Forest research in Europe", 2015)."

Coming back to the research-policy bridging problem that started this section, it is valid to say that Sumforest arguing for such forest policy, makes possible to understand that it is *envisioning*, or arguing for, a collaborative model between science and policy. As stated by Heink (2015): "According to the collaborative model, scientists and decision-makers instead negotiate what information is needed, what evidence is acceptable for the policy process and *what the policy options are*." In that sense, Sumforest argues for a collaborative model orientation since it aims to improve the understanding on what policy options could be suitable to internalize and frame forest research outputs: it is not only saying that research information should be mobilized to certain addressees in certain ways; but also, that understandings about those addressees should be improved in order to see how could they take advantage of scientific information.

The question that could be raised here is: what is the relation between these contradictory policy goals, issues, demands, and the forest research practice, as understood by Sumforest?

The fragmentation of forest policy goes hand in hand with a fragmentation of forest research. When talking about this fragmentation, the language portrays that fragmentation as related to the topics that research programmes are touching, and to the organization and management of the research institutions and programmes. Thus, the first aspect mostly come from problems about forests as an entity of study, while the second to aspects of funding and

networking (being funding and networking the most important aims of ERA-NETs). Both of them could be understood as problems for research coordination.

The complexity of ecosystem services is something pointed out as related to the first aspect. Complexity was portrayed, specifically, as a 'challenge' for building a better forest policy on research, according to the Sumforest Deliverable 3.3[74], called: "Future forest policy and policy makers knowledge gaps". This document provides important information about this aspect since it presents characteristics of the forest research landscape. In that sense, it mentions that this complexity has important repercussions, first, on the research results that are available. When dealing with the wide variety and complexity of forests ecosystems, some studies provide conclusions pertinent to one of those ecosystems or natural elements (three species is the example provided in the Sumforest Deliverable), but not to different ones. So, those research results contradict with others related to a different ecosystem or specie. As explained there:

> Additional to the complexity of ecosystems themselves, **research results trying to explain ecosystem interactions or trying to give advice regarding sustainable management, are often contradicting. For example, depending on the species one tries to protect, management approaches can differ a lot. Conflict of objectives are a common problem when it comes to management action and not only the interest of stakeholders differs a lot, but the kind of action nature conservation requires varies tremendously**. This can lead to an additional insecurity regarding political action ("Future forest policy and policy makers knowledge gaps", 2015).

As one can see, establishing coherent objectives on how to manage forests is a task that should be done to think on management actions for forests. However, the problem is that science is giving contradictory advice for those management process, since it focusses in on or another element (specie, resource, region, etc.), rather than in the interactions between many of them. This argument doesn´t mean that there are not current research efforts trying to deal with the complexity of ecosystem services. Scientific information has started to focus on questions on how to deal with these changes in forests ecosystems. However, that process still need to be increased by some shift in research focusses and topics. Thus, according to the SWOT analysis conclusions, forest research information should integrate research services in common research frameworks:

> "Ecosystem services and underlying ecological functions are analyzed by scientists **but mainly service by service and more from the supply side than from the demand side**. What is really at stake today is research on how to integrate several of these services, taking into account synergies and trade-offs among them, and advocacy towards a clear forest policy not only at the national scale, but also at European, pan-European and World levels" ("Report from the workshop on strategic activities Part 1: SWOT analysis of Forest research in Europe", 2015).

As mentioned in the quote, it is necessary to understand the trade-offs and synergies between different ecosystems services, while also comprehend how they might be used by the demand

[74] Steinberg and Hinrichs (2015) Future forest policy and policy makers knowledge gaps. Sumforest Deliverable 3.3. Retrieved from: https://www.sumforest.org/intranet/?wpfb_dl=147

side, the users who are meant to employ them. Social sciences should also have a role in understanding uncertainties regarding the employment of those forests services. In sum, this requirement aims to overcome fragmentation, and better answer policy questions.

Understanding trade-offs between different ecosystem services is one of the three topics for the first Sumforest Call (Sumforest, List of Joint Call topics).[75] Doing research about that aspect thus correspond to the overall need of forest research in Europe to overcome fragmentation by having forest research common visions. Moreover, it could have important implications on what policies are implemented for the forest sector. Thus, Jean-Luc Peyron reflected upon the need to consider the trade-offs between different ecosystem services in doing research, and how that endeavor could be expressed in the making of policies and interventions in forests. Instead of using the term "common visions", he used the term "*integrated visions*", when talking about ways to establish research frameworks.

> "Ok and there are many disciplines into what could be understood as forest research and if I understood you well it is a problem of creating and integrated vision for forest research; is that more or less what you mean? And that is the reason why it is a little bit difficult sometimes to get funding because maybe politicians don´t understand what is forest research in a certain way as it includes different sorts of disciplines or research orientations?"
>
> "**Yes, the challenge is to have integrated views, to have research that is more useful for the practical issues we have in forest policy for example.** So, the problem is not to find the best silviculture for biodiversity because maybe it will be just about making a biological protection area, and then you will have bio-diversity. And the problem is not to have the best forests for energy, because in that case probably the best silviculture will be to have just copies perhaps. So really the problem is to find the silviculture that could at the same time maintain bio-diversity, while allow bio-energy and also could produce timber. Because timber also have many advantages that are not always emphasized now on research programs".

In this quote, the interview partner positions the "finding of a silviculture[76] (planting threes), that could at the same time maintain bio-diversity, while allow bio-energy and also produce timber" as an important practical issue that forest related policies is having at the moment. It is not clear what he is thinking about when he said "forest-policy" (what forest policies, national or international ones), at the beginning of the quote; but the way he phrased the answer may point out that he refers to what might be a sort of "ideal" forest policy, be it one that is already working, or one that is being advocated. So, in other words, such forest policy would require research orientations that could understand trade-offs between goals related to forests (allow bio-energy, produce timber…), and conciliate them.

The question that may arise here, is whether those integrated views for forest research have not been sufficiently established yet due to the absence of a strong forest policy in the

[75] Käär, Liisa (n/d). "List of Joint Call topics". WP 4 Strategic activities Deliverable 4.2 https://www.sumforest.org/wp-content/uploads/2016/06/Deliverable-4_2_List_of_joint_call_topics.pdf
[76] https://en.wikipedia.org/wiki/Silviculture

regional level that they could speak to; or if those sorts of policies already exist and research is not speaking to them in a sufficient or adequate way. On the other hand, it seems to be the case that forest policy and forest research need to speak in better ways to each other in order to be constituted. From the information provided by the Sumforest documents, the absence of a strong forest policy is a phenomenon that could be reflected upon only in the regional arena, since they mapped and analyzed the regional policies and not the national ones. However, the need to avoid fragmentation and having more integrated views for forest research could also an issue relevant for national cases, as it is going to be showed in the next section.

In any case, focusing on one forest service and not having integrated forest research visions of the trade-offs between them, is considered as an important issue by some of the interview partners, like the Sumforest call secretariat, Vera Steinberg. For instance, when asked about possible recommendations for future forest related ERA-NETs according to her experience in Sumforest, she talked about the excessive emphasis on one forest service:

> "One thing which I am a bit concerned about is that **forests are seen right now in relation to Bio-mass production, but forests have many other important aspects as well**; as bio-diversity, ground water, all sorts of cleaning the air storage functions; **but it is something seen only as bio-mass production. So that is something we have to keep in mind, to not only seen them as producing bio-mass."**

So, in this quote it is possible to see that the excessive emphasis on one or another forests use is a relevant issue for the setting of research agendas. What's more, since it was an answer to a question about recommendations for the next forest related ERA-NETs, there are reasons to think that those tools in particular, still need to incorporate more integrated views for forest research in the perception of the respondent.

9. 2 Lacking common visions: a problem for research funding?

Here, it is worth asking: what are the perceived consequences of the absence of common research visions of forest research communities for their relationship with policy related ones?

Considering the interviews performed to persons related to Sumforest, lacking common research visions have the consequence of *making difficult the allocation of funding resources for forest research programmes in the regional and national levels*. That problem is perceived by Bernhard Wolfslehner as a weakness of the forest based sector:

> **"I think it is often more that the Forest based sector is not strong enough because it cannot speak with one voice.** So, for example agriculture knows what they want; the concrete sector knows what they want; the steel sector knows what they want... **But if you take a broad picture of the Forest Based Sector, which is Forestry and Forest Based industries, it is still so that they all have different interests."**

It can be seen how the absence of common visions in the forestry sector is perceived as one of its weaknesses. In this quote, the interviewee is referring to the forest based sector in general, which not only includes researchers but also actors from industry, forest owners and other stake holders; while in another source, the Sumforest SWOT analysis, that is a problem particular to forest research too (p. 10). However, in a next quote he refers to this problem referring to the particular case of forest research, and the way they could find spaces of representation in EU policy making.

> **"There is a lot of internal incoherence and this of course doesn't… [Not understandable word…] from the position. Because they say ok if you, forestry guys don´t know what you want, then the others now... So, this demonstration of contradiction is also visible to policy makers.** Because policy makers in the parliament they have to make 25 decisions every day on everything, and then of course if you are not an expert you don´t have an idea on what the implications are. So, you really have to demonstrate in the Bio-economy or in the Biomass what are the real implications if you go for this or this."

For him, the fragmentation and the lack of common visions produce conflicting messages from "the forestry guys", to those who are defining European strategies that include research orientations (policy makers in the parliament). Those contradicting messages, at the same time, have a negative impact on the visibility and representation of the them in the eyes of the parliament policy makers: "if you, forestry guys don´t know what you want, then others now…".

Apparently (the interviewee doesn´t make explicit this casual relation), according to Wolfslehner this problem is an important cause for making funding schemes for forestry in the European level to be scarce, as the next quote shows:

> **"As you might know, Forestry topics are very scarce on these days in the European research framework. Because there are many of this kind of "Meta Calls", a lot of different disciplines have to come together; and particular Forestry Calls are really scarce**, which puts quite a pressure in the European Forest Research Community, because it is very difficult to compete now with everybody, as compared with former days in which you have to compete with the small forestry community."

"Pressure in the Forest Research Community", means here the need to establish visions on what research should be done, and how that research is relevant to certain European policy objectives, in order to access to funding programmes. Establishing those visions, at the same time, is more urgent because there are other sectors that are, as the interviewee say, competing for those spaces.

Lacking sufficient funding spaces for forestry, due to the fragmented visions about forest research, was a problem also mentioned by Jean-Luc Peyron, when answering a question about the challenges for coordinating forest research programmes in his opinion. Thus, funding forest research could sometimes be difficult, according to him, because of non-adequate funding schemes. Those funding schemes don´t usually match with the orientations of forest research, so that is why forests researchers have problems to be funded.

> "I think that for me the establishments of funding schemes adapted to the forest based sector are very important, so for me it would be the main task. **The problem we have is that generally there are funding schemes to which forest researchers can submit proposals that can deal with**

> **biodiversity on the one end, or with bioenergy in the other end, and what we need for example is to deal with both with bio-diversity and bioenergy."**

Again, here it was again mentioned the aspect of the integrated views. In this case, however, the integrated view should come from the policy side. It is necessary for policies to have integrated views about forest services to be adapted to the forest based sector. That adaption means being able to fund forest research programmes dealing with the complexity of forests ecosystems and the services they can provide. In other terms, the argument seems to point out that the absence of strong forest policies, could produce and absence of funding schemes as well. This might be the reason why, as pointed by Wolfslehner, forest researchers sometimes struggle find funding schemes. In particular, he referred the case of forest research calls:

> "…I would like to know, now going more to the side of your involvement in the Sumforest Call. How did you get involved in this Sumforest Call? Why do you think it was important maybe for you as a researcher to be involved in this? Why did you want to be involved this project? How was the process?
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> "Well I think I was like a special case in here of course because EFI was of course a driver for starting this ERA-NET. (…) But then it had to step out of this process when it started to develop the thematic key points, because that way it could also act as an applicant. So, from this background, I have to say that I was involved rather from the very beginning in the set-up of Sumforest. **But if I wouldn´t have been there, this is something that is really attractive to the Forest research community… When the calls are out it spreads quite widely because there is like Oh! A forest research focused call again, that it is so rare.** It spreads out to the community quite quickly. **So, it was very attractive in terms that as I noted earlier this kind of calls don´t exist anymore."**
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> "Ah ok, so in general there is like a lot of enthusiasm when a forest research call emerges, a lot of persons applying for these calls?"
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> **"Yeah, you can call it enthusiasm; or you can call it need for money after years when money was short."**

Forestry calls are thus perceived as an opportunity to be funded. In the regional scale, although there is forest research community producing information, there are not so many calls for forest research, so they don´t have the resources to do forest research programmes. The scarce funding for forest research in national contexts could be a motivation for engaging with funding research tools as ERA-NETs, a point touched a little bit latter.

As in the European context, scarce funding could be caused because of the perception that the forest research community is very small, and because of the complexities of doing research about forests ecosystems. What's more, such complexity could implicate not only difficulties on thinking on common visions/integrated views regarding interventions in forests, but also difficulties in being positively evaluated when presenting research proposals to funding organizations. Even more, even if integrated views are found, funding institutions don´t canalize money to forest research projects. Again, this argument was made by Peyron for the case of France:

> **"…But then you are evaluated by people have their own discipline, and if you propose integrated views usually you are not very well evaluated by everybody because it is like you are never good enough in everything.** It is like in sport, in decathlon for example, if you take. I think that people probably in decathlon they are the best sport men or women you can have, but if you make them on length or... run, they are not so good as the specialists of these other sports. So that is the problem."

This opinion shows that there is sometimes the case that evaluators in the case of France consider forest research as a field which may not provide important results as other disciplines may do. The comparison between forest research with a sport activity that include many disciplines is interesting to understand how forests researchers are perceived by external actors. As forestry is a field that includes many disciplinary orientations, there is sometimes the idea that forest researchers are not good enough on particular topics, which could be studied by more specialized fields. Forests researchers can provide more integrated visions about specific problems, but there is sometimes the belief that they are not good enough to provide results about more focused problems, which results in a lack of funding. What's more, according to Peyron, policy makers usually find difficult to work with the time scales perspectives of forestry researchers, who usually orient their research to long term horizon results; something that is also related to his view about finding integrated views:

> "So, when I say integrated view it is important to consider not only short term but also long term, and an appropriate time horizon is difficult also to understand when you are in the research program that is not specific with forestry or that doesn´t know very well forestry. **So, people from Forestry are often considered as "ETs", I think, extraterrestrial people because they think very commonly over centuries. But anyway, in climate change we have also to look over centuries so we are very...** It is easier for us to think in terms of climate change because it is more time horizon as in Forestry."

The forestry research time horizons perspective is also another aspect that should be adapted to policy options, and vice versa. Looking at these points, it is interesting to see how the characteristics of forest research (thinking over centuries, analyzing complex ecosystem services etc.), could affect not only what scientific results are produced, but also the way policy related communities interact with them.

As another point, considering forest research communities to be small is another perception that could cause funding resources to be scarce. In the national level, this of course depends on the importance of the forest sector in the economy of the countries. In that sense, as being forests very important for the economy of countries like Finland, research activities related to them are substantial, which generally contrast with the situation of many other nations. For instance, this was the case of France in the opinion of Jean-Luc Peyron. It was pointed by him that such perception has consequences for the assignation of financial resources. For instance, when asked about the challenges for the coordination of forest research institutions and programmes, he mentioned that French forest researchers usually have difficulties to be funded

not only because of the fragmentation, but also because of the so perceived "small size" of their research community.

> "And so, to have funding schemes adapted to forestry is very important. And the problem is that for a big country, rather big country as France, it is difficult to have research programs adapted to forestry at the national level, because we need a bigger, a larger space to think and to really have a program. **And usually in France when I say we need a research program adapted to Forestry the answer is you are too small. You are too small, not big enough to have a program".**

According to this, the so perceived small size of the forest research community in France makes them hard to ask for monetary resources to make forest programmes. This understanding is similar to the one presented in the Sumforest SWOT analysis about the regional level, according to which the small size of forest research is presented as one of its internal weaknesses (Sumforest SWOT analysis, 2015 p. 7). Thus, this actor puts the accent on how certain structures (funding schemes) should be created or modified to match with the characteristics of forests research communities.

Similar ideas were expressed by Martin Greimel when talking about Austria. In this case, the perception that the forest research sector is too small was not mentioned, but some difficulties to get funding it were also put over the table that may point out at that perception.

> "Ok and now that you mentioned the participation that Austria had in this. I was wondering when you took this decision, I mean, that Austria was the leading country in Sumforest, did you have to follow some guidelines inside Austria. Because when Austrian actors decide to participate in ERA-NETs they may have to fundament the choice of the ERA-NETs they are participating in I guess. So, how do you explain for Austria that this ERA-NET is good for the country?"
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> "You are touching a very delicate point. **In Austria, at least the money from the Ministry I am working for, so the Agriculture, Forestry, Water and Environment for research is not very high budget. We have a very small budget to research is around four hundred thousand EUROS so it is not so much. And... but then it was so... There is one department that is in the Ministry which is responsible for research that is not in the field of forests."**
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> "Which one is this Ministry?"
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> "This is the Department for Research is now... I think it is called for Research Coordination.

In this case, the interviewee is pointing out at the limited amount of resources for forest research, but not signaling the possible causes for that. However, it is not noteworthy that as it happens in France, the public funding destined to participate in forest research coordination actions is not very high. The Ministry dealing with forest research topics (The Federal Ministry of Agriculture, Forestry, Environment and Water Management) doesn´t receive so much money from the Ministry in charge of general research coordination.

Precisely, ERA-NETs are instruments that, according to the perception of actors involved in Sumforest, could eventually solve this problem by providing funding possibilities. It might be in the interest of the national forest sectors of many countries to participate in ERA-NETs calls because they have the chance to receive money to perform research programmes. Even more,

countries might also want to coordinate forest related ERA-NETs, as Austria is doing in the case of Sumforest. This is the opinion of Greimel:

> "I think the most... I think that when we come to why should Austria, why is Austria taking over the coordination or why does Austria want to play still a major role in the future of such instruments, is that **we have seen that our researchers have difficulties in getting funded by Horizon 2020 and European Programmes, where the success rate is now down to 10 percent. While in the ERA-NETs the success rate is much higher because we are in the 20 - 25 percent."**

It is thus perceived that ERA-NETs, and specifically those ones related to forests (the Sumforest coordinator is talking about the forest sector) are good opportunities to be funded, maybe more than other funding instruments in the European level. Getting access to European funding might be an important task because even in the national level, it could be difficult to receive funding. This was also expressed by Peyron when talking about the case of France.

> "And in France, we have not so much funding possibilities for the forest based sector as such but anyway, we have now an ambitious plan for research and innovation and for 2025 and we have here some funding possibilities. (…) **So, the structure in Europe with ERA-NETs could be a very good opportunity for the forest based sector, so for me a very important point I think. It is better to try to solve this problem at the European level than at the national one perhaps."**

Of course, this depends on the funding schemes of the specific countries, and a detailed analysis about that escapes from the boundaries of Sumforest, and this thesis. However, since the participation in ERA-NETs depends a lot in the countries' motivations, it is interesting to see how certain actors perceive the funding schemes related to forests in the national level.

In summary, these opinions point out at the repercussions that certain features of forest research (perceived or more concrete ones), have for its reproduction in terms of counting with funding resources. It is still at stake how perceptions may be influenced by others like the policy and public awareness about forest issues. Thus, together with the already mentioned problems, the process of making forest research visible and intelligible to policy communities maybe a difficult task due to the lack of knowledge of what that forest research is doing and how it is compatible with policy or public interests. Although it is not possible to make generalizations about the political awareness of certain forest topics, the opinion of Bernhard Wolfslehner suggests that it is still low. That was his answer when being asked about the particularities of translating forest research results into policy.

> "Ok, and what are the particularities of this process in the case of forest researchers? Is there any particularity on how they communicate their findings to policy makers? Something that distinguish this process would you say in the case of forest science?"

> "You mean in the transfer? Depends a bit... I would say the forest sector is not very homogeneous. I mean, you have people being out there in the forests, people in the labs, people studying satellite images, people starting policy processes. **So, I think Forestry is really a very multidisciplinary field, so it is difficult to generalize** but I have the feeling the more traditional the researchers are, the most difficult is to get out with this. (…) **It really cannot be generalized but I have the**

feeling that maybe as I have said, policy makers but also the public are not entirely aware of many issues that relate to Forestry and they are maybe more aware on issues like food security or agriculture. Every day you have to decide what kind of food you buy."

The general impression, as we can see, is that the politicians and the general public are still not conscious about forest issues and their importance. In that sense, the weakness of the forest research and the general forest sector could also be seen as part of a low political weight of forest issues, which at the same time can produce a scarce assignation of funding of research. Thus, in the Sumforest SWOT analysis, the political awareness around forests is framed as an external opportunity for forest research on its surrounding context, pointing out at the emergence of bio-based policies markets, and the existence of certain policies touching on forests, as an arising favorable context for forest research ("Report from the workshop on strategic activities Part 1: SWOT analysis of Forest research in Europe", 2015). However, in that same document is mentioned that, even if the if forests relevance can be positioned in the context of such policy and market developments, it is also noted that such positioning process has not been performed yet; in other terms, despite interest in forests have increased in the last years "the political weight of forest issues remains rather low in comparison with other ones and the budgets are very constrained" (p. 10). To avoid this problem, an advocacy on forest policy is perceived as a necessary endeavor. It can be said that Forest policy could foster the integration of forest research and public awareness on forests (p. 10).

It is then possible to see that the aspects mentioned in this last section (insufficient common visions, the belief that forest research is two small, lack of public and political awareness of forest importance), have configured, (according to the two interviews mentioned and the SWOT analysis); a situation of low political weight of forest issues in policy communities' views, sometimes national (the case of France), and also regional ones (EU policy makers, as mentioned by Wolfslehner). It has been pointed by some of the interview partners that conveying the message about the importance of forests to Brussels about has been an important challenge in the European Level. At the same time, this has produced consequences like insufficient and constrained budgets for research, and lacking appropriate funding schemes, a problem that could be solved by participating in ERA-NETs calls (in the opinion of Greimel, and as it was suggested by Wolfslehner and Peyron). Of course, these results should be taken as tendencies. For instance, in another interview, it was suggested that finding funding spaces might not be a problem in the case of Finland, since forests play an important role in the economy of that country, so considering that, forest issues have an important place in policy agendas, an economic support for research might be higher than the average in Europe. The point of the last passages is to point out, however, that the political weight of forest issues is a topic that should be addressed according to Sumforest (SWOT analysis), and in the view of a great portion of interview partners.

According to this data, it is worth asking how these problems for finding common visions in forest policy and in forest research could affect the co-productive capacities between them (Van Kerkhoff and Lebel, 2015), or in more general terms, *the possibilities they have to influence each other*. The argument presented in this thesis, stresses that the difficulties to conciliate policies regarding forest, and the difficulties to structure common integrated forest research frameworks, affect the possibilities of research and policy to understand each other, and work together. From a co-production orientation, it seems to be that while research should make possible to think on better policy interventions; forest policy should be adapted, at the same time, to the characteristics of forest research to be able to fund it and keep it going. This could be seen as a co-productive process envisioned by Sumforest and forest sector persons. Research and policy working together, in this sense, would mean the first one helping to accomplish policy goals, and the second one understanding forest research in order to destiny resources to it.

The questions here would be: "How Sumforest, if so, might be helping to bridge these gaps? What are the roles (stated and perceived ones), of Sumforest and ERA-NETs in general, to bridge them? How those bridging processes might be materializing in Sumforest activities? How this ERA-NET could help to improve the 'level of fit' between the stage of knowledge production and application? Looking for an answer to them is the goal of the next section.

Chapter 10

Bridging between science and policy in Sumforest outputs

As it was explained in the theoretical section, the conceptualization about science-policy work employed here, tries to understand the ability of a specific configuration, in this case the Sumforest ERA-NET, to influence behavior of policy communities. Thus, the documents guiding the creation of research orientations and topics in the framework of Sumforest (drivers) were already mentioned, like the European Forest Strategy or the Forest Europe process. However, the concrete political actors being influenced by the research produced into Sumforest, are those ones specified in the projects funded in the Sumforest Call. *In that sense, it can be said that the possibilities of Sumforest to influence the behavior of policy communities, lies in the funding of research projects which incorporate the policy related preoccupations as well as scientific ones*. The next chapter constitutes an exploration of the science policy dynamics around the preparation, evaluation and monitoring of the Sumforest call.

10. 1 Sumforest Call background: actors, motivations and interests

A great part of the Sumforest work consists in structuring the topics for the Sumforest Call 'Sustainable Forests for the Society of the future'. It can be said that the thematic orientations of the call are supposed to embody, or represent, what previous documents as the SSWP stated in terms of the strategic research and innovation areas. For the reader to have a clearer vision of their thematic orientations, the three topics for projects are included here:

- Comparative assessment of the sustainability performance of forest-based, other renewable and non-renewable raw material-based value chains to inform policy decisions.
- Risk resilient forest management - Adapting forest management regimes which incorporate risk assessment related to potential climate change impacts to inform policy decisions.
- Investigation, appraisal and evaluation of trade-offs related to the provision of forest ecosystem services to inform policy decisions.

Projects funded by Sumforest, in general terms, are those outputs intended to influence policy communities in more concrete ways by focusing on these three topical areas. As presented by the Sumforest Strategic Work Plan, important outcomes of those projects should then be (as presented in the Sumforest Strategic Work Plan) to *allow making evidence based choices.* For meeting those outcomes, projects' proposals are expected to *identify policy areas* influenced by research; and to argue on how the project will help to *enhance a science policy interface* in general terms (Sumforest, Strategic Work Plan, 2016). In that sense, projects are expected to accomplish the

function of visualizing policy targets, implications, and mechanisms to engage research with them.

In this thesis, it is not possible to analyze how those projects have influenced the behavior of policy communities, but rather how they are supposed to do so. Based on information from Sumforest documents and interviews with Sumforest related actors, it is possible to have a perspective on how the projects' funders, projects' developers and Sumforest staff might define what and how relevant topics are structured, as well as how could they influence policy actor's goals.

The Sumforest Call, 'Sustainable Forests for the Society of the Future' is the result of the issues and topics definition in the Sumforest framework (Work Package 3 and Work Package 4). Its topics were defined in the 'Workshop of Strategic Activities'[77], and the call was launched some weeks later, on March 21th of 2016. As being part of an ERA-NET born under the Framework Programme 7 (FP 7), the call is funded by the funding organizations of the member countries. It is thus important, first, to talk about how they participated in the call, and how that participation might express and influence the establishment of relevance criteria.

Actors participating in the Sumforest call, are partners of a consortium involved in its definition as well as on its funding. This is one of the two consortiums participating in Sumforest, since there is another dealing with the organization of the Work Packages. Bernhard Wolfslehner explained how this consortium is built in an ERA-NET:

> "So, there are basically two different levels. So, the one thing is the consortium that runs the ERA-NET. And this is mainly people from the ministries, not so many researchers, because **ERA-NETs require a National co-funding.** So, basically organizing an ERA-NET from the very beginning is running through the Ministries in all the different countries. So, this is an is an administration thing, dealing with policy makers. So, there is the reason why there are so many ministries in the consortium. **And in a second step, there are also calls for research, and this consortium primarily defines the context or the pillars of the call; and then you have this classical research projects. So, these are the two different levels."**

Partners for running the ERA-NET and partners participating in the call are thus different, but many of the Sumforest call partners are organizing the ERA-NET as well, as it happens in the case of Austria with BMLFUW. When the call is arranged, each of the partners specify a certain amount of money to be destined for funding the call; as it is shown in a Sumforest document.[78] The funding modality they use is the "Virtual common pot". This means that each of the countries take care of funding their partners participating in a project selected for an ERA-NET call. National funding organizations decide if they will fund a successful project, even if the evaluation of proposals is undertaken by an international expert committee. In addition, national

[77] Annabelle Amm, Jean-Luc Peyron, Liisa Käär (2016). 'Report from the Workshop on Strategic Activities'. Sumforest Deliverable 4.1. TAPIO, ECOFOR. Retrieved from: https://www.sumforest.org/wp-content/uploads/2016/06/Deliverable_4_1_report_final_version_2.pdf

[78] "Sumforest Financial Commitment for the 1st Call for proposals": https://www.sumforest.org/wp-content/uploads/2014/03/Sumforest_Financial_Commitment.pdf

organizations hold control of the money's administration, which differentiates it from the 'Real common pot', in which it is managed by a previously agreed body, who can also decide on what projects to fund.[79]

According to this, it is to be noted that the participation in this kind of ERA-NET depends on the availability of resources that national funding organizations want to destiny for the projects. In many cases, funding organizations are national ministries, but they could also be other kind of institutions. For instance, Sumforest Funding Partner Organizations include also National academies of science, forest research institutes and research councils.[80] In any case, they are always institutions counting with public money.

Following this information, the availability of resources in national funding determines in a great degree whether a country is participating in the call or not. Although money doesn´t always come from national ministries directly, the fact that funding institutions are many of the times national ministries, make ERA-NET projects, could be said, as a good opportunity for national governments to think in different management options for forests. Results from those projects are, in a certain way, influencing the development the shape of national forest strategies and plans, so that is why information coming from them is usually considered by national governments to guide their policies.

Vera Steinberg, as being the Sumforest Call secretariat, was a person consulted about it. In a part of the interview, she pointed out that topics on which the Call is based are a good opportunity to match national preoccupations with research orientations. For instance, she illustrated how the number of topics for the call might help countries to find and area of interest that matches with their policy interests or needs:

> "Ok, because, now that you touch this topic about the policy makers. Regarding forest policy, I was reading that this realm of forest policy was stated in Sumforest to be something very fragmented. That there are some contradictions regarding in the forest related policies, and that it is difficult to arrange, to conciliate this different forest related policies, right? To create a framework for Sumforest."

> "Yes, that is also why we have three different topics where people could hand in proposals, because it is kind of impossible to have only one topic where every country would be interested. **So, we tried to overcome this obstacle by having three diverse topics: so, to make sure that every region, or every country would find at least one topic…** Of course, it is better if they support all the three topics, but at least one topic where they could identify themselves with."

Implicitly, the phrasing of this answer points out that member countries policies are the ones which are meant to be interested in the topics of the Sumforest call. Of course, she doesn´t

[79] 'ERA LEARN 2020: Funding modes'. Retrieved from: https://www.era-learn.eu/manuals-tools/call-implementation/call-planning/call-process-and-administration/funding-modes

[80] 'National Regulations Sumforest 1st transnational Call for proposals Sustainable forests for the society of the future'. Retrieved from: https://www.sumforest.org/wp-content/uploads/2016/06/Sumforest_National_Regulations_V2.pdf

explicitly used the term policies, but she mentioned that having three topics is advisable for solving the obstacle of having policy fragmentation and contradictions: this means that, since those obstacles are over the table, there is the need to have more than one topic, for countries to maneuver in terms of, let's say, policy - topic matching. In addition, it was already noted how, according to her, the implementation and the link with policy is a very important aspect to be considered by the funded projects.

In the interview to Martin Greimel, a special attention was put to the Austrian participation in Sumforest. In that sense, he also pointed out that outcomes from projects could help policy makers to think in new policy orientations in the national level:

> "So, and also what we could see in Austria that is that we can shape the call text and the topics to the needs of Austria, and when you coordinate it then you have some power to shape how it looks like. And that is one reason to engage in such an instrument and still stay engaged in this. (…) And of course, most of the outcomes will be from the projects that are founded, **so we are hoping that those projects will help to Policy makers in the Ministry on how they should act when it comes to new policies that have to be developed when there is an adaptation of policies."**

This motivation to participate in an ERA-NET (in the case of Austria, also as a coordinator country), comes together with the possibility of researchers to be funded, which was mentioned earlier. Output from research can thus influence the shape of national policies, while not only the other way around (national policies influencing the shape of research). National policies are the most visible and short/middle term targets of projects outputs. It is then to be noted that funding organizations and ministries are generally pointed out as the institutions that are mostly dealing with decisions regarding what projects are going to be funded. As it was explained previously, to take that decision, representatives of these institutions constitute a "Call Steering Committee" (CSC), which first check the national eligibility criteria for projects, and then decide on which ones to fund based in the recommendations of a 'Scientific Evaluation Committee' (SEC)[81]. In that sense, criteria about the importance of those projects is ultimately left on their hands.

It is then worth asking about the criteria they follow to take this decision besides the formal one (understanding the formal one as the specified in the guidelines for evaluation), which are going to be analyzed later. Related to this, the follow up question coming to mind is why would be the case that certain projects are rejected while others accepted? The answer of Bernhard Wolfslehner shows that besides deciding based only on the proposals contents, decisions can obey strategical reasons associated with more practical issues:

[81] "Topic of the first call: sustainable forests for the society of the future. Background and information paper for the international evaluation committee and call steering committee" (March 2016). FP 7 ERA-NET Sumforest. Sustainable forest management; multifunctional forestry, European forest policy: https://www.sumforest.org/wp-content/uploads/2014/03/Sumforest_Evaluation_Guidelines.pdf

> "Yeah, you see, there are different components that are decisive, so first we have these three pillars [The three topics of the call] (…) Normally, if ministries and those who give the funds are interested either on a balance approach, or either they would do from the beginning like Finland, they said we only want projects in pillar one the Sustainability Impact assessment, we don´t want projects on resilience: this very naturally gives strong constrains to projects. Then you have ten in the first pillar, fifteen in the second and three applications in the third pillar. So, if you want to have a bit of a balance because you cannot go from cero because. **I mean of course given a good scientific quality, you know you can go with a … they wouldn´t fund a lousy proposal just because you need a project. So, this was an issue, and then the second one was the funding issue. So, it could be so that with this overcrowding of the pillar two, certain nice proposals couldn´t be funded. Either because the funders didn´t want a to have fifteen proposals on pillar two but only a few** (…) **And that is a bit different as compared with regular research projects** where you go with this competition you know one or two projects are funded with a certain amount of money and you know then it is clear. **So here it is a bit of, you have to see that a balanced profile of projects come out, and you don´t know how many of them are going to be funded from the beginning, because those who are deciding, have to solve a puzzle."**

Wolfslehner here points out that the preferences of ministries or funders on each of the topics would importantly change the number of projects that are presented on each country. Countries as Finland are only financing topics projects in one topic, so that is why they might not receive proposals about that. Because of these national preferences, it could be the case that much more projects are presented in one topic or another: "Then you have ten in the first pillar, fifteen in the second and three applications in the third pillar". Consequently, sometimes the decision of what projects to fund strives in the need to have projects for all the topics (or pillars), but without harming their scientific quality: "So, if you want to have a bit of a balance because you cannot go from cero. I mean of course given a good scientific quality, you know you can go with a … they wouldn´t fund a lousy proposal just because you need a project. So, this was an issue, and then the second one was the funding issue. So, it could be so that with this overcrowding of the pillar two, certain nice proposals couldn´t be funded" (Bernhard Wolfslehner).

Thus, in a certain way, the selection of what topics are going to be addressed by the projects funded in Sumforest, includes always the inclusion of funding and practical issues. Of course, these considerations are combined with political relevance criteria. Wolfslehner pointed out at this in a previous interview section, immediately after talking about the consortium that runs the Sumforest call: "Ideally, of course this set up would guaranty that the topics are policy relevant. I think this is a bit of a special case. So, it is not it is call made from researchers for researchers, but there is an administration that assume that this link with policy making is true, which prepares a call for research projects yeah" (Bernhard Wolfslehner).

In sum, the most prevalent actors defining what policy relevant topics should be effectively operationalized through ERA-NET research projects implementation, are the national ministries, according to particular policies or strategies of their countries. Again, it is to be noted that funding institutions taking decisions are not always policy making organizations, as ministries, but they count with public money, so *that's why it is being pointed out that national*

policy has a prevalent role to play in the implementation of research orientations born into the Sumforest framework. The specific mechanisms they use to carry or translate ERA-NET research results into those policies depend on how they manage their participation in the ERA-SCHEME, and a detailed analysis about that would require a country oriented case study. For instance, Austria has a platform dedicated to providing information on how EU-related research policy is and can be implemented in the country[82].

10. 2 The Call's research implementation: relevance criteria and future monitoring

In this point is then worth asking, how do these funding organizations check that projects are doing an important work in terms of addressing policy issues, and targets? What criteria are they using to evaluate that relevance? Further on, how are they or could monitor the accomplishment of the presented projects' tasks in the future? Is Sumforest developing a monitoring process too?

The criteria used to evaluate projects' relevance and policy related targets is contained in the guidelines for evaluation presented in the Sumforest web page. In there, it is possible to see that the specific policy actors are diverse, and need to be defined for each of the projects. Specifically, the process followed to define what projects are going to be funded in the context of the call, as explained in another section of the thesis (see annexes) shows up the three criteria main criteria to evaluate proposals: 'Scientific Excellence', 'Quality and efficiency of implementation' and 'Impact'[83]. From these three criteria, the 'Impact' one is the most related to the policy relevance aspect, since it includes the sub-criteria: 'Policy relevance and importance of the research for solving pressing societal issues' (p. 12-14). As it is mentioned in the guidelines for evaluating the proposals, submitters are required explain how results are relevant to policy instruments, legislations and specific actors. In that sense, evaluators should consider three aspects:

- Clear statement of the policy application. Any proposal must contain details which cite the relevance of the research to policy instruments and current legislation. It should also highlight the importance of this work for solving pressing societal issues related to the details of the joint call.
- Clearly identified policy makers who are end users of the research results and ways to engage them. The proposal will be expected to identify specific end-user organizations, and, if possible, to name individuals within these organizations.
- Arrangements for knowledge transfer, dissemination and communication.

[82] "ERA-PORTAL Austria". The knowledge sharing platform: https://www.era.gv.at/
[83] 'Background and information paper for the international evaluation committee and call steering committee' (March 2016). FP 7 ERA-NET Sumforest Sustainable Forest Management; Multifunctional Forestry, European Forest Policy: https://www.sumforest.org/wp-content/uploads/2014/03/Sumforest_Evaluation_Guidelines.pdf

Together with the sub criterium the political relevance, the criteria of 'Approaches to stakeholder engagement', and 'International added value', are also important, since they go in accordance with some of the general aims of Sumforest, like strengthening international collaboration. Considering these three sub criteria about impact, the impact of the projects funded in Sumforest, is understood in terms of generating a policy impact (policy relevance); establishing connections (stakeholder engagement); and generating influence on international communities. In this sense, Sumforest is asking the projects' participants to explain their understandings about the 'level of fit' between the stage of knowledge production and knowledge application one of the explanatory variables of Lemos and Morehouse (2005). When asking about that, it can be said that Sumforest is looking to ee a sort of 'co-production settings' between research outcomes (results of projects), and policy communities (policy makers who are end users of it). Although, the end users of research input are mainly national policy makers (as said before), there could also other international targets, as well as actors more related with industry or social problematics. This was shown by Bernhard Wolfslehner, when he was asked about how 'Bench Value', the project he is participating with in the Sumforest framework:

> "Ok I wanted to ask you about. You were also asked to present the arrangements for knowledge transfer, it was also a requirement when you presented the project. What arrangements for knowledge transfer to political actors would you establish to translate of to communicate the research outcomes of it."
>
> "I think that what was important for this project is that you define a community of users sort to say. **And users in our respect are not always companies but also how to find relevant stake holders, so for example NGO's and people on the Commission interested and public administration and policy makers.** So, I think the first step… You have to understand that in a project proposal you have to indicate where are you looking at because then you will have to establish more concrete things: like how do you want to involve them. (…) **And in the ERA-NET it is really important that you say this serve both your national policy makers because basically the funding is there and also to care that the novel interests for them. But then it is also then I think...** This is quite with we do particularly in EFI context that we try to **foster stake holder workshops when you have results ready so this is very important yeah.** (…) And I think that in ERA-NETs you have to particularly need to satisfy both needs yeah."

The 'community of users' mentioned by Wolfslehner include a diverse set of actors which include national policy makers and people from the EC. Specially in the case of ERA-NETs, it is important to engage with both national policy makers and stake holder groups. In the projects, it is important to explain how are they going to be involved, and goals that you want to reach. *According to this, it can be said that projects funded by Sumforest are required to fulfill, regarding their impact, the components of the use of usable knowledge, and the interaction with stake holders* (Lemos and Morehouse, 2005) for achieving an effective co-production between science and policy.

Fulfilling these criteria for the international level is also important in Sumforest since, as said before, one of the criteria to evaluate the proposals is the 'International Added Value'. Considering this criterium puts over the table the need to think on a broad scope of research addressees in the international level. It is thus not only important to provide valuable research results, but also reflect on influencing a big range of actors by them. This was stated by Steinberg when being asked about how that criterium was understood in Sumforest:

> "Uhm, one thing is to include new partners. So, it could be a new country, or it could be a new partner within a country; so that doesn´t need to be a new country but a new research institute or a new university. And also, to say what other regions internationally seen like for example a region will be central Europe. What other regions can benefit from the outputs."

Coming back to the Heink Rationales for the science – policy interfaces, it can be seen here how features of the normative rationale are expressed. The notion of an effective bridging process between science and policy communities embedded in that categorization would thus refer to have a "fair consideration of stake-holders' concerns" (Heink, 2015, p. 684). In other terms, researcher's arguments about who are the stake holders influenced by their outcomes, and why, would be enacted with the aim of fulfilling, primarily, that kind of notion about science-policy interface effectiveness.

A little bit forward in the interview, Steinberg talked on how the international value is commonly framed and addressed in ERA-NETs. She argued that proposals submitters understood what 'International Added Value' is about in the case of Sumforest, but more importantly, that this kind of tools are spaces where that notion can be and is enacted and mobilized in general terms. However, there are still some barriers that should be overcome for certain actors to understand their importance:

> "Ok, right I understand. And do you think all these criteria [international added value criteria] was properly expressed in the proposals, I mean properly understood by the submitters, by the one who submitted these proposals."

> "Well one which were ranked very high I would say yes, they understood the international importance. **But there is one thing I really appreciate about the European research area network as well, about this ERA-NETs**, and is that **researchers really understand how important it is to raise international awareness. And here again I really feel that politicians prefer to work on the regional level, and researchers prefer to work in the International level.** So sometimes there is a clash of interests there. And not always, not for all politicians but for a lot of politicians it is more important to say my country has this and this benefit rather that saying our European research area has this benefit. But this is also a very like a personal opinion because I am a big fan of the EU and the international research, and not so much on everyone making its own little things because... I am a forest ecologist from my research background and in topics like Climate Change you need international solutions."

> "Ok, and would you say that ERA-NETs are helping to achieve this...?"

> "Absolutely. ERA-NETs it is probably not… **I mean it is not the perfect approach, there are shortcomings as well.** It is not the one or only way to go, but **I really think that ERA-NETs help to improve the international cooperation."**

ERA-NETs are thus perceived as spaces where international cooperation on research can be make possible. In general terms, however, policy makers still don´t understand the value of working together in the international sphere, and to get results and solutions for a whole international community rather than just their particular countries: "And not always, not for all politicians but for a lot of politicians it is more important to say my country has this and this benefit rather that saying our European research area has this benefit." The existence of this differing orientations can produce, a "clash of interests" between whether working on national or international settings. Thus, although ERA-NETs are maybe not "the perfect approach", they could help to improve international cooperation on research.

In summary, it is possible to see how the structuration of the Sumforest Call, constitutes a materialization of Sumforest goals in terms establishing connections between research and policy communities. This can be seen both in decisions on what projects are going to be funded (when funders take that decision), and in the guidelines for those projects (since they require to specify the end users of project results). Both elements, but specially the second, express criteria to evaluate a science-policy bridging process guided by criteria of the normative science-policy interfaces rationale, since they focus engaging a wide range of actors (stake-holders, policy makers, etc.).

An important question is whether the accomplishment of the aims of those projects would be monitored in the future. In the interviews, it was pointed out that, of course, the monitoring of the projects rests mainly on each of the national governments involved in them with participating partners. In other words, governments of participating countries could see if the project are doing what they are supposed to (be in terms of connecting research with policy, or producing good knowledge in general terms), and establish punishment actions for their members. However, Sumforest is also planning to implement evaluation mechanisms in the European level. This was something pointed out by Vera Steinberg. She was answering a question on the evaluation of the projects in the past tense, but she extended her answer to the future evaluation as well:

> Ok, and in judging the quality of the proposals, you consider the scientific accuracy of the proposals but also you consider the political impact, right? And the international added value was a criterion too. So, I wanted to ask you, what does it mean to evaluate in Sumforest the political impact and the International Added Value?
>
> "For the past or for the future?"
>
> "For the past, how was it done in Sumforest"
>
> "How was it done yeah. So, when the researchers were writing their proposals, they have the information from the Sumforest web site on what it is expected to be in the guidelines for applicants. (…) And of course, now we must see what is actually happening (laugh); the practice

> more than the theory, because the researchers can write a lot of nice things, but... yeah first comes the theory and now we have to see what is happening in reality. The projects all started until the end of March, **and now we have to see that the project consortiums really do what they promised to do.**

Steinberg is raised the importance of doing a future evaluation of the projects funded under Sumforest. Then, however, she pointed out that evaluating projects still imply certain problems, like the short duration of the ERA-NETs that fund them. At the same time, she noticed the differences between a national and a European monitoring. According to her, Sumforest has plans to create medium or long-term evaluation processes of the projects after it has ended, which at the same time, can contribute to improve a European monitoring added to the already existing national one:

> "And one problem was the evaluation as Sumforest itself will end this year, at the end of December 2017, but of course the projects will run longer. So, they will run until 2019 or the spring 2020**. So, at the moment in the Work Package 5 we are writing guidelines for evaluation to ensure the process after Sumforest has ended. And we have a collaboration also with the new ERA-NET co-fund which is Forest Value. So, we have a cooperation there to make sure that lets say they have an eye on our projects that are doing what they said.** Because of course in the national level you have some control for example for the German funders Germany is funding countries so for the German partners I can say, that if you are not doing what you promised to do I will cut your money. **But as a German funding institution I don´t have any control about I don´t know Italy or any other country so this has to be monitored in the European level, and this is why we are writing the guidelines at the moment."**

Thus, projects funded under that call run longer than the ERA-NETs, so it was necessary to assure that this process continue after they end. For this reason, Sumforest is writing guidelines for evaluation of the projects as one of the Deliverables of the Work Package and establishing a cooperation with 'Forest Value' (a next forest related ERA-NET that is in the stage of being prepared) for it to see how the projects are doing. As mentioned by Steinberg, using follow up ERA-NETs to monitor outputs from the previous ones, is a common procedure within those tools. In her own words: "It is kind of a generation thing, (laugh) that the next generation of ERA-NETs have to take care of the older ERA-NETs; and therefore, the new ERA-NETs have to take care of your proposals yeah" (Vera Steinberg).

Since monitoring research implementation and impact is a task performed after Sumforest itself, (as it is not focusing in the stage implementation on punctual policy processes), no criteria about effectiveness related to implementation may count for it; which could be in the hands of a more "instrumental rationale" science-policy interface. However, since the guidelines are supposed to allow a European level monitoring of projects in the future, it can be said that the guidelines are tools that are intended to increase connectivity between EU configurations and the research done in the context of Sumforest.

Now, analyzing more in detail how projects are tackling science – policy problems would require a more concrete of their aims and constitutive elements. Unfortunately, as they started just

some few months ago, it is not possible to have a good perspective of their development besides the one portrayed in their descriptions in the Sumforest web page. The Sumforest final conference, to be held in October, will include expositions from the project partners; which will be preceded by: "Science, Policy/Practice", key notes. Thus, it can be a good setting where to understand the addressing of that problem in more concrete ways.

From the information coming from Sumforest documents and the interview partners, it is possible to understand projects' orientations looking at how were they structured. In that sense, the next section is focused on the Sumforest processes to come up with strategic research orientations, and how might be their role on influencing policy communities' agendas.

Chapter 11

Bridging between science and policy in Sumforest processes

As it was mentioned in the theoretical section, studying SPIs processes is an important task for understanding how it's outputs have been produced, and how they are supposed to influence specific addressees or political orientations. Having a clear picture on the actors participating in Sumforest processes, their intentions and roles, can thus help to comprehend whether and how certain actors are supposed to profit from Sumforest. The implicit assumption here, is that the participation in Sumforest specific settings, reflect or carry implicit assumptions on who have a stake in the final results of the ERA-NET. At the same time, it also increases the understanding on how such tool contributes to link and increase co-production capacities of science and policy communities. To tackle this research endeavor, it was employed information about certain discussion and deliberation exercises, as well as interviews focused on them.

11. 1 Forest challenges and issues: positioning relevant research

The structuration of the topics started with a definition of Emerging Issues and research priorities for the Forest based sector elaborated in the Deliverable 3.2.[84], called: 'SUMFOREST Foresight Panel and Foresight Workshop Results on "Emerging Issues in European Forest-Based Sector and Research Priorities'. A foresight Panel process was developed consisting on several steps, intended to create a final list of Emerging Issues which are supposed to have a political relevance. Mainly, the Foresight Panel consisted in four questioners and discussion exercises involving researchers, policy makers and diverse stake holders related to the forest based sector. The process to define those Issues was already described in another section of the thesis (see annex), what is important to underline here is their importance for the creation of the research topics of the Sumforest call.

After defining those Emerging Issues, three challenges were elaborated for the Sumforest SWOT analysis: Changes, risks and uncertainties; Multiple and interacting ecosystem services and Bio based industries and markets. The three of them were analyzed together in the SWOT analysis. Later on, those forest challenges were discussed in the Workshop of Strategic Activities (Work Package 4), and transformed into the following topics for the Sumforest Call.

Jean Luc Peyron talked about the importance of the three challenges, from which research topics were created. He mentioned that:

[84] Lauri Hetemäki and Nataša Lovrić (February 2015) 'SUMFOREST Foresight Panel and Foresight Workshop Results on "Emerging Issues in European Forest-Based Sector and Research Priorities"'. Sumforest Deliverable 3.2. European Forest Institute. Retrieved from: https://www.sumforest.org/intranet/?wpfb_dl=95

> "…**I used much this part of the policy challenges to simplify the vision and to identify finally three challenges, strategic challenges in the Work Package 4**. So, probably you have seen them: on interactions between forest ecosystems, on challenges risks and uncertainties, and let's say, the bio-economy. But these three strategic challenges have been finally taken as the three different topics for the call for proposals that has been launched."
>
> "Ok, so would you say that the creation of these three challenges was actually an important... It is a vision of Sumforest as an ERA-NET or... because it has an influence of the vision of the EU and external actors around Sumforest. But would you say that Sumforest in a certain way created these challenges was an output of Sumforest itself?"
>
> "I think so yes, and of course for me it is better to look at these three different directions, that perhaps to look at all the list of possible challenges that have been studied in Work Package 3 (…) So I think that the 3 big challenges are already integrated challenges in fact. **I needed an integrated view of Forestry but partially integrated, and we could have still a larger integrated view by looking at all these three big challenges but... So, we could have a cross-cutting view on all these three challenges also to deal simultaneously with bio-economy, risks and uncertainties and multiple ecosystem services provided by Forestry."**

The three challenges discussed in the Work Package 4, which were elaborated by Peyron, constitute a kind of synthesis work of the Emerging Issues of the previous Work Package. Peyron is also pointing out that those challenges represent an "integrated view" when talking about forest research and policy. According to him, the challenges and the topics structured into Sumforest framework represented what he was mentioning about finding integrated views on forest research. Sumforest, in other terms, materialize ideas about creating these integrated orientations in the research agenda it is promoting. This is so specially because the three challenges were analyzed all together in the SWOT analysis, under the label of: 4. "*Bio-economy* of *forest services & products* under *changes, risks and uncertainties*" (Report from the workshop on strategic activities Part 1: SWOT analysis of Forest research in Europe, 2015).

Now, as these challenges and topics embed what has been mentioned here about doing relevant research (understanding relevance in terms of the properties of the information), it is worth asking how Sumforest related actors understand the pertinence of this information to accomplish policy related goals in the European frameworks.

Here, the opinions of actors related to the Sumforest process point out at different phenomena. Interviews to EFI related actors are important since that institution participated actively in the development of the development of those research orientations, and hold key understandings about them. Those interview partners are Bernhard Wolfslehner, to whom we have already referred; and Dr. Lauri Hetemäki, an Assistant Director of EFI and developer of the Deliverable 3.2. Both persons agree that Sumforest, and ERA-NETs in general, have an important role to play in the definition of important research topics among research communities of different countries. However, positions about the characteristics of linking research and policy in there, were a little bit different.

Thus, for Bernhard Wolfslehner, the research agendas fostered by ERA-NETs have a great relevance for policy makers in EU frameworks. In a point of his interview, he was asked about what he considers to be the EFI interests in ERA-NETs. This question was made assuming that EFI is an organization which is more explicitly bridging the gap between science and policy; so, if they have an interest in participating and helping organize ERA-NETs, it is might be because such tools have an important role to play in that bridging process. His answer shows what this role might be and how that works.

> "Ok, and now more related with Sumforest. Could you give me an insight of the relation between EFI and Sumforest? And maybe I don´t know if it also has a relation with other forest related ERA-NETs in the past. Why EFI is interested on developing this ERA-NETs or how it works with ERA-NETs?"
>
> "Yes, I think that the interest of EFI in ERA-NETs is a quite tangible one. So, on the one hand it is about organizing Forest Research Networks. In there is particularly important the COST instruments, the COST actions, where you can facilitate the networking but then the **ERA-NET has this additional component that you can also be involved in the agenda setting. So which research topics are on the agenda**, you can use your advocacy role to **advocate for the right topics that are of interest of the Forest Community."**

ERA-NETs, according to this, don´t merely focus on improving networking between research institutions, but also make possible to set agendas. EFI can make a good use of them because they can help to position the "right topics" in that agenda. Doing that is not an easy task since, as it was already mentioned by him earlier, there are not so many calls for forest research in the European level. Forest related ERA-NETs are thus an opportunity to develop research agendas, as he says a little bit later:

> "So, this has become quite difficult [agenda setting], **and the ERA-NETs are one of these instruments where you can really put more concise focus**, and really take care of the agenda setting and the EFI **understand itself as an Umbrella organization of the European Forest Research institutes and that is why... It is very clear that EFI is interested to bring targeted calls that allow for focused work and collaboration in the Forest Research Community."**

He used terms as 'concise focus' and 'focused work' to talk about the research characteristics of that agenda. Considering that he referred to agenda setting in the regional level, it was assumed that he was talking about positioning those focusses on research agendas of the EU; focusses that are not generally visible in that level. To confirm this idea, he was asked if that was what he really meant.

> "Ok so, ERA-NETs in a certain way are like… Could be said that there are instruments to make forest research more visible in a certain way? In the research agenda in Europe?"
>
> "Yeah, **mobilize it**, but also to focus it to topics that are also relevant for the European Union. So that is not something only disciplinary **like counting beetles. So, that this has also this policy relevance.** And that is why this ERA-NETs are important, **but also give the opportunities that the Forest Research community can answer the right questions and not answer one among 120 other questions."**

His answer pointed out that agenda setting was a process of 'mobilization' of research, but what's more, adding the policy relevance ingredient to the forest research, assuring that "it is not something only disciplinary like counting beetles". What's more, he concludes saying that ERA-NETs allows research to focus on the questions that are relevant and pertinent for the EU; not only important questions (the 120 other questions), but also the right ones.

This idea of research answering the rightest questions among other that could also be important correlates with the understanding of relevance as 'pertinence'. As cited in Heink (2015), Foskett (1972) establishes the distinction between those two concepts. According to this last author, pertinence would mean "... adding new information to the store already in the mind of the user, which is useful to him in the work that prompted the request" (Foskett, 1972, p. 75 1972). Of course, Wolfslehner doesn´t specifies if he really means that when talking about "answer the right questions and not answer one among 120 other questions", but it would be interesting to understand whether or not the vision of EFI about what counts as relevant is important information, or only one that is still not in hands of policy makers. It would be also interesting to analyze if that vision understands not accessible knowledge as being relevant, as it pointed by Heink (2015, p. 678 – 679).

Whatever is the case, having in mind this EFI understanding about the importance of ERA-NETs in positioning policy relevant topics in the EU framework is important since this institution was in charge of summarizing the first 63 'Emerging Issues' on a first place: they classified those issues, looking which of them are overlapping or redundant in order to get final the 10 issues resulting from the Foresight Panel Process described in the Deliverable 3.2 ('SUMFOREST Foresight Panel and Foresight Workshop Results on "Emerging Issues in European Forest-Based Sector and Research Priorities', 2015). As pointed out by Dietmar Jäger, they have a good understanding about important topics in the EU level; so, they could have a key role on deciding what issues were relevant, be it because of their novelty, pertinence, accessibility or usability.

11. 2 Features and possibilities of linking research and with policy in Sumforest

This key role on EFI was the motivation for addressing persons belonging to this organization, and consulting them about the work of EFI's role in research-policy bridging process as well as the role of Sumforest. The interview to Lauri Hetemäki, in that sense, gravitated more around EFI and Think Forest than around Sumforest. Specifically, the reason for this is that, according to this person, *the definition of research topics in Sumforest was mostly oriented to inform funders about what forest research is there; while not so much to inform or influence policy makers agendas.* It could be the case that he was only referring to the Foresight Panel and the Foresight Workshop of the Deliverable 3.2; but his opinion also stressed how ERA-NETs don´t generally increase

policy makers reception of research topics. This opinion can be traced in the next paragraphs of the interview:

> "Ok, and in all these processes, in all these goals that ThinkForest is trying to accomplish, what might be the role of engaging, or establishing relations with forest related ERA-NETs, because I know that… (…) The European Forest institute was involved there as a partner, it was the vice-director I think of Sumforest, so what might be the interest of the European Forest institute in engaging with these ERA-NETs, how ERA-NETs might help to bridge those gaps [science-policy gaps] we have been talking now."

> "Yeah, I think the ERA-NETs are really important I mean… You have funders of research there, you have the scientists there, and also the funders in some organizations are the ministries and I think it is very important, it is not the same as ThinkForest and it should not be... The purpose is different… But I think that it is very important that the countries, **the different countries in Europe work together, in order to define common topics or themes that they see as important for the forest sector.** And when the countries are working together there is the national funding, and the EU also puts its own funding for this research, so **there is the cooperation between the national governments, the EU, and the scientists."**

As one can see, Lauri Hetemäki was asked the same question as Wolfslehner regarding the interest of EFI in Sumforest and in ERA-NETs in general, and the role these tools could have to bridge the gap between research and policy. The 'Think Forest' forum, as mentioned early, accomplish this role in a more explicit way, so when saying that the purpose is different than Sumforest, Hetemäki is precisely implying that such role is not so evident in Sumforest. In a similar way to Wolfslehner, though, he mentions *the importance of defining common important topics or themes to the forest based sector*. In addition, he talks about a cooperation between national governments, the EU and the scientists. With the aim to dig in the relation of this answer with the one provided by Wolfslehner, the topic of establishing common agendas was put into place:

> "Ok, and would you say that an important goal an important outcome of the ERA-NETs is to let's, say to push for certain topics, to establish certain research agendas in the European context, this is an important..."

> "Yes, I mean if you think that, one country can of course fund its own national research, but when they work together the different countries and when they find that there is a common theme and interest on some topic, **they can succeed to have a much higher influence and impact when they coordinate together rather than working separately.** It is like the project can be bigger, it can engage scientists from different countries in a much more effective way in the same topic. And, so it is basically coordinating the research work, **and also helping to establish what are the themes that the different countries have a common interest and are important for the countries."**

The cooperation between different countries, according to this, can be determined to generate a bigger impact than if they are working separately. At the same time, his impact is meant to be seen in the national context, since the purpose is to establish what themes are of countries common interest. Here, the question that came to mind is whether the definition of themes and their importance was developed to increase policy makers understandings about them. The following question tried to understand if that aim was present in the Deliverable 3.2 exercises. Again, 'Think Forest' was used *as a comparing case* because it was patent that such forum does have that aim.

> "Ok, so this process, these discussions of the Foresight Workshop, was followed in a certain way would you say in your opinion, similar principles that the discussions of the EFI or ThinkForest, because EFI was the leading institution of this work package, so I was just wondering if it worked in terms of recruiting participants, in terms of managing the discussions, if it worked in a similar way to the discussions of ThinkForest?"
>
> **"Uhm, it was not, in a sense, the purpose also was not similar because we were not informing policy makers on some policy topics but we were informing about science research topics to the funders. So, at the other side of the table, you have the funders, not the policy makers,** and also it was about research funding not about political decision making so it was a different setting. But in a sense, what was the similar think was that in both cases **we acted as an organization that transfer the information of the scientists, in this case to the funders in the ERA-NET**, but in 'Think Forest', to the policy makers."

It can be thus seen that while Wolfslehner stressed the point about the definition of concise policy relevant topics and orientations, Hetemäki pointed out at the role of the ERA-NET in informing what research is there to funders, while not to policy makers. In a sense, Hetemäki also said that the research orientations and topics structured in the Sumforest framework are politically relevant. The difference with Wolfslehner doesn´t strive in that aspect, but rather, in the notion that the main purpose of ERA-NETs is not to answer relevant questions and mobilize policy relevant knowledge, but to inform funders of what research is presented by researchers; and to define important topics for the member countries, while not positioning them in European research agendas.

According to this information, it is possible to see that Sumforest has a role to play in bridging a gap between research a policy, *which is structuring policy relevant themes and mobilizing them in for the Member countries and EU interests (among others)*. However, this doesn´t mean that policy makers were actually present in the definition of those topics, even if their interests were represented there. Looking at the Deliverable 3.2, actors participating in the definition of Emerging Issues were scientists/experts; forest sector stakeholders; representatives from national research funding agencies; ministries civil servants; and European Commission DG Research officers ('SUMFOREST Foresight Panel and Foresight Workshop Results on "Emerging Issues in European Forest-Based Sector and Research Priorities", 2015). The interview with Jean-Luc Peyron presented a good clue for understanding whether and what policy makers were present in Sumforest discussions and consultation processes.

> "Ok, and I was just wondering if this connection process between scientists and policy makers is something that was done in for example Sumforest exercises like the Foresight Panels and the Foresight Workshop [Deliverable 3.2]? Would you say that I can find information there how these processes [connecting science and policy] were performed in these exercises? How those exercises were trying to fill these gaps that you are mentioning? The Foresight Workshop of the Deliverable 3.2?"
>
> "Yes, perhaps, **but in Sumforest we have mainly people from research and we had two different kind of people perhaps, we had Forest Researchers, so input from forest research and we had people for funding agencies. So, I mean people specialists on scientific policy, but not knowing much from forestry sometimes, or very generally**. So, the exchange between these

> two categories was interesting, **but we had not people from forest policy or forest related policy as such. We had people in link with forest policy people but within the scientific policy not on forest policy themselves**."

Considering this point, and the argument of Hetemäki, it is possible to see that there were interactions between science and policy in Sumforest, but mainly with scientific policy. Again, this doesn´t mean that forest related policy orientations were not represented in those discussions, since most of the experts, as it can be seen in the Deliverable 3.2, are related to topics of forest policy (p. 54). Rather, it means that, while forest related policy orientations were present in the definition of research orientations, that information was not intended to influence the behavior (particular actions, decisions), of forest related policy makers *in the short term*. It can be said that, if certain decisions were meant to be influenced more immediately, it was those ones from research and innovation policy makers.

Considering the main task of the Foresight Workshop of D 3.2: "to identify emerging issues with high policy relevance in order to support the coordination, steering and prioritizing of research funding in Europe" (p. 47), it can be seen that the effectiveness of that kind of science-policy interface bridging process can be understood as *the capacity to connect a broad range of funding actors with the current issues in the forest research landscape*. In the case of Sumforest, Dietmar Jäger, suggested that such exercise constituted a good basis to achieve that endeavor, but as funding and research frameworks always change, more work about needs to continuously be done in the future:

> "Well, I think there are 23 partners within Sumforest, and also participants from outside. So, I think that the outcomes of the Workshop were a good basis and a broad basis, **but of course the frameworks always change and it is a continuous work that needs to be done. It is an ongoing process, but it is also a very good basis with good acceptance, because there are not so many ERA-NETs related to the forest sector.** So, it is important to have such a basis."

These considerations play an important role for understanding the science-policy interface that Sumforest is embedding. From the categorization about the SPIs rationales by Heink (substantive, normative and instrumental), it is possible to say that, in terms of the purposes of its settings and processes, it mostly materializes a 'substantive rationale', that is, one which focusses mostly in the "properties of knowledge such as its quality and comprehensiveness". Further on, according to this author, in the substantive rationale, "relevance is determined only by the capacity to provide additional information in relation to a given issue" (Heink, 2015, p. 684). Sumforest settings could be considered as expressing a substantive rationale since they are structure research orientations, while not thinking on how that knowledge is going to be used by a target in the immediate term (in the case of forest policy related actors at least), as an instrumental rationale would do.

Following the same line of thought, it was noted that Sumforest work made possible to define topics and research orientations that are not yet in policy making agendas and discussions. Hetemäki made a point on this, referring again to the Foresight exercises of the Deliverable 3.2:

> "The purpose of the Foresight exercise was to try to inform the funders about what are the topics that the scientists themselves think that are important and should be funded (…) And here I think that, for example, if you think about Bio-diversity or Climate issues, both of those issues were discussed by scientists before they entered the policy discussion, so **the scientists already knew that they would have important societal questions and they were already discussing them in science journals but not yet in the policy arena.** So, in a sense, **the Foresight exercise was about to come up with Emerging issues that scientists are already discussing and think that are important, but are not necessarily yet on the policy table."**

The Emerging Issues brought up by this Sumforest exercise express preoccupations that are not yet internalized in policy discussions. What's more, it is pointed out that, as it has happened before with other issues, *Sumforest ones have a societal relevance that might not have been recognized by policy communities, but might be recognized in the future*. It can be thus said, following the line of thought of the substantive rationale, that an important role of the Foresight exercises performed in Sumforest is to raise awareness on what forest issues are socially and politically important according to scientists, as well as scientifically relevant. At the same time, Dietmar Jäger mentioned that an important criterion to rank the emerging issues was whether they solve to help "knowledge gaps for scientists, but of course also for politicians". Thus, part of the criteria to rank the issues importance were whether they could help to provide important information for policy makers concerns, and solve problems, which are criteria encompassed in the substantive rationale for participation (Heink, 2015, p. 684).

In that point, it was still at stake whether and how those Emerging issues were relevant or not in the eyes of policy related actors. To solve this question, Sumforest developed a questioner to policy makers asking them about the relevance of their issues (Future forest policy and policy makers knowledge gaps, 2015, p. 21). In general terms, their answer pointed out that, effectively, issues were politically relevant for them. Besides those results, it is important to underline that half of the total answers came from policy makers that understand themselves as working in 'Forest policy' (Future forest policy and policy makers knowledge gaps, 2015, p. 22), while not in related policy sectors as 'Environmental policy'. This shows that despite the notion that forest related policy is still a fragmented and sometimes contradictory sector, there are many policy makers who identified themselves a part of that particular field. On the other hand, it is also noteworthy that a great percentage of the answers came from government actors (35%), the institutional affiliation that represents many of the Sumforest partners. One has to be very cautious, however, to assume that the respondents represent the general opinion of forest policy communities, since as the document itself acknowledges:

> "…one has to keep in mind that it is relatively easy to simply agree to a given statement. Meaning here, one only has to agree or disagree, and not think about an own opinion or another emerging issue. Those type of answers can be given when a survey with open questions instead of given answers to tick-off is carried out. Yet, the idea was here to keep the questionnaire short and simple. An in-depth survey as performed in WP3 D3.2 was not possible" (Future forest policy and policy makers knowledge gaps, 2015, pp. 34 – 35).

This means that a bigger and more in-depth questioner is still needed to make a deeper analysis of policy makers Emerging issues perceptions. In line with that, the Deliverable 3.3 further stresses that: "when looking at the results of the survey, one has to keep in mind that it is possible to overestimate the importance of the five emerging issues (p. 34)."

11. 3 Diversity and inclusion: effectiveness criteria of Sumforest

Ultimately, there is the perception that although emerging issues, challenges and topics are meant to be politically relevant, policy makers didn´t participate in the structuration of them Sumforest, at least forest related policy makers. This shouldn´t be considered as a problem for Sumforest, but rather, as feature of the instrument, which consist mainly on organizing research networks, themes, and creating funding schemes to implement them. It is not possible then to make any kind of evaluation about how policy related actors are assessing or applying that information, since it is not the purpose of Sumforest itself to monitor the policy implementation of forest themes. Relevance of knowledge may not be thus evaluated according on how it is meant to applied, but on how it is being constructed. This becomes patent in a question to Jean-Luc Peyron:

> "Ok, I wanted to ask you about the topics for the first Sumforest call. So, in general, what is your general appreciation about the topics for this Call. Do you think that there was like a very clear distinction between the national, the regional and the international relevance of the topics, or there was a good integration of the things that the national policies and international policies are waiting for these research topics?
>
> "I think that the topics are relevant at every level, I think they are relevant everywhere for forestry in fact. And **we are not looking in detail on how they would be adapted to regional specificities** because **they are at the level where they could apply everywhere I think**. And then **it was up to the researchers to apply these topics to their own issues or problematics."**

When defining the topics, there was not the idea to think so deeply on how are they going to be applied: "we are not looking in detail on how they would be adapted to regional specificities". At the same time, there was not a pre-established notion on specific problematics that they should address: "it was up to the researchers to apply these topics to their own issues or problematics". Again, this doesn´t mean that there were not general addressees which could help to justify the relevance of them, as the "European Forest Strategy" or the "Europe 2020 Strategy". However, it does mean that the actual application of research outputs relies on more focalized policy orientations.

It can be thus seen that Sumforest represents an SPI in which, while there is a discussion of policy relevance of the topics embedded in their definition, doesn´t include discussions on specific policy targets that they should point to. For that reasons, in many of the interviews it was pointed out that it was not difficult to structure common visions on what issues were important for different locations and scales, since as Peyron said: "they are at the level where they could apply everywhere". This means that, although as pointed out by Jäger certain issues are more important for certain regions (he used the example of water issues and the forest fires issue in the Mediterranean countries), the general way they were presented makes possible for many countries to be identified by them.

Now, considering that the definition of relevance wasn´t guided in accordance to concrete policy targets who could fix ideas on what is relevant and what not, it is to be noted that the definition of such relevance is left in hands of the actors interacting when defining them in Sumforest settings. In other terms, since there is not a priory idea on relevance principles from a target's view, it is the task of those actors to define what topics are relevant and for what reasons. Those actors were the ones in charge of setting what research paths should be followed when synthetizing the emerging issues, transforming them in research topics, and having in mind specific problematics that they should point. For that reason, an important principle guiding the Sumforest activities was the participation and inclusiveness of them (SSWP, 2016). Precisely, deliberation and the search of agreement play an important role in defining relevance according to the normative rationale, which Sumforest can be related to. As it is noted by Heink:

> "In principle, all stakeholder concerns and viewpoints are relevant in the context of the normative rationale. Here the focus of relevance is shifted from a fixed relation between knowledge and the issue at hand to a dynamic stakeholder perception of what is relevant. What becomes relevant in the end is therefore unclear at the beginning and is the outcome of a process of deliberation (Renn and Schweizer 2012, cited in Heink, 684, p. 684).

Thus, while Sumforest aims to define research orientations with the participation of actors from various institutional affiliations and countries, it is to be noted its development as expressing a normative rationale too. Including these actors could be considered as a goal oriented towards improving the participation of European countries (according to the EU addressee), but also as towards finding research orientations that connect with their forest related problematics. Considering multiple views to define the research orientations was perceived to be a quality of Sumforest, since it allows to include opinions of many actors to define what is important. Vera Steinberg hold this opinion when asked about the importance of the researchers input in the general Sumforest structure.

> "Yeah, well where the researchers had a very importance influence on formulating the research questions. (…) So, we really put a lot of effort on defining the research questions we wanted to deal with. So, one thing I really like about Sumforest was **that it was not we as Sumforest saying ok, we have to deal with these questions**, but it was actually the other approach. So, we were

> seeing what are the needs, what are the gaps from the researchers, and in which direction do we have to go. **But in the end, it was not us Sumforest people saying what we are going to do.** This is something I really appreciate about Sumforest, because I think this is exactly the right approach."

According to this, Sumforest organizers were not defining what are the ultimate research paths that should be followed, but rather the researchers participating in discussions and settings. This opinion doesn´t refer to the participation of other stake holders as well. However, as they had an important role in the creation of that research questions, by prioritizing, classifying and transforming emerging issues into challenges, it can be extended to the overall actors as well.

The notion of normative rationale is very much linked with Vera Steinberg's argument regarding the research questions, since it is implied there the idea that it is not important to define from the beginning what are the relevant research questions; but rather consider actors opinions about them. What's more, she also considers convenient to keep the range of research questions open and diverse, for them to be more flexible for their inclusion in each country's needs. In a next section of her interview, she touched on this point when being asked about her recommendations to a next forest related ERA-NET based on her participation in Sumforest.

> "Ok. And now to just a final question, in general terms, what recommendations would you say for maybe, for example a further related ERA-NET, after your experience in Sumforest. Maybe some things that could have been improved for Sumforest as a whole, what would you recommend. And particularly to Forest related ERA-NETs you could do reflections not for ERA-NETs in general, but in the case of ERA-NETs related to Forestry."

> "Well, uhm, what I liked a lot about Sumforest was the diversity of research questions, and I think that is a recommendation I would give to the next forest related Co-fund as well, or ERA-NET, **to have a broad scope. Where countries can say, for example, I only support topic number two, but other countries say, ok I will support all the three topics.** And that they have a broad scope **so researchers and countries can find something related to their needs."**

Here, it is to be noted that having a broad scope and having many research questions was a good feature and a quality of Sumforest, which allows for countries to decide on which problematics to touch based on them. In order to allow countries to decide what topics are important for them, it is convenient to keep relevance notions open at the beginning. By doing so, those countries have more relevant questions and orientations upon which adder to. Together with this, Dietmar Jäger pointed out that "the focus was not to stay only in the national interests but to find common interests, and common understandings." More than finding common understandings regarding research topics, common interests could mean here finding understandings about what is relevant and what is not, and what relevance criteria should be used.

Chapter 12

Conclusions

During the results presentation, two fundamental addressees for the forest research sector were visualized in the analysis: the European Commission, and the funding and policy institutions of the member countries involved (national policies and strategies). These two relationships can be understood as interfaces, since they try to link research with policy making, and to construct knowledge for decision making processes (not necessarily research knowledge). Of course, it should be acknowledged that making this dual categorization could be overly simplistic, since there could be a wide different range of actors interested in the development of Sumforest, and on using its main outputs. In that sense, it is better to consider these interfaces as taken from reflections within the confines of the materials and persons consulted. Focusing on these interfaces implies setting aside other possible ones, a process coming from data collecting practical issues, and the framing of the research aims.

According to an analysis of Sumforest structures (organizations dealing with the ERA-NET), objectives/functions (implicit and not implicit ones), processes (how activities were organized), and outputs (deliverables results, guidelines for projects), it was shown that Sumforest have an important role on bridging certain gaps existing between these actors. The combination of data coming from documents and interviews thrown the following conclusions regarding the gaps existing between research and policy communities in the European context, the role of Sumforest in bridging them, and the notions of relevance and effectiveness of Sumforest work that might be embedded in such bridging processes.

Regarding the European Commission addressee, two main bridging processes were identified.

First, it is noteworthy that Sumforest is trying to accomplish the normative purpose of *constituting the so called "European Research Area" (ERA)*, as well as *addressing the societal challenges expressed in the Horizon 2020 framework*. These could be considered as a general purpose of the ERA-NET instrument, and not only of Sumforest. In relation to the constitution of the ERA, the endeavor of creating research networks in the continent is an ongoing process, so ERA-NETs are intended to consider and include a wide range of actors in the mappings of forest research, as well as in cooperation and research coordination arrangements. *What is important here, is not precisely the information produced by such arrangements, but rather if it was produced by an enhanced consideration of actors, and coordination between them*. For this reason, the objectives and functions of the Sumforest – European Commission SPI, show that it is mainly following a normative rationale. Focusing in the categorization of Heink, the criteria for making evaluations of the effectiveness of a normative rationale interface is "a fair

consideration of stake holders" concerns, more than those who have additional knowledge about punctual issues. Values of diverse stake holders (researchers, policy makers, funders, etc.) having a stake in the topic of Sustainable Forest Management are the ones who are meant to be considered in Sumforest settings.

The aim of constituting the ERA is expressed in the production of Sumforest deliverables related to assess the forest research situation. In that sense, it could be said that Sumforest can help to bridge an *information gap* between the forest research sector and the European Commission by *Providing mappings and states of the situation of the forest research and related policy environments, as a sort of "informal advice" for them*. Work Packages have a clear role for this endeavor because of their contents and their functions (Prior, 2007). They contain information for the EC to understand what are the research priorities and needs of research and policy. Once having that information, they can make use of it as a mean to monitor the enhancement of the research area in Europe. It is possible to see how these outputs are linked to the aims of the ERA roadmap, like the structuration of better research infrastructures, the optimal transnational cooperation and competition, or International Cooperation (see chapter 7). Mapping and consultation exercises to the research communities have the long-term function of achieving those goals, as it was briefly suggested by Greimel when refereeing to the motives behind the creation of the Work Packages (Sumforest structures), and by Steinberg and Jäger when referring to the inclusion of new countries in collaboration arrangements.

In second term, Sumforest has also the role of tackling the societal challenges of Horizon 2020 more effectively, which are also present in the aims of the Joint Programming agenda. A crucial point regarding this, is that as mentioned in the 9.1 section, there is still not an European regional policy to which forest research institutions could speak to, which is rather distributed to similar areas as the Agricultural policy. This expresses a sort of "lack of strong addressee", able to interiorize or process research results. What's more, what results important to mention is the perception that such addressees lacking is an issue that should be, while maybe not solved, at least tackled by the Sumforest ERA-NET. Precisely, statements of the Deliverable 3.1 about the fragmentation, contradiction and complexity of forest policies in the European framework, point out at the need of having clearer policy orientations for research.[85]

As mentioned by Sarkki, debates around policy communities, (which can precisely include the problems of contradiction, complexity and fragmentation of forest related policies), "make the notion of policy demand far more subtle and complex than a simple 'science' vs. 'policy' framework allows for. Acknowledgment of these dynamics is needed to remain sensitive to possible biases and limitations of produced knowledge" (Sarkki, 2014, p. 203). Thus, while

[85] It is still at stake to know if these problems in the policy sphere are perceived to be important in national scales as well. Sumforest didn´t to an analysis about national policies, but interview partners as Peyron pointed out that similar problems in France.

Sumforest is not an instrument participating in the structuration of that common European Forest policy, *it does have a role in "advocating", or giving advice for its creation in the regional level*. As showed in the 9.1 and 9.2 sections, arguments and reasons for that are not only mentioned in the Deliverable 3.1, but also in the SWOT analysis and of course the SSWP. The deliverables about the forest related policy situation have also a crucial role in this respect since *they constitute sources of advice for the European Commission about what are the policy framework problems, and why it is important to solve them*. In addition, interviewees as Peyron and Wolfslehner pointed out at how such policy problems, are co-produced by similar ones in the forest research environment (lacking common visions, the perception that forest research is very small, the lack of public and political awareness of forest importance etc.).

Regarding this, an important argument here presented is that the *undefinition of clear policy addressees mainly in the European level* (demand side), *together with the problems of research fragmentation in terms of lacking enough common visions and research collaboration schemes* (supply side); *are issues that co-produce each-other*. What's more, *it is also argued that they all can be framed as science – policy gaps, and that Sumforest has a role on bridging them*.

According to the data, Sumforest can bridge this gap by other endeavors which are more related to *the creation of research information* than the provision of informal advice as the deliverables do. This bridging process can be useful for the European Commission, but also for the national policy makers. Thus, an important contribution of Sumforest previously stated is *being a vehicle for the visibility and mobilization of policy relevant knowledge to policy makers in the European Union and in the national levels*. In the interview to Bernhard Wolfslehner, it was argued that ERA-NETs could help to develop a concise focus on what are the relevant questions that should be tackled by dealing with them in targeted calls. In other terms, ERA-NETs calls could thus be conceived as spaces where the relevant questions for policy makers can be operationalized and answered through research. Bridging between science and policy would then mean providing such a space for policy relevance criteria to be handled in the construction of knowledge for policy decisions. Thus, as pointed out by Wolfslehner, EFI may have an important role as mediator in advocating, and carrying the right topics that are already over the table of policy makers, which might be expressed in the prioritizing they did of the issues in the Deliverable 3.2.

However, Sumforest *could also improve the mobilization of relevant knowledge of which policy makers are not aware of yet*. In this second case, the definition of what might be relevant for policy makers depends on opinions of forest researchers, who as stated in the Deliverable 3.2, were asked to mention important issues that are not already in the policy table. In both cases, Sumforest have the task to *mobilize important issues and topics and make then visible*. Thus, Sumforest could be understood as a configuration, or interface, intending to create knowledge that is meant to be used by policy makers in later stages, while not in the short term. Again, this

doesn´t mean that certain criteria about what is relevant for policy makers wasn´t included in discussions about topics, but such criteria, as suggested by Peyron and Hetemäki, was not carried by forest related policy makers. In many cases, actors involved in Sumforest settings discussions were representatives of institutions having an intermediary role between research and policy (ECOFOR in France, TAPIO in Finland, BFW in Austria, FORMAS in Sweden etc.). Those institutions are not directly in charge of taking decisions of forest policy or forest management, but rather on funding and managing research related to that.

According the Boundary Organizations theory of Guston, those agents have the task of accomplishing goals of "principals" at both sides of the science – policy boundary: creating integral and productive research (for research and policy communities´ sides, respectively). Ideas of effectiveness of Sumforest work would then depend on criteria of both principals. As Guston says: "success of a boundary organization is determined by principals on either side of the boundary, both of whom rely on the boundary organization to provide them with necessary resource" (Guston, 2001, p. 401). Sumforest could thus be understood as a configuration including actors accomplishing that double task.

However, it is also important to note that while Sumforest counts with such roles, it doesn´t include mechanisms to be accountable by both policy makers and researchers. Although European and national policy makers might be attentive to evaluate its outputs, they *are supposed to be accountable as entities separated of the ERA-NET, since they last longer than it* (as noted in the interview to Vera Steinberg when talking about the projects). At the same time, the fact that potential appliers of research information were not present in the formulation of research topics, makes possible to note that *information was not always co-produced by actors at the sides of the boundaries into play*. In many cases, Sumforest information was structured by actors in one side of the boundary, leaving the participation of the others in the role of later-on users.

Considering these issues regarding the participation of researchers and policy makers in the Sumforest processes, it is still at stake whether, and in what degree, Sumforest can be considered as configuration bridging research and policy gaps in similar ways as Boundary Organizations. While certain features of them are performed in the boundaries of the ERA-NET, some others are left aside. For instance, Sumforest can be considered as a Boundary Organizations in terms of dealing with certain knowledge concerns via a process of hybridization, deconstruction, boundary demarcation and cross domain orchestration between science and policy, using the vocabulary of Miller (2001). The practice of presenting Sustainable forest management as a mixture embedding concerns of research and policy in deliverables statements, precisely, could be considered as a practice of enacting those processes. However, the fact that science and policy communities not always participated in the co-production of research oriented information, nor they established clear lines to make Sumforest accountable in equal degrees,

makes evident that the features of communication, translation and mediation (Cash, 2003) were not displayed into Sumforest as Boundary organizations ideally do.

Therefore, it might be fruitful to understand this ERA-NET as a tool bridging research – policy gaps in different terms. Findings from interviews and documents point out that Sumforest work can be fundamental in allowing a better integration of science and policy for the future. For instance, *creating a research agenda that includes common visions about forest research and policy interventions in forests altogether* emerged as an important aspect along the study. As suggested by Peyron, the forest challenges, structured from the basis of the emerging issues identification (Deliverable 3.2), are supposed to embed the "integrated visions" that are needed to achieve an effective coordination of forest research for policy decisions (see chapter 9). The combination of the three forest challenges in one bigger (Bio-economy of forest services & products under changes, risks and uncertainties), was developed in the SWOT analysis and is a Sumforest processes that is supposed to achieve this endeavor. What's more, they served to structure the three strategic research areas mentioned in the SSWP, into which the topics for the Sumforest call (understanding them as outputs) needed to be framed (SSWP, 2016). This role could be useful or relevant for national strategies in the participating countries, but also for tackling societal challenges specified in European Union configurations.

Coming back to the concept of science-policy interface rationales of Heink, it can be said that, while it includes elements of the substantive rationale as creating a knowledge base for policy decisions, it can be mostly understood as a normative one since *the selection of what and who is included in the definition of topics is being guided by principles of open participation more than in principles of who has a more valuable knowledge*. At the same time, it also represents normative rationale principles since *it leaves open the discussion on how research will be applied* (Heink, 2015, p. 684). Regarding the definition of topics, it is to be noted that, even if knowledge produced by ERA-NETs is intended to tackle European Societal Challenges, there is not a clear a priori definition of the specific issues to be addressed, and they are rather constructed into the ERA-NET (e.g. Deliverable 3.2). Precisely, Vera Steinberg insisted in the value of letting researchers and stake holders to define research questions for themselves, without Sumforest personnel telling them what those questions might be. In that sense, while Sumforest is participating in the creation of knowledge, it is more important the inclusion, participation and openness that processes allowed, than the content of knowledge itself.

Together with this, it is also important to note that the question of implementation is not widely discussed in the Sumforest framework. This is valid for regional policy configurations, but also for national policy makers related to the ERA-NET. Thus, although projects are required to target specific actors using research results, the operationalization of those inputs escapes from the boundaries of Sumforest itself. The evaluation of the impact of the information produced by Sumforest (research information coming from Work Packages and from projects) will be

performed by organizations external to it (the next forest related ERA-NETs and national policy makers).

Considering this, together with embedding a normative rationale, *Sumforest could be considered as a supply driven interface*, (Heink, 2014). As such, it can be said that Sumforest work is more oriented to structure relevant knowledge, rather than knowledge about what is previously considered as being relevant by a formal demand. Based on this, Sumforest gives policy makers the opportunity to assess that information in the long term, in opposition to what a demand driven rationale may do. As Sarkki says: "Demand-driven strategies may enhance immediate policy relevance, but supply-driven strategies may achieve policy relevance over longer time horizons" (Sarkki, 2014, p. 24). Again, here it can be noted than rather than providing, or supporting the implementation of immediate policy options, Sumforest could help to improve science - policy linking processes in the future. This again is embedded in Sarkki statements pointing out that "SPIs can play a role in shaping the next generation of policy priorities, for example through identification of emerging issues and early warnings" (p. 24).

In sum, it can be also concluded that Sumforest improves science and policy linking processes by *providing a framework to effectively combine scientific resources with governance capability with the aim of producing results which will influence policy interventions in the future*, as well as forest ecosystems and other societal aspects, as understood by the concept of "co-productive capacities" developed by Van Kerkhoff and Lebel (2015).[86] Scientific resources are being understood here as the knowledge, skills and expertise of forest researchers; while governance capability as the organizational resources that certain policy institutions have, which in the ERA-NETs case are mainly funding resources. The Sumforest call can be a good opportunity to match these two elements as researchers can engage in research networks of mutual learning (as pointed by Jäger), as well as to get access to funding resources which are commonly scarce for forest researchers (as pointed out by Greimel, Wolfslehner and Peyron when referring to the difficulties to be funded). Taking hand of the categorization of Van den Hove (2007), about the domains of intersections between science and policy, it is noteworthy the importance conferred here to research for policy prioritizing, and the establishment of networking processes to vehicle scientific input into policy (Van den Hove, 2007, p. 7).

Thus, the call can be considered as a Sumforest output increasing the co-productive capacities between research and policy communities. However, the ERA-NET has also established the creation of other outputs, like funding guidelines, capacity building initiatives or networking activities to foster that aim (based in the Work Package 2 and ordered in the Work Package 5). It is also possible to see how national research systems can be benefited, since national

[86] "The combination of scientific resources and governance capability that shapes the extent to which a society, at various levels, can operationalize relationships between scientific and public, private, and civil society institutions and actors to effect scientifically-informed social change."

researchers can profit from the funding available in the call and help to achieve national goals. This relates to one of the ERA roadmap goal of building more effective national innovation systems with the support of EU resources, which can also be analyzed in relation to the concept of co-productive capacities, since, as mentioned stated by Van Kerkhoff and Lebel, it "takes a normative position that processes of knowledge making and decision making and the relationships between them should be examined, understood, and supported at scales that are relevant to intervene in the problems at hand" (Van Kerkhoff and Lebel, 2015, p. 3).

Looking at the whole range of arguments present until now, most of them point at the impact of Sumforest information and Sumforest interfacing work with policy communities as topic which still need to further work and discussion in the future. One of the problems of faced was the difficulties on getting "the addressees perspective" about how the ERA-NET may influence their work, being them national or European ones. The ERA LEARN platform, which was consulted to contextualize information on how effectiveness of Sumforest could be understand, points out that there are still some problems for the ERA-NET tools to establish connections with policy spheres and actors.[87]

In that sense, as a concluding reflection, it is noteworthy that, empirically speaking, the effectiveness of Sumforest and the ERA-NET instrument to establish co-productive bridging processes with policy communities will depend on their flexibility to adapt their explicit functions (funding research, research coordination etc.), to others related to link research outputs to policy and social world. From a theoretical STS view, addressing science – policy bridging processes in transnational settings is an important task to understand how concepts of boundary work or co-production are displayed in the increasingly globalized, interconnected and interdependent knowledge and technology cultures in which science and society relations are taking place.

[87] "In full agreement with the findings of the Expert Group Report of the ERA-NET Cofund instrument, however, ERA-NET actions fall short in terms of aligning national research strategies. Although they complement national programmes, they are not fully embedded in national policy portfolios and/or national strategies for translational collaboration. (…) As a respondent put it "ERA-NETs are flexible tools, but the knowledge about their use and opportunities needs to spread and increase. Many funders, and ministry decision-makers have still not clear ideas how to work with partnering / P2Ps and ERA-NETs (…) "More work also needs to be done in relation to knowledge transfer. As noted by a respondent ERA-NET actions are not that successful in disseminating their results and publicizing their impacts. Given that to achieve their aims they need to focus more on attracting policy attention and influencing agendas at both the national and EU/international levels this becomes extremely pertinent (ERA LEARN platform, 2015, p.22)."

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Abstract (English)

As inserted in the framework of STS studies, the following work constitutes an effort to understand the intermediary spaces between knowledge production and policy application communities. More narrowly, it proposes to focus on forest related ERA-NETs, a case study that has not received attention of that field of studies yet. Besides their common role on being funding tools between European Union (EU) member countries, they could be understood as research coordination arrangements that imagine and set in motion notions of how bridging processes between forest research and policy oriented communities should work in transnational arenas. In that sense, I will explore the rationales of that bridging processes embedded in the development of the Sumforest ERA-NET information and activities, as well as on the prospected implementation of its main outputs. By addressing materials of the ERA-NET work packages, as well as opinions of key actors who participated in their preparation, I expect to get consistent and valuable insights on how the problem of employing research information, and information about research for policy goals, is understood in the framing of its work. At the same time, I also aim to have a clear picture on what are its most important roles in mobilizing such information in national and European policy contexts. Finally, resulting from these attempts, it is also possible to understand the criteria to assess the effectiveness of this bridging processes, which in this case required doing an analysis of external actors (institutions, organizations, strategies, etc.) having a central stake in the reception of information produced by Sumforest.

From a practical point of view, the results of this thesis could help to understand funding tools as institutional arrangements able to mobilize relevant knowledge for policy decisions. From a theoretical STS approach, it can increase the understanding of the science-policy boundary demarcation practices inserted into such dynamics, as well as the potentialities of co-production that could be displayed between them.

Abstract (Deutsch)

Da die vorliegende Arbeit im Rahmen des Studiums der *Science and Technology Studies (STS)* durchgeführt wurde, stellt sie eine Bemühung dar, die Zwischenbereiche zwischen den wissenschaftlichen und den politischen Gruppen zu verstehen. Besonders wurde versucht, die ERA-NETs im Zusammenhang mit forstwirtschaftlichen Untersuchungen in den Mittelpunkt zu stellen, ein Thema, dem bisher noch keine Aufmerksamkeit in dieser Richtung der Disziplin geschenkt wurde. Neben ihrer Rolle als Finanzierungsmittel unter den Mitgliedern der Europäischen Union, können sie als Koordinierungsnetzwerke für die Forschung verstanden werden, die sich Grundlagen ausdenken und entwickeln, wie die Prozesse der Vernetzung zwischen dem forstwirtschaftlichen Forschungssektors und den politischen Gemeinden auf

transnationaler Ebene funktionieren sollten. In diesem Sinne, werde ich die Grundlagen dieses Vernetzungsprozesses als solchen erforschen und in welcher Form er in der Informationsentwicklung und den Aktivitäten des „ERA- NET Sumforest" auftaucht und in der zukünftigen Anwendung seiner wichtigsten Ergebnisse. Anhand der Benutzung von Arbeitsmaterial des ERA-NET und der Einbeziehung von Meinungen der Akteure, die bei dessen Vorbereitung mitgewirkt haben, hoffe ich, dauerhafte und wertvolle Ideen zu erhalten, wie in ihrem Arbeitsschwerpunkt mit den Problemen der Benutzung von wissenschaftlicher Information und der Information über Wissenschaften für politische Zwecke umgegangen wird. Gleichzeitig, versuche ich eine genaue Idee zu bekommen, welches ihre wichtigsten Funktionen sind wenn es um die Verbreitung dieser Information im politischen Kontext auf nationaler und europäischer Ebene geht. Letztendlich, als Ergebnis dieser Vorsätze, ist es auch möglich, die Kriterien zur Bewertung der Effizienz dieser Vernetzungsprozesse zu verstehen, wofür eine Analyse der externen Akteure (Institutionen, Organisationen, Strategien etc.) durchgeführt werden musste, die eine wichtige Anteilnahme am Empfang von Informationen durch Sumforest hatten.

Von einem praktischen Standpunkt her, könnte diese Masterarbeit helfen, um die Finanzierungsmittel wie institutionelle Übereinkünfte zu verstehen, denen es möglich ist, wissenschaftliches Wissen, das relevant ist für politische Entscheidungen, zu verbreiten. Vom Schwerpunkt STS, kann das Verständnis über die Unterscheidungspraxis zwischen Wissenschaft und Politik, die in dieser Dynamik inbegriffen sind, vergrößert werden, sowie das „Potential zur Koproduktion" so wie es von ERA-NET ausgedrückt wurde.

ANEXES

1. - Sumforest Work Packages explanation

WP1: Coordination

This Work Package coordinates the activities of Sumforest, and The Austrian 'Federal Ministry of Forestry, Agriculture, Environment and Water Management' (from now BMLFUW), runs this work package the institution in charge of it. Together with the 'Federal Office and Research Centre for Forests' (from now, BFW), it looks for the smooth functioning of Sumforest, preparing meetings, assuring that all the partners comply with their agreements. It also manages the internal communication and the communication with the European Commission (from now, EC) via the distribution of reports and deliverables[88].

[88] Sumforest Work Package 1. Retrieved from: https://www.sumforest.org/about-sumforest/workpackage-1/

WP2: Mapping research Programmes and capacities

Work Package two has two important tasks. First, it aims at studying differences in themes and areas between national research projects and those with transnational collaboration, as well as forest related policies and priorities and needs for supporting research collaboration (with input of the Work Package 3). Second, it provides a state-of-art descriptions or major national and transnational research Programmes, mobility Programmes, actors and capacities in the forest sector, through a survey. This survey, at the same time, served as a basis on current Transnational needs with representatives of EU research institutions.

Three documents synthetize information on these topics[89]:

- ✓ D 2.1: Summary report of mapping exercises and clustering initiatives (by many partners)
- ✓ D 2.2 Country Reports on Forest Research Programmes, Actors and Capacities (by FORMAS)
- ✓ D 2.3 Priorities for transnational needs and requirements to share research capacities (BY FORMAS)

The institution managing is the 'Swedish Research Partner for Sustainable Development 'FORMAS'. The first document, however, was prepared with the collaboration of persons from other European institutions. As shown, the overall outputs of WP2 is a description of the mapping exercises about the most important research institutions in Europe; a mapping (survey) done by Sumforest actors about this topic; and finally, a workshop to prioritize needs and priorities for transnational collaboration (in terms of capacities and research topics).

WP3: Mapping strategies, policies and policy needs

The leading institution of this Work Package is the European Forest Institute (EFI). Additionally, important actors are the German 'Federal Office for Agriculture and Food' (BLE), and the German 'Federal Ministry of Food and Agriculture' (BMEL).

The objectives of the Work Package 3 are to improve the understanding of the forest-related policy framework; to identify knowledge and information needs by policy makers; and finally, to identify knowledge gaps that need to be addressed by the scientific community. Those objectives are contained in the next three documents[90]:

- ✓ D 3.1 European Forest Related Policies – A cross-sectoral review (By EFI)

[89] Sumforest Work Package 2. Retrieved from: https://www.sumforest.org/intranet/?wpfb_dl=150
[90] Sumforest Work Package 3. Retrieved from: https://www.sumforest.org/about-sumforest/workpackage-3/

- ✓ D 3.2 The Sumforest Foresight Workshop on Emerging Issues in European Forest-Based Sector and Research Priorities (By EFI)
- ✓ D 3.3 Future forest policy and policy makers knowledge gaps (By BLE and BMEL)

In this case, the Work Package outputs are the characterization of the policies dealing with forests, based on bibliography. Then, the implementation of panels and workshops aimed at identifying emerging issues related to forests that deserve the attention to policy makers in the view of researchers and stake holders (D 3.2) Finally, based on the previous, two the D 3.3 describes the results of a questioner sent to policy makers asking them to prioritize the previously identified emerging issues.

WP4: Strategic activities

The leading institution of this Work Package is the Ministry of Agriculture and Forestry of Finland (from now, MMM). However, it counts with the collaboration of other institutions. The main objective of WP 4 is to develop a joint vision and formulation of a strategic action plan as the basis for implementing joint strategic activities and transnational research projects.[91] This objective is meant to be accomplished by the combination of joint networking activities; and the establishment of a priority list of topics for joint calls. There are three documents containing this information:

- ✓ D 4.1: Report from the Paris Workshop on strategic activities – 17 November 2015 (By ECOFOR, a French institution in charge of research coordination in the field of forest ecosystems at the national level).
- ✓ D 4.2 List of the Sumforest joint call topics (By 'TAPIO', a Finnish Forest Research Institute).
- ✓ D 4.3 Sumforest strategic action plan (by 'MIPAAF', the Italian Ministry for the Agricultural, Food, and Forestry policy).

As one can see, this Work Package aims to do a Workshop to synthetize the outputs of the previous ones; with the aim of setting policy relevant topics for the Sumforest Calls, and of establishing strategic activities to improve networking between forest research institutions.

WP5: Joint research activities and joint calls

This Work Package is managed by BLE and its main purpose is the facilitation of cooperation and coordination of forest related research, via the establishment of guidelines, handbooks, agreement templates, and monitoring procedures intended to follow up of the research projects

[91] Sumforest Work Package 4. Retrieved from: https://www.sumforest.org/about-sumforest/workpackage-4/

selected for funding under the first Sumforest Call.[92] WP 5 hast the task of dealing with the administrative procedures to assure a long-term cooperation in the Forestry Sector.

Now, just one document has been produced under this Work Package, a guideline of Mobility Programs at the European Level for the Forestry Sector (D 5.3); which is managed by 'INIA', the Spanish 'National Institute of Agrarian and Food Research'.

WP6: International

As the name suggests, the Work Package 6 (Managed by IBL, a Polish national forest research center) deals with the topic of International Cooperation. That cooperation refers to establish research priorities and sharing of research capacities with Russia and Easter Partner Countries (task 1, managed by EFI); and to establish joint activities (Workshops, training activities, exchange of researchers, etc.) with the previous forest-related ERA-NETs 'Foresterra' (task 2, managed by MIPAAF).[93] Three documents contain information dealing with these aspects.

- ✓ Report to Task 6.1: D6.1 – Research Capacities in the Russia-Eastern Partnership countries
- ✓ Report to Task 6:2 D6.2 Synthesis report SUMFOREST – FORESTERRA
- ✓ Report to Task 6.1: D6.3 EU-Russian-Eastern Partnership Research Priorities

It is valid to say that this Work Package deals with the important Sumforest task to integrate forest research of countries that are still not so involved in the European research networks.

WP7: Spreading excellence

Finally, the seventh Work Package tries to communicate the Sumforest activities, goals, and achievements to the partners, and to external audiences like the scientific community, stake holders and funding agencies. More in particular, it creates a communication plan with the collaboration of the previous Work Packages, which consists in Newsletters, the organization of events and the diffusion of press releases.[94] It is valid to say that with the employment of these communication activities; the Work Package 7 makes the knowledge of Sumforest transferred to broader audiences besides the ones explicitly mentioned or represented in the ERA-NET. The leader of this Work Package is ECOFOR.

[92] Sumforest Work Package 5. Retrieved from: https://www.sumforest.org/about-sumforest/workpackage-5/
[93] Sumforest Work Package 6. Retrieved from: https://www.sumforest.org/about-sumforest/workpackage-6/
[94] Sumforest Work Package 7. Retrieved from: https://www.sumforest.org/about-sumforest/workpackage-7/

2. - The Sumforest Call

'Sustainable Forests for the Society of the Future' is the name of the first Sumforest Joint Call'. The proposals submitted need to be related to one of the three following topics.

- ✓ Comparative assessment of the sustainability performance of forest-based, other renewable and non-renewable raw material-based value chains to inform policy decisions.
- ✓ Risk resilient forest management - Adapting forest management regimes which incorporate risk assessment related to potential climate change impacts to inform policy decisions.
- ✓ Investigation, appraisal and evaluation of trade-offs related to the provision of forest ecosystem services to inform policy decisions

As Sumforest is an ERA-NET, the research projects of its Call are funded by the Member Countries. More particularly, financial resources for the first Sumforest Call: "Sustainable Forests for the Society of the Future", come from the funding organizations of each of the participant countries. For example, in the case of Austria, the funding organization is BMLFUW. Nevertheless, as it is mentioned in the Sumforest web-page section related to the Call:

> "applicants from countries which are not partners in Sumforest or from member countries which do not provide funding for the call are welcome to participate if their participation clearly provides an added value to the consortium and if they present evidence on secured budget for their part in the project. They will need to cover their costs themselves. They are not considered in the minimum number of eligible partners and countries in the Sumforest eligibility criteria. However, most of research groups in a consortium and the coordinator must be eligible to be funded by participating funding organizations to this call"[95]

Now I am going to explain the steps followed to evaluate the proposals submitted for the Call, and decide whether they are going to be considered part of the funded ones or not. These steps are paraphrased from information of the Sumforest evaluation guidelines previously cited.

- ✓ To evaluate the proposals, the Funding Organizations of other countries, nominate a representative to constitute a 'Call Steering Committee' (from now CSC) which has the function of taking the ultimate decision on what projects should be funded.
- ✓ This decision process starts with CSC nomination of a group of experts from their respective countries.
- ✓ From that group of experts, the Sumforest Coordinator and the Call secretariat nominate a chair and a co-chair and a list of who they consider to be the best experts.
- ✓ Finally, they propose that list to the CSC again, who finally take the decision on who are the ones who are finally going to evaluate the proposals (p. 8).

[95] Sumforest Evaluation guidelines: https://www.sumforest.org/wp-content/uploads/2014/03/Sumforest_Evaluation_Guidelines.pdf

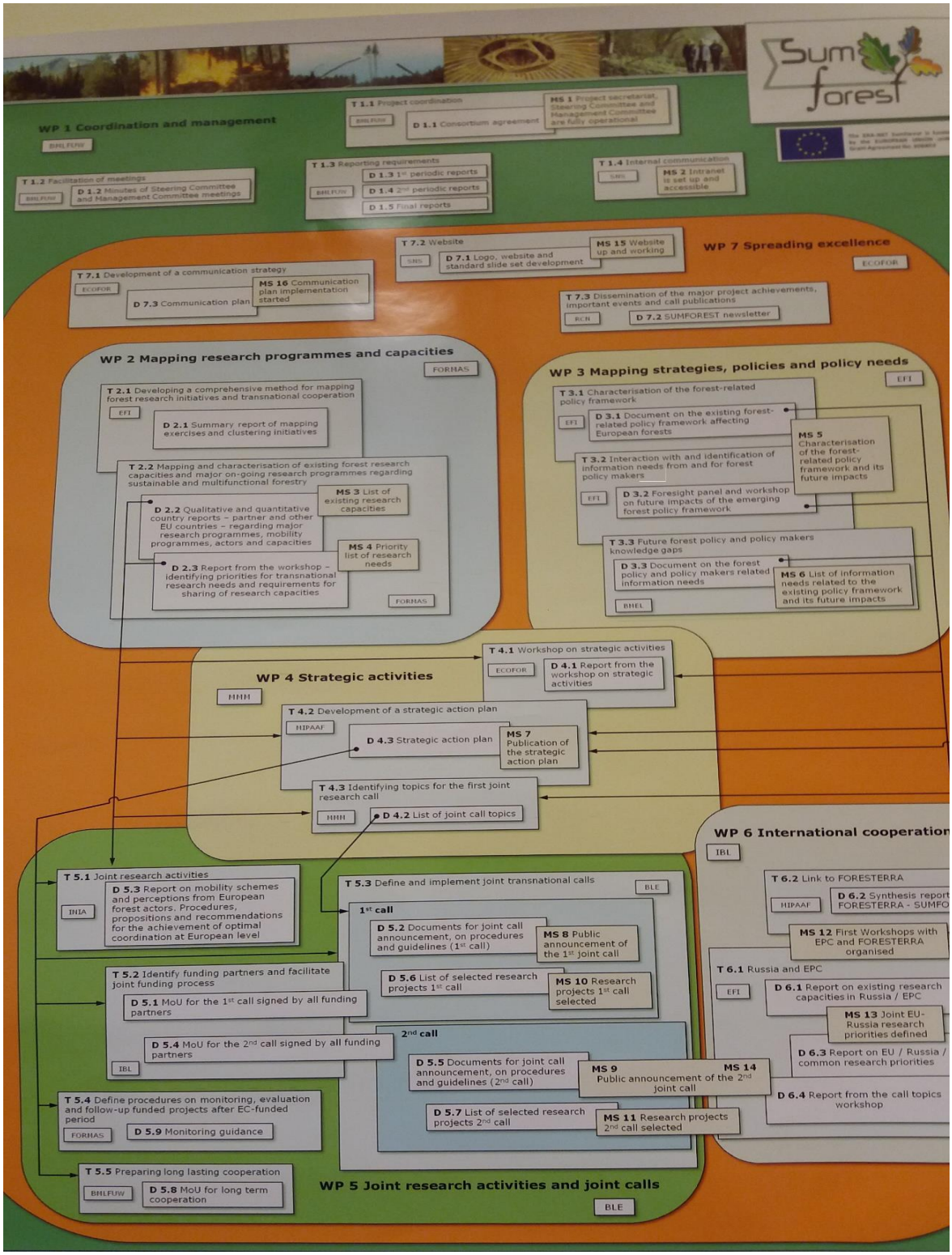
- ✓ These experts are the ones who are meant to read the proposals for the Sumforest Call, and are grouped in a 'Scientific Evaluation Committee' (from now, SEC).
- ✓ After the CSC check the submitted projects according to National Eligibility Criteria they distribute them to the members of the SEC, who evaluate those proposals according to three criteria: 'Scientific Excellence'; 'Quality and efficiency of implementation'; and 'Impact' (p. 11).
- ✓ After following this process, the SEC sends evaluation summaries of each proposals, a rank of them and a summary report with recommendations to the CSC, which as I have said takes the final decision on which ones are more up to be funded, and communicate that decision to each of the project's coordinators.

Twenty-six eligible proposals were submitted for the evaluation, and 7 of them were chosen to be funded by a sum of 8.363.709 €. Those projects are:

BenchValue	Benchmarking sustainability performance of value chains using ToSIA, the Tool for Sustainability Impact Assessment
FOREXCLIM	Forests and extreme weather events: Solutions for risk resilient management in a changing climate
ForRisk	Forest density reduction to minimize the vulnerability of Norway spruce and silver fir to extreme drought – a risk assessment
FutureBioEcon	Sustainable future use of European forests for developing the bio-economy
REFORCE	Resilience mechanisms for risk adapted forest management under climate change
REFORM	Mixed species forest management. Lowering risk, increasing resilience
POLYFORES	Decision Making Support for Forest Ecosystem Services in Europe – Value Assessment, Synergy Effects and Trade-offs

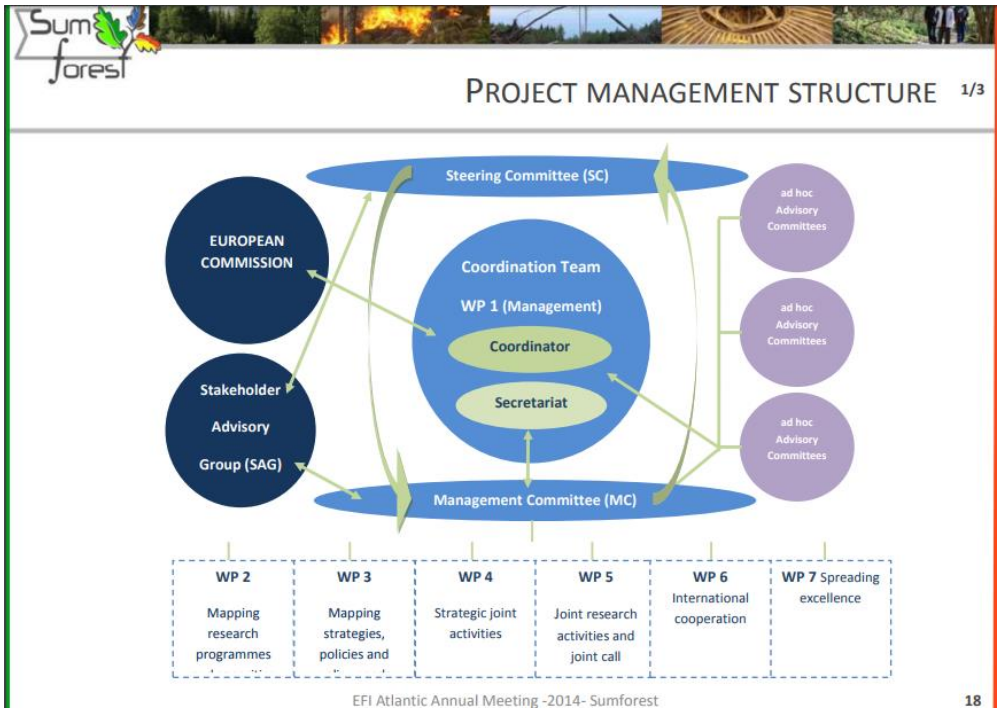
3. - Sumforest structures

Work Packages connections



Photography taken in the Sumforest coordinator office with his permission.

Broader structure



Taken from the presentation on Sumforest in the EFI Atlantic Annual Meeting -2014. Available on the internet

The Sumforest consortium

Taken from the presentation on Sumforest in the EFI Atlantic Annual Meeting -2014. Available on the internet

Sumforest concept and actors around it

Taken from the presentation on Sumforest in the EFI Atlantic Annual Meeting -2014. Available on the internet.