InnoForESt

Smart information, governance and business innovations for sustainable supply and payment mechanisms for forest ecosystem services

GA no. 763899

D5.2 Report on stakeholders' interests, visions, and concerns

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Abbreviations

CICES	Common International Classification of Ecosystem Services
CS	Case study
CZ	Czech Republic
D	Germany
ELARD	European LEADER Association for Rural Development
EU	European Union
FES	Forest ecosystem services
GSA	Governance situation analysis
LE	Large enterprise(s)
NGO	Non-governmental organization
SK	Slovakia
SME	Small and medium enterprise(s)
T	Task
WP	Work package

Executive summary

Understanding stakeholders and stakeholder constellations is essential for governing FES sustainably and for fostering the identification and development of governance innovations. Actual or potential activities of stakeholders and their involvement in the InnoForESt innovation efforts are depending on their interests, visions, and concerns with respect to these innovations. Stakeholder analysis is always ongoing in the case studies as they go along initiating or (re-)shaping their governance innovations. Thus, D5.2 is meant as a first stocktaking, impulse to be active in and conscious about stakeholder activity and involvement.

Stakeholders are deemed to be important with respective to the forest ecosystems under scrutiny in general, and/or with respect to the targeted governance innovation(s) in particular. Some of them benefit directly from one or more concrete Forest Ecosystem Service(s) (FES) while others do so rather indirectly. There are stakeholders that are actively managing forests and, thus, affect the kind and level of ecosystem services provided there (supply); often with very different objectives and means. Yet, there are also stakeholders that benefit rather indirectly from FES but effectively shape the management of forests (e.g. policy makers, financiers, etc.). There are also significant differences between stakeholder categories and between individual stakeholders - within and across case studies - with respect to the relative importance for and interest in the planned or ongoing governance innovation (process) and the respective activities planned in the context of InnoForESt and beyond. Further, the level of interconnectedness between stakeholder groups (and individual stakeholders) appears to be quite heterogeneous, depending, among others, on the 'history' of the innovation (process), the diversity of interests with respect to forests and or concrete FES, and their societal roles (e.g. state authority, civil society actor, SME, etc.).

With respect to conflicts, issues, and visions, we identified and discussed six cross-cutting issues: (1) Preserving vs. using forests: Balancing conservational and extractive use of FES; (2) Need for reforestation vs. need for preservation of open cultural landscape; (3) Provision of FES – Fair distribution of efforts/costs and benefits; (4) Access to forests and using FES in forests – who benefits?; (5) Active forest management needed for the provision of some FES; and (6) Improving collaboration between private and public stakeholders.

1. Introduction

Understanding stakeholders and stakeholder constellations is essential for governing FES sustainably and for fostering the identification and development of respective governance innovations. InnoForESt aims for an integrated approach to knowledge generation, stakeholder interaction, and triggering governance innovation. Thus, identifying, mapping, and integrating a diversity of stakeholders' knowledge, interests, visions, and concerns, including civil society perceptions, user demands, facilitators' suggestions, and how stakeholders are interlinked is crucial for keeping the InnoForESt innovation action as compatible as possible with stakeholders' perspectives. The assessment of the stakeholders' key orientations regarding FES governance innovation is essential for fostering the co-production of the innovation networks and prototypes. More precisely, stakeholder analysis in the context of InnoForESt has the purpose of (1) identifying, organizing, and sharing the available, but unstructured or implicit knowledge about stakeholders, (2) identifying stakeholder-related knowledge gaps and, based on this, (3) gathering new stakeholder information relevant for fostering the innovation processes in the respective case studies, and (4) allowing for cross-case study analysis and for developing stakeholder typologies.

This D5.2 is part of – and the first result from – Task 5.2 'Stakeholder integration' of Work Package 5 'Innovation Process Integration'. This task cuts across sectors, levels, and disciplines, engages with practice partners and associate partners, and entails organizing stakeholder activities and processes (above case study level, but also supporting stakeholder activities within case studies). It further develops stakeholder management procedures to ensure sufficient, timely, and reliable input of stakeholder knowledge, as well as stakeholders' assessments of and feedbacks on project progress (incl. interests, visions, and concerns). This task ensures the appropriate representation of relevant (types of) stakeholders (1) during the establishment or creation of the innovation networks and their goal-oriented, target expansion, (2) in the experiments with prototypes, and (3) in the prototype assessments (e.g. via CINA workshops). It provides essential information on stakeholder constellations, characteristics, and interests that need to be taken into account when upscaling successfully tested prototypes of governance innovation. The charted stakeholder landscape is informed, among others, by the stocktaking activities in WP2 as well as by relevant case study knowledge and will be constantly refined, adapted, and expanded throughout the project.

Indeed, although there will be no follow-up report on stakeholders' interests, visions, and concerns in the remainder of InnoForESt, stakeholder analysis is always ongoing in the cases as they go along initiating or (re-)shaping their respective governance innovations. Perhaps, more and/or other stakeholders would need to be involved in the process or changes in themes or objectives, stakeholder constellations or interests accounted for. Thus, D5.2 is meant as a first stocktaking and impulse to be active in and conscious about stakeholder activity and involvement. If some key decisive changes in our overall stakeholder assessment occur, we will discuss them in D5.4, the 'Final FES Governance Innovation Navigator'.

This Deliverable has the following objectives: (1) Compiling descriptions of stakeholders' interests, visions, and concerns based on individual case study inputs in a structured and meaningful way; (2) Comparing cases to find patterns in stakeholder types, characteristics, and interests, and to relate stakeholder constellations to types of FES involved; (3) Linking up with early empirical stakeholder-related insights from WP2, WP3, and WP4 as well as actors-related aspects gathered in the context of the governance situation analysis in Task 5.1.

The Deliverable is structured as follows. In Section 2, we describe the processes and procedures initiated to prepare this Deliverable, and, in Section 3, we present descriptive results including a brief overview of the key features of every case study and a summary of the empirical approaches taken by the case study teams. Here, we also introduce the stakeholder categories we used and present highlights of the analysis and mapping of the stakeholder constellations. In Section 4, we then present and discuss cross-case study issues including illustrative examples from individual cases. Section 4 reflects on the limitations of the empirical and analytical approaches used for informing and compiling this Deliverable. Finally, in Section 5, we draw some conclusions.

2. Processes and procedures initiated to prepare this Deliverable

Identifying and assessing stakeholders requires an intimate knowledge of the respective context and influencing factors in the case study regions in general, and of the governance innovations targeted and pursued there, in particular. For this, and for practical (e.g. linguistic) reasons, we considered the case study teams, i.e. practice partners *and* scientific partners (if applicable also associated partners) to be chiefly responsible to organise and carry out the empirical work of identifying relevant stakeholders and assessing their characteristics. To facilitate this work, we developed a concept for stakeholder analysis (factsheet 'Stakeholder Analysis'; see Annex I) providing a structured, yet flexible analytical and methodological frame for case study teams for compiling and analysing empirical information on stakeholders. We discussed the objectives and the individual elements of the concept with the case study teams during a sequence of case-study individual Skype meetings (between March and June 2018) and refined the original concept accordingly. Further, in order to provide an example for how this concept could be used in practice, we produced a factsheet on the actual empirical and practical approaches for stakeholder analysis in the Austrian case study 'Eisenwurzen' (see Annex II).

In the factsheet 'Stakeholder Analysis', we suggested the following:

a) Stakeholders/stakeholder categories

Stakeholders/stakeholder categories that might be considered in the stakeholder analysis include (not restricted to; might be partly overlapping) (for the final categories used in this Deliverable, please see Section 3.3):

- *Forest owners (public, private, collective)*
- *Land owners (outside forests) (public, private, collective)*
- *Forest managers/farmers managers (might overlap with owners, but not necessarily so)*
- *Protected areas organisations (national parks, biosphere reserves, etc.)*
- *Public administration (national, regional, local)*
- *Civil society actors (NGOs, forestry organisations, environmental, nature conservation, tourism; hunting, leisure, sport, other interest groups)*
- *Municipalities (local community, villages)*
- *Forestry industry, including sawmills and other major wood-processing; wood traders*
- *Smaller businesses (SME) (wood) craftsmen, carpenters, (wood) designer, tree-nurseries*
- *Networks for forestry or wood processing, federations of forest-/wood-related companies*
- *Consumers, including various types of tourists (day tourists, over-night tourists; hunters, youth organisations, 'everyman' – local)*
- *Scientific/research organisations (universities, research institutes)*
- *Educational stakeholders (kindergardens, schools, universities)*

- *Tourism industry/enterprises*
- *Locals (using forests through collecting wood, fruits, mushrooms; for leisure and recreation, traditional use, religious use)*
- *Financial enterprises (e.g. banks, funding agencies, business support funds).*

This initial list of stakeholder categories was meant to be rather comprehensive and inclusive providing case study teams with a broad range of stakeholders that might be potentially relevant for their respective cases. These categories were revised, partly merged, and refined later in the process reflecting the empirical insights from the case study teams and considering the stakeholder categories used for mapping actors in WP2 (see Section 3.3).

There are many ways to categorise and 'sort' stakeholders. For example, they may have different actual or potential roles with respect to the governance innovation (process) under scrutiny, like funders, implementers, or mediators/intermediaries. They may come from different societal spheres, such as public/state, private, and civil society; or they might be (actual or potential) beneficiaries of or (negatively) affected by the innovation. Further, they might be situated or active at various spatial and administrative scales, such as local/regional, national, or perhaps even international – and some might even be active at several scales at the same time. With respect to stakeholders, it can also be distinguished between 'interested individual citizens' like local residents and 'organised civil society actors' with the latter typically representing organisations, enterprises, authorities, etc. Finally, they might be rather enablers of the governance innovation, or slow down and oppose the innovation (process). Thus, the first step of the stakeholder analysis was meant to identify those actors that are involved in and/or affected (actually or potentially) by the innovation governance targeted in the case study at the various levels and in the different realms. With respect to levels, the stakeholder analysis was intended to take a primarily local and regional perspective, yet without ignoring relevant national stakeholders.

b) Stakeholder characteristics

Some stakeholder characteristics may refer to individual stakeholders, others more to the organisation, administration, or interest group he/she represents; sometimes both will be relevant, and perhaps distinct. Some of the characteristics might be directly related to the governance innovation, others might be more or less independent. If possible and appropriate for the individual case study, for each (type) of stakeholder identified as relevant (actual/potential) for the analysis was supposed to shed light on the following characteristics (please see Sections 3.3 and 4 for those characteristics actually covered):

- *Interests/motivations with respect to forest ecosystem services, forest governance, and the governance innovation*
- *Influence (actual/potential)/role within organisation/within forest governance and, if applicable, the governance innovation*
- *Available knowledge, competencies, educational background*
- *Available power and other resources (incl. positional power, coercion, financial); control over resources*
- *How/To what degree affected (positively or negatively; politically, scientifically, financially) by forest governance/the governance innovation*
- *Employed forms and means of communication between relevant stakeholders*
- *Visions with respect to (management/use of) FES, forest governance, and the governance innovation*
- *Concerns with respect to (management/use of) FES forest governance, and the governance innovation*

c) Empirical approaches

There is a wide range of empirical tools and methods that can be used to identify, describe, and assess stakeholder interests, visions and concerns. Which (combination of) method(s) were chosen by the case study teams depended to a large extent on the time and personnel available for undertaking the analysis, the degree of detail and comprehensiveness of the results of the analysis needed, the availability and quality of relevant previous stakeholder analyses, and the complexity of the stakeholder context. Empirical approaches for stakeholder analysis suggested to the case study teams include identifying and analysing relevant published research, legal documents, planning materials, policy documents, and other written sources. Particularly fruitful are further, exploratory (open) and/or semi-structured interviews with (key/all relevant) actors, either face-to-face or per telephone as well as focus groups or other kinds of workshops or meetings with practice partners, and surveys.

While providing some suggestions on stakeholder types/categories that could be targeted, analytical categories to be used for assessing the characteristics of stakeholders (including interests, visions, and concerns), and appropriate empirical approaches, we also provided for considerable flexibility and room for manoeuvre on part of the individual case study teams to allow for case-specific contexts, stakeholder constellations, and stages of innovation development as well as for time and resources available/assigned to the stakeholder analysis. We started from the assumption – and frequently emphasised this when talking with the case study teams - that the results of the individual stakeholder analyses were crucial ingredients for planning the activities in the respective case studies supposed to foster the governance innovation development/process. Thus, the case-study specific knowledge needs were supposed to chiefly guide the stakeholder selection, the data gathering as well as the categories used to analyse the data.

First drafts of stakeholder analyses were provided by the case study teams starting in June 2018 and commented on by the Task 5.2 team from University of Innsbruck (UIBK) and University of Twente (UTWENTE). If appropriate and/or preferred by the case study teams, the drafts and some critical issues were discussed via Skype. Subsequently, the case study teams revised their inputs.

It is important to note that – almost parallel to the stakeholder analysis – case study teams had been asked to provide input for the Governance Situation Analysis (GSA) (Task 5.1). This GSA is an important input for D5.1 ‘Interim ecosystem service governance navigator & manual for its use’ (due in M15). Among others, it requested from the case studies information on two issues relevant for this D5.2, too: ‘Actors’ and ‘Actor Interactions’ with due regard to their political interests, to policy instruments, key policy issues and discourses, and the broader governance situation. If information provided by the case study teams for the GSA complemented or illustrated insights mentioned in the stakeholder analysis of the respected case study in a substantial and significant manner, it is used in this Deliverable, D5.2, too.

3. Descriptive results

3.1. Basic information about case studies

This Section only contains very brief descriptions. More detailed information on each case study can be found on the InnoForESt webpage: www.innoforest.eu.

Italy 'Mountain Forest Management'

The innovation pursues an active, balanced and integrated management of the forest-pasture system in mountain areas. This entails the promotion of close-to-nature silviculture aiming to foster natural regeneration, improve structure and composition, and keep production levels constant over time, and the adoption of livestock breeding practices helping support production activities related to mountain grazing and limit the abandonment of agricultural and grazing activities. The main goal is to stimulate stakeholders to manage their resources in a way that can guarantee a better provision of ecosystem services.

Germany 'Waldaktie' (Forest Shares)

A new payment scheme for climate protection, in which actors (mainly tourists) can compensate their (holiday-) CO_2 emissions by paying for (buying) 'forest shares'. A 'forest share' describes a certified payment of 10 Euros for the tree maintenance on an area of 5 square meters in a 'climate forest'. The buyers can also plant the trees by themselves. Services provided through the payments are, besides climate services (voluntary carbon market), also biodiversity and water quality. Furthermore, Waldaktie is an education tool (education for sustainable development) to explain the ecosystem services of forests to non-specialists. It can be used by companies to make their products more attractive. Main initiator of the tool 'Waldaktie' and responsible for its management is the Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania. The original innovation was supported by two additional funding parties: The Federal Forest Agency Mecklenburg-Western Pomerania and the Tourist Association Mecklenburg-Western Pomerania. The innovation is about to further develop this financing tool.

Austria 'Value chains for forests and wood'

The governance innovation in the case study is expected to better capture the value of forests and concrete FES in the mountainous and densely-forested areas of Eisenwurzen. The aim is to build up a network of innovative collaboration in order to improve sustainable use of forest-and wood-related resources with improved and sustainable benefits for the region and the people living and working there. In particular, regional value chains for timber and forest-products are to be created in order to secure local artisanship and create future-oriented sustainable solutions for forest management. Stakeholders from different sectors are hoped to become involved in the network, including representatives from two National Parks as well as economic and administrative actors. The innovation is in an early stage of identifying and linking stakeholders. At the moment, three options are on the table for further discussion: (A) furniture, design, and region, (B) mobile wooden houses and tourism, (C) experiencing forests and wood (e.g. for hiking, recreation, or education).

Finland 'Habitat Bank'

Habitat bank is a novel payment scheme for biodiversity conservation, in which actors degrading biodiversity compensate the loss they generate by buying offsets from landowners who restore and/or protect sites as offsets. In the context of InnoForESt, the Habitat bank concept will be further developed to include offset supply among private landowners.

Sweden 'Älska Skog' (Love the Forest)
The overall purpose of the Swedish case is to stimulate an interest into Swedish forests and nudge the younger generation, through activities for schools, into reflecting on forest management and biomass use for a more sustainable future. This innovation is a communication and education project bringing together different Swedish forest stakeholders (forest industry, researchers, civil society and policy-makers) with what they perceive as one of the most important groups of society, namely schoolchildren. During the 'Älska Skog' project, schoolchildren are supposed to learn more about the present and future importance of forest ecosystems and the role of forests for society. Schoolchildren are seen as multiplicators into social circles of family and friends, and as target group for the early formation of forest perception in a longer-term perspective.

Forest Commons Hybe (Slovakia) & Land Trust Association Čmelák (Czech Republic) 'Hybrid Ecosystem Service Governance'
The case study is based on collective action of self-organized long lasting institution (common forest owned/managed by group individuals (1) with shares in forest ownership, or (2) who are members of land trust, i.e. forest commons) to address the social dilemma of balancing individual interests to forest overuse with societal interest in sustainable FES provision. Concerned are climate regulation, biodiversity, recreation, and education, in particular. The case study sites are the Forest Commons Hybe (SK) and forests owned and managed by the Land Trust Association Čmelák (CZ). In both sites, innovative 'collective actions' were developed based on self-organization of the community. The self-organization enables innovative practices in forest management to support the provision of non-wood timber forest products and services, in particular enabling the evolution of nature-based forestry.

3.2. Empirical and analytical approaches chosen by case study teams

The case study teams employed a broad range of empirical methods to collect information on stakeholders. Apart from analysing relevant policy and other types of documents, tapping and compiling stakeholder-related information from the members of the case study teams themselves, in particular from the practice partners, many case studies relied on semi-structured interviews with a smaller or larger set of (key) stakeholders. In some cases (e.g. Sweden, Czech Republic, Slovakia, Germany), different forms of workshops or focus groups with current or potential stakeholders were used to learn about the stakeholders interests, visions, and concerns. In the German case study, a Net-Map interview (WP4) with an associated partner and key actor informed the stakeholder analysis, too. In the Swedish case, also questionnaires were employed and analysed.

Table 1 below contains the detailed empirical and analytical methods used by the respective case study teams as well as the main sources and the empirical basis.

Table 1. Empirical/analytical methods and main sources/empirical basis

Case study	Empirical/analytical methods; main sources/empirical basis
Italy 'Mountain Forest Management'	Key stakeholders were identified by PAT (practice partner) based on its long-standing experience in the area. A first list of stakeholders was progressively refined also through discussions with UNITN (scientific partner) in order to get a sample that is as comprehensive and relevant as possible. The perspectives of stakeholders were investigated by means of semi-structured interviews conducted by PAT. Overall, 13 interviews were conducted between the end of May and the beginning of July 2018. The interviews followed a predefined structure, but were significantly adapted to the context and interviewee; i.e. some questions were modified or eliminated depending on the circumstances.
Germany 'Waldaktie' (Forest Shares)	Main empirical sources were a stakeholder meeting in June 2018, and the Net-Map Interview (WP4) with the Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania in July 2018.
Austria 'Value chains for forests and wood'	For the stakeholder analysis, a qualitative empirical method was employed. Overall, 15 semi-structured interviews have been conducted with key stakeholders of various categories in the region. The stakeholders have been chosen based on the in-depth local experience of the practice and associate partners, and with a focus on covering a broad range of stakeholder categories. Thus, it was aimed to identify, map, and integrate a diversity of stakeholders' interests, visions, and concerns. Interviews took place on the workplace of the interviewed persons and lasted between one and two hours.
Finland 'Habitat Bank'	Identifying and assessing relevant stakeholders is based on long and deep knowledge of forestry sector in Finland on part of the members of the case study team. The number of relevant stakeholders is quite small and their role is stable. Stakeholders have been interviewed individually and also together in the context of workshops.
Sweden 'Älska Skog' (Love the Forest)	Data for this section has been collected from homepages where the organizations present themselves, through document analysis, questionnaires (students and teachers), through focus group interactions (students including participatory sketching) as well as through semi-structured interviews with ÄS partners (five partners and continues interaction with Universeum partner and Christa).
Forest Commons Hybe (Slovakia) & Land Trust Association Čmelák (Czech Republic) 'Hybrid Ecosystem Service Governance'	The first workshop in Hybe in Slovakia, 3rd July 2018 with representatives of Forest Commons Hybe. The workshop was used for identification of key milestones, influencing factors and stakeholders for the innovative activities. The focus group in Liberec, Czech Republic, on 17th July 2018 took place with representatives of the Land Trust Association Čmelák. The focus group was used for identification of key milestones, influencing factors and stakeholders for the innovative activities.

3.3. Analysis and mapping of stakeholders

The analysis and mapping of the case study specific stakeholder situations is based on the results of the stakeholder assessments carried out by the case study teams. Each stakeholder relates to a specific stakeholder type or category. Starting from the comprehensive list of stakeholder types and categories presented in the factsheet 'Stakeholder Analysis' and taking into account the actors categories used in WP2, we developed a set of stakeholder categories that would be helpful in covering a wide range of individual stakeholders or stakeholder groups referred to in the case study inputs allowing for useful distinctions between the different categories. For example, we decided to modify the WP2 category 'Forest and wood using business and industry' by differentiating between small and medium enterprises, like local carpenters and sawmills, and large industries, like national wood cutting firms. Further, by doing so, we also allowed for non-forest and wood using enterprises, like local shops funding conservation activities, to become more prominently described.
We also added information for some stakeholder categories if they would be profit or non-profit oriented. Cooperation networks and consulting clusters were added to account for umbrella associations like the Furniture and Wood Business Cluster (MHC) in the Austrian case study, being non-profit, but no exactly part of the civil society and not really an NGO, either

Table 2. List of stakeholder categories

Stakeholder categories
Land- and forest owners
Protected areas organizations
Public administration
Small and medium enterprises
Large enterprises
Non-timber forest product users (profit)
Tourism industry
Scientific organizations
Financiers
Civil society actors (non-profit)
Recreational users (non-profit)
Cooperation network and consulting cluster
Press and media

In consequence, all case study-specific data has been adjusted to our 'stakeholder categories' (Table 2) and expanded with other attributes (Table 3).

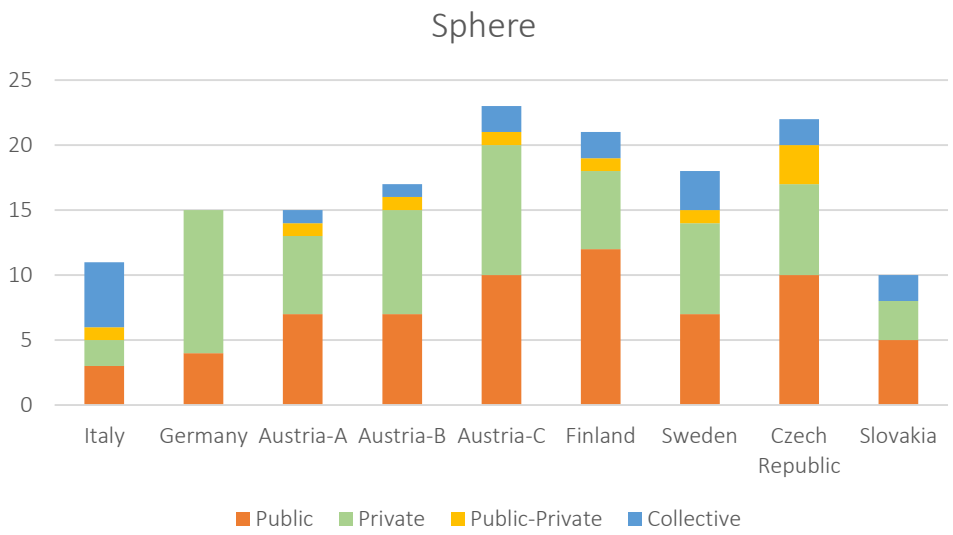
Table 3. Stakeholder categories and stakeholder-specific attributes

Stakeholder (case study)	Stakeholder category (UIBK)	Sphere	Business type	Scale	Openness to innovation

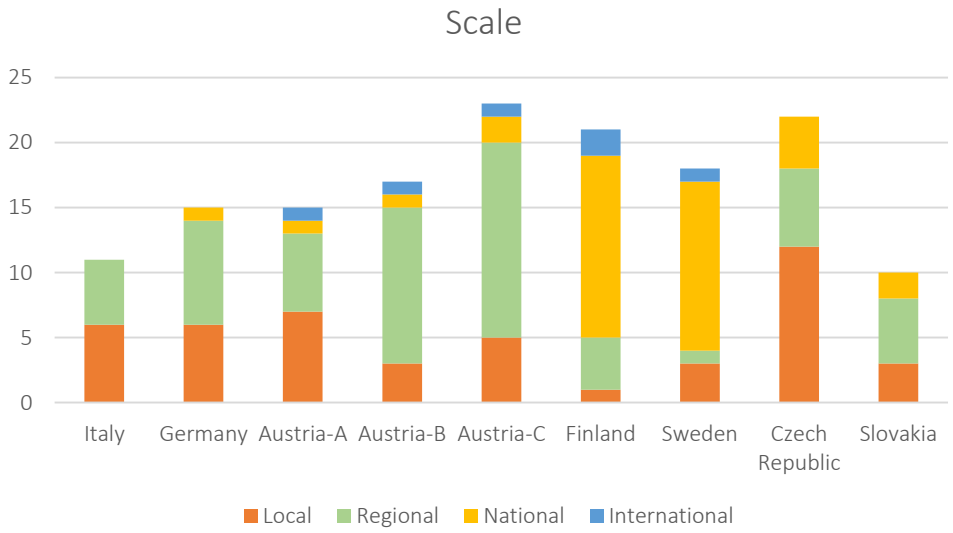
The first column compiles those actors mentioned and analysed by the case study teams, and the second column shows the corresponding stakeholder type using our adjusted list of stakeholder categories (see Table 2). 'Sphere' is based on the general distinction between private (PR), public (PU), public-private (PU-PR), and collective (C). It refers to the dominant form of ownership of/within organisational units/stakeholder groups. 'Business type' refers to a more detailed or descriptive and more economy-wise classification of the corresponding stakeholder. 'Scale' refers to the prior localization resp. the stakeholder's scope for action that appears from the local to international scale. Some stakeholders cover a wider range of action and appear even on several, if not all scales. The stakeholders' grade of 'Openness to innovation' has been assessed with L (low), A (average) or H (high).
'Openness to innovation' can be described as the willingness towards the 'New' or readiness to embrace new thinking and change. It is important to note that this may relate to an actor's general attitude towards 'new/other approaches, development/change, assessment of the status quo', or may relate more specifically to the governance innovation under scrutiny in a particular case study. This depends also on the development stage of the governance innovation, on an actor's involvement in activities and networks related to this (or its predecessors) governance innovation discussed in the context of InnoForESt, and on the existence, or not (and the actor's knowledge thereof), of possible development paths/scenarios related to this governance innovation. That is, an actor may show high degrees of 'Openness' with respect to some possible development paths/scenarios, but may fundamentally reject concrete (other) paths/scenarios. Thus, the value added of this assessment may be less the comparison across case studies, but perhaps the 'relative Openness' within a case study. The assessment has been completed in all case studies in consultation with the case study teams including science and practice partners (see Case Study Briefs in Annex III).[1]

In total, we identified 152 stakeholders in the case studies. Since the Austrian case features, so far, three broad options for governance innovation with different, though partly overlapping, stakeholders, Austrian stakeholders are overrepresented here (the make up more than one third). Considering the stakeholder category, all case studies show heterogeneous compositions of their stakeholder networks. More than 80% of the stakeholders are assigned to either the public (65) or the private (60) sphere. Remarkable is the high Italian stakeholders' share in the collective sphere of almost 50%; in the other case studies, its share remains on average on 9%.

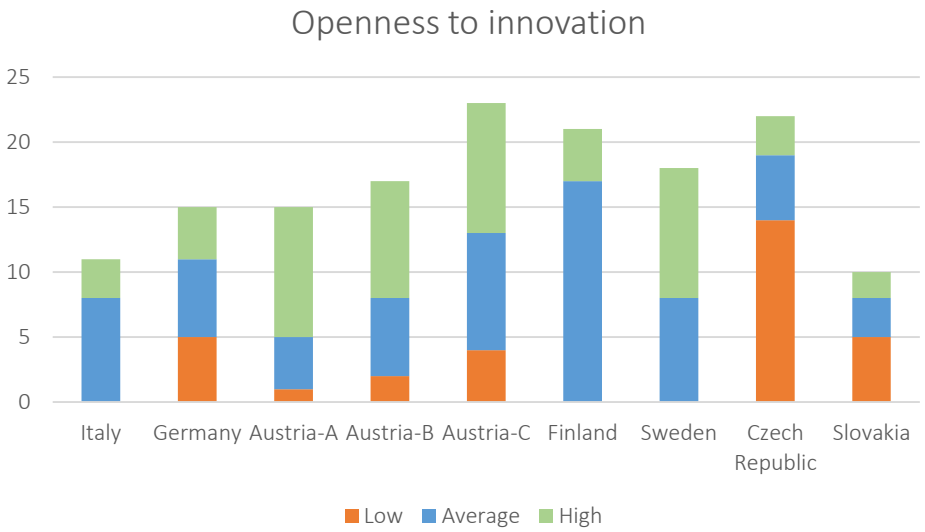
[1] To visualize and analyse the case study specific stakeholder networks we used the software-based tool VennMaker (www.vennmaker.com).



More than two thirds of the stakeholders operate on local or regional scales. Not surprisingly, international stakeholders are underrepresented in most case studies (4%). The Finnish and Swedish case studies show a significant number of stakeholders active on the national scale.



When it comes to the readiness to embrace new thinking and change, it is striking that most case studies attribute the majority of the stakeholders with a certain degree of 'Openness to innovation' (average or high). The Italian and Finnish case studies do not even identify stakeholders with low 'Openness to innovation'. In contrast, the Czech Republic case study shows a low willingness towards the new of most stakeholders (64%); to a somewhat lesser extent (50%), this is also true for Slovakia.



Overall, the case studies made evident that those stakeholders related to public administration, civil society, or cooperation networks and consulting have the highest tendency to embrace innovative approaches.

In the Austrian case study, it can be noticed that the activities of LEADER Local Action Groups (European LEADER Association for Rural Development – ELARD) contribute significantly to the interaction of different stakeholder groups and, thus, increase their level of 'Openness to innovation'. Given the empirical material provided, however, we could not identify similar influences of the EU on stakeholders' attitudes in other case studies. Interestingly, most case studies did not account the scientific partners of the case study teams as stakeholders, though in a few cases at least the practice partner was considered and 'assessed' as stakeholder.

4. Cross-case study analysis – Conflicts, issues, visions

In the previous Section 3, we described a rather high number (ranging from 11 in the Italian case study to 21 in the Finnish case study) and a broad range of stakeholders identified and assessed in each case study. They are deemed to be important - or at least relevant - with respective to the forest ecosystems under scrutiny in general, and/or with respect to the targeted/pursued governance innovation(s) in particular. Those stakeholders represent different stakeholder types, come from different spheres (private, public, collective, or private/public), play different roles in economy and society, and operate at different scales ranging from local to international. Some of them benefit directly from one or more concrete FES (e.g. sawmills, tourists, local residents) while others do so rather indirectly. There are stakeholders that are actively managing forests and, thus, affect the kind and level of ecosystem services provided there (supply); often with pretty much different objectives (e.g. extracting timber vs. conserving biodiversity) and means (e.g. wood cutting vs. monitoring bark beetle infestations). Yet, there are also stakeholders that benefit rather indirectly from FES but effectively shape the management of forests (e.g. policy makers designing and implementing FES-related policies, or financing organisations organising/running payment schemes fostering the sustainable use of forests/FES).

In a similar way, there are significant differences between stakeholder categories and, of course, between individual stakeholders - within and across case studies - with respect to the relative importance for and interest in the planned or ongoing governance innovation (process) and the respective activities planned in the context of InnoForESt and beyond.

Further, the level of interconnectedness between stakeholder groups (and individual stakeholders) appears to be quite heterogeneous, depending, among others, on the 'history' of the innovation (process), the diversity of interests with respect to forests and or concrete FES, and their societal roles (state authority, civil society actor, SME, etc.). Actual or potential activities and involvement of stakeholders in the innovation activity are depending on their interests, visions, and concerns with respect to this governance innovation. They can foster or even enable the innovation process, or (try to) slow it down or even oppose it.

In this section, we present and discuss cross-cutting issues we identified when comparing the individual case study inputs. Some of the issues may be relevant for or relate to all or most cases; others we found to be important - or even mentioned/occurring - in 'only' two or three cases. Some of these conflicting issues may have already existed for a longer period, others may have only surfaced or exacerbated when the governance innovation process was started/initiated. All issues discussed here, however, are strongly related to different interests, visions, and concerns of assessed stakeholders with respect to FES and/or the governance innovation (process). It is very likely that these differences will influence - positively or negatively - the future development and the form of the governance innovation, the debates at the strategic workshops, and the scenarios and prototypes developed there. Where relevant, those issues, thus, need to be addressed in the innovation process in general, and at the workshops in particular; otherwise leading to conflicts. These issues are related to concrete FES, to the stakeholders directly or indirectly involved in managing/using the forests under scrutiny, and to the governance innovation action.

4.1. Linking FES and stakeholders

The interests, visions, and concerns of stakeholders are usually closely linked to (one or more) concrete FES. Thus, before we present and discuss the cross-cutting issues, we show which stakeholders or stakeholder groups in a respective case study explicitly and predominantly address and/or relate to which concrete FES (s).
We also show how this relationship is constituted (e.g. if are they using, benefiting from and/or affecting its provision). This overview is - once more based - on the empirical input provided by the case study teams and is part of the case study briefs in Annex III. Please note that - depending on the progress/status of the innovation process - the relation between a stakeholder (group) and FES may focus on the relevance or importance of this FES in the context of the governance innovation, or in general. For example, a national Ministry of Environment may arguably have an interest in biodiversity conservation or water regulation, yet this particular FES may not be relevant in the context of the governance innovation under scrutiny. In the following, we provide/highlight main patterns/relations of stakeholders and concrete FES for each case study:

Italy 'Mountain Forest Management'
Situated in a mountainous area, the Italian case study builds on a traditional system combining cattle pasture and forest management. Quite a few forest- and tourism-related stakeholders collaborating towards the development of the governance innovation were identified. The stakeholders are relating to a broad range of FES, due to their underlying preferences in their day-to-day practices. In addition, interdependencies of providing and benefitting from FES can be identified. Focussing on the innovation of the forest-pasture system, extractive use and conservation of FES in the forests are combined, while using services within the forest is currently a little bit more prominent. The extractive use is related to milk production (grassing) and the removal of timber and for wood chip production as well as mushroom picking and hunting. The pasture system is also relating to services to be used within the forests: tourist office, tourist association, and hotel association as well as alpine club and local residents are emphasising

services as recreation, aesthetic value, and cultural heritage. Biodiversity conservation, erosion, and avalanche protection are FES highlighted by local residents and collectively organised stakeholders.

Germany 'Waldaktie' (Forest Sharea)
The innovation is about to further develop the financing tool 'Waldaktie', that is meant to finance tree planting in the region of Mecklenburg-Western Pomerania mainly for climate protection. Stakeholders jointly address FES used within the forests. Tourists are encouraged to buy shares and participate in the planting actions, thus promoting the 'environment' dimension of tourism including make tourists 'experience FES' and somehow 'compensate' their holiday-related CO_2 footprint. A broad range of stakeholders coming from the public administration and environment-oriented foundations is supporting the activity, which is supported by the tourist association and facilitated through local contractors (forest enterprises). Key actor and main initiator of the tool 'Waldaktie' is the Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania; the ANE (Akademie für Nachhaltige Entwicklung e. V.; Academy of Sustainable Development) plays an important role in terms of further development of the governance innovation. With respect to FES, the overall focus lies on climate regulation, yet, biodiversity conservation and water protection are also targeted.

Austria 'Value chains for forests and wood'
The Austrian case study focuses on value creation from forests and from timber processing. On a regional level, the innovation is expected to lead to a more sustainable forest management and an increasing collaboration of stakeholders from forestry, public administration, regional planning, tourism, and traditional craftsmanship in order to create value and support local jobs. The relation to FES is dominated by the extractive use of local timber. The innovation is still in an early stage and so far, three options are (still) on the table: design furniture from the region, mobile wooden houses for tourism, and a program for 'experiencing FES'.
While wood is a major focus of the stakeholders representing preliminary extractives use, biodiversity conservation, erosion and water protection, and climate regulation are also important FES ranking high on the agendas of stakeholders like the National Park administration and the regional forest department. Depending on the final character of the innovation, it is also likely that aesthetic values and a certain experiential interaction with forests and timber (e.g. in the context of forest-related educational programs or activities) will feature more prominently.

Finland 'Habitat Bank'
The Finnish case study is about to further develop the financing mechanism 'Habitat Bank' for private forest owners. The main stakeholders are private forest owners and the organizations that operate close to them, often focussing on wood production, yet considering the multiple functions of forests. Important stakeholders include also nature NGOs promoting biodiversity conservation, carbon sequestration, and water protection. The information generating and processing consultants consider FES broadly. Wildlife conservation and water protection also play a role for forest owners, but also rank high on the agenda of forestry professionals and the national Ministry of Agriculture and Forestry. The scientific stakeholders are backed by public organisations. Large companies are participating in order to compensate via investments in biodiversity conversation. The innovation is mainly related to offset supply in non-industrial private forests. InnoForESt supports the development of ecological compensation by initiating a cooperation between private forest owners and companies looking for climate compensation. Although not at the core, offsets advance also cultural ecosystem services, bioenergy, carbon sequestration, water regulation and protection.

Sweden 'Älska Skog' (Love the Forest'
Forest as an educational project constitutes the core of Sweden's case study innovation. A broad range of forest-related stakeholders have been linked up with education-related organisations, namely primary schools and their teachers. The purpose of the project is to teach school children about ecological functions and services of forests and reflect on forest values and benefits of forest products both from individual as well as societal level perspectives. In the context of the innovation, a broad range of stakeholders, in particular in the case of school children relate to FES in general, while some stakeholders who have been involved in the innovation, in their daily work are more focussed on specific services such as timber extraction, bioenergy, climate regulation, game, and recreation. Overall, the stakeholders seem to have a strong awareness of the need for balancing both extractive use and conservation of FES within the forests.

Forest Commons Hybe (SK) 'Hybrid Ecosystem Service Governance'
In the Slovakian case, the forest commons as a collective institution is currently focused on timber extraction as the main model for financing. While the self-organised institution and the community members, that own it collectively, are relating to quite a number of FES combining wood extraction and processing with water protection, climate regulation, recreation, and game, other stakeholders like the National Park administration, environmental activists, and environmental NGOs are pronouncing services such as biodiversity conservation, which often leads to a conflictive situation. The innovation should become an instrument for aligning individual interests with societal interest in sustainable provision of FES.

Land Trust Association Čmelák (CZ) 'Hybrid Ecosystem Service Governance'
In the Czech Republic, the main stakeholder is a NGO that wants to demonstrate that a multi-species forest is economically viable. For the innovation, aiming at a renaturation of degraded areas formerly used as monocultures into 'new primary forests', i.e. forests close to their 'natural state', the NGO is backed by public institutions from local and national level as well as foundations and volunteers, all mainly relating to biodiversity conservation.
Erosion and water protection as well as climate regulation in a sense of 'climate forestry' play a minor role. The dominance of biodiversity conservation is aimed to be broadened, but also an extractive use of wood should gain more importance through the innovation in order to make it economically more viable. Nevertheless, enterprises are not involved and other private actors, like tourists, may only become stakeholders in the future.

Looking at all case studies and assessing which FES are most relevant or important for the stakeholders involved in general, and which FES are explicitly referred to related to the innovations under scrutiny, a quite diverse picture can be drawn. In many cases, the innovations are aiming at balancing extractive use in and the use and conservation of services within the forests, as well as balancing communal/societal/collective and private economic benefits or with the efforts made by specific stakeholders of provisioning FES. So far, this 'balancing' is not perceived as being satisfactory in many case studies. Here, the governance innovation is aimed to mitigate inequalities. See more details on balancing in the next Section 4.2.

When looking at these findings it is important to keep in mind that the planned governance innovations are at quite different stages. While one governance innovation may already be quite well developed, others are still in the process of identifying and defining. Thus, the case studies differ with respect to the number and type of stakeholders already participating/involved in the process and in the degree of interconnectedness of stakeholders. Some stakeholder networks have been working together since years - in the context of the predecessor of the governance innovation targeted in InnoForESt, or outside - and others are still in the process of building up.

This implies, that stakeholders identified by the case studies' teams and their linkages to concrete FES may address their linkages with FES in general, rather than in the context of the governance innovation. In the following, we present and discuss six cross-cutting issues we identified. For each, we provide a few paragraphs highlighting the main findings. This is followed by more in-depth presentations of concrete examples from selected case studies. Depending on the importance and prevalence of the respective issue across case studies, more or less examples in more or less detail are presented.

4.2. Preserving vs. using forests: Balancing conservational and extractive use of FES

As Section 3 and the case study briefs in Annex III show, most stakeholders identified and assessed by the case study teams are related to the forests and/or specific FES in the case study regions directly or indirectly. However, there are often different preferences of how - and even if - a forest should be managed, what ecosystem functions and services should be used or preserved, and how a forest should look like. These preferences may influence or even determine, the objectives and strategies of a respective stakeholder in the innovation process, and if his/her objectives are in line – or, at least, compatible or not contradictory – with the goals of the governance innovation. Further, if he/she stays committed to the innovation process, he/she may also influence the goals and path of the innovation discussed.

Many case study inputs show and reflect the heterogeneous visions with respect to forest management among the stakeholders involved. Some stakeholders like National Park administrations or environmental NGOs champion the preservation of forest areas and the conservation of, in particular, regulating and cultural ecosystem services provided by them. Indeed, in many cases national parks and protected areas form a more or less significant part of the targeted forest ecosystem. This often implies stricter and more restrictive management practices and sometimes even restricted or no access to the protected forests.
Other stakeholder groups like forest owners or forest companies are practising more or less intensive forms of forest management or usage. Usually, they are extracting resources such as wood or timber from the forest for economic reasons; or use areas neighbouring forests for agricultural purposes. These profit-oriented, extractive practices in or close to forests are - if not carried out in sustainable manner – in many ways conflicting with the aims of preserving forests and/or concrete FES of other stakeholders. However, also non-extractive activities like hiking or mountain biking may be in conflict with forest conservationists.

Before this background of heterogeneous interests or preferences, in many case studies governance innovations aim at developing and implementing management practices for sustainable forestry and take efforts to balance environmental issues, biodiversity conservation, and economic viability of forest-related (directly, for example, sawmills, and indirectly, for example, tour guides) local enterprises and craftsmanship. Clearly, the stakeholder analysis carried out by the case study teams revealed differing aims, visions, and concerns about the favoured forms of forest management and, thus, may constitute a solid basis for the discussions at the strategic workshops and for developing scenarios and prototypes. For example, conflicts arose between restricting access to and legitimate use of forests, on the one side, and the traditional practices of collecting mushrooms, berries, or firewood of local residents, hunting activities, and timber extraction on the other side. Another potential conflict is attributed to the more widespread occurrence of the bark beetle, in particular in protected areas with less-intensive forms of forest management, and the efforts to prevent spreading of these beetles to neighbouring (conventional, non-protected) forests. However, as the case study inputs illustrate, political support, legal regulations, and subsidies (compensation or payment schemes) can help to overcome or at least mitigate these conflicts.

Forest Commons Hybe (SK) 'Hybrid Ecosystem Service Governance'
The forest in Hybe (Slovakia) is a community-owned forest and a typical example for commons. Each member of the community is a forest-owner but the ownership is not spatially specified. The community is self-organised and financially based on forestry. The extraction and sale of timber and also processing it in their own sawmill is mainly generating financial resources to cover costs for the forest cultivation and management and to raise benefits for shareholders. Part of the Forest Commons Hybe is situated in the National Park 'Low Tatra Mountains'. The National Park is under strict legislation and restricts activities in the National Park mainly to protect and preserve biodiversity. The interests of the shareholders differ mainly according to their place of living. While a majority of the shareholders still lives in the local municipality, other shareholders moved to/live in distant cities and other parts of Slovakia. Local residential shareholders are mainly interested in FES like recreation and use forests for hiking and cycling. Water regulation is also an important issue for them. On the other hand, shareholders living outside the area are predominantly focussing on the generation of income derived from timber extraction and processing activities.

The National Park administration is getting support for its conservation policy by environmental NGOs and by local environmental activists. Conflicts between the extractive activities of the Forest Commons Hybe and the conservation interests of the National Park administration, environmental NGOs and activists become prominent/emerge especially after heavy storm events or in periods of severe droughts. Here, environmental activists may hinder or delay an accelerated timber extraction from the National Park. However, this delay in extraction may lead to higher rates of bark beetle reproduction (potentially) causing substantial damages to the forest (e.g. decreasing timber value).

To date, there is no cooperation between the Forest Commons Hybe and the National Park administration although the latter is perceived as having high levels of power as well as - at least - a medium interest in and medium influence on the innovation process. It seems to be crucial to overcome or mitigate this if the governance innovation is to be implemented. Further, the national Ministry of Environment of the Slovak Republic is perceived as a key actor in the innovation process, not the least since the current legal framework is deficient, as it does not support the innovation.

The strong motivation in nature protection and conservation on part of the environmental NGOs and activists has contributed to tensions between an extractive use of forest resources by the Forest Commons Hybe and the strict protection of the area covered by the National Park. For the planned or discussed innovation, which intends to combine biodiversity protection and creation of economic value by an adequate sustainable forest management, these opposing stakeholders may constitute an existential/significant risk, as they may employ media pressure and demonstrate opposition to extractive usage by installing (physical) obstacles that block or severely slow down the timber extraction works. Due to the resulting delays, the quality of the timber is reduced and the risks of spreading bark beetles and diseases are increasing.

Italy 'Mountain Forest Management'
In the Italian case study, traditional forest-pasture systems are combining extractive use and the use of ecosystem services within the forest. Here, cattle breeders are using the forest pasture for milk and cheese production. It also allows other stakeholders to generate benefits from using FES: Local residents, for example, have easy access to forest sites for picking mushrooms. The partly open landscape can support specific needs of wild animal species and provide adequate ecosystems. Hunters benefit from this great variety of huntable species. Further, mountaineers, tourists, and tourist-related companies are profiting from the traditional landscapes, too.

As a great part of the financial support (for the cattle breeders) is coming from EU subsidies, stakeholders are afraid of possible future problems in financing regional planning and development and innovation activities in this rural area. The traditional management system is combining extraction and protection, yet this approach is not very prominent in most other EU countries. Thus, future subsidies are feared to continue to focus on either protection *or* extractive use, which would make it more difficult to support these traditional forest-pasture systems. The case study area also includes the Natural Park 'Paneveggio - Pale di San Martino', being an officially protected area. What is peculiar here is that timber production and extraction is allowed even within the boundaries of the Park, yet all interventions are controlled/informed by a close monitoring of forest conditions. From the perspective of the Park's authorities, the forest-pasture management system practiced here is a highly valuable multi-functional management system that should be taken up at the EU level, and perhaps even replicated in other EU countries. Thus, with respect to funding and subsidies, the role of the public administration is perceived as fundamental.

Austria 'Value chains for forests and wood'

The case study area in Austria includes the two National Parks 'Gesäuse' and 'Kalkalpen'. Both protected areas stand for a strict conservation policy of the forest within their territories. They are supporting a restrictive management system to conserve biodiversity. For example, no organic material is supposed to leave the area; and also in case of damages through natural calamities like heavy storms or droughts, the dead biomass has to be left in the system. Especially the National Park 'Kalkalpen' is surrounded by forests owned by the national government and the church as well as by small private forest owners mainly practising timber extraction. Forest management systems differ between the National Parks' neighbouring forests, some being more sustainable than others are.

As in the Slovakian case, the threat of bark beetle infestation is an issue, as well as the management of game and hunting, yet, again, handled quite differently depending on the concrete management system employed. The National Park 'Kalkalpen' administration is monitoring the area and collects information on whether the bark beetles are about to fly and expand, or not. The National Park 'Kalkalpen' administration installed an alert system on the Park borders including temperature measurements and pheromone traps that are positioned in case of the risk of spreading bark beetles. In addition, they developed a special procedure to remove the bark from trees close to the borders of the National Park. So far, conflicts could be prevented.

National parks are protected areas for, among others, biodiversity conservation. The regulations that allow and restrict access to the forest and activities as if mushroom picking, for example, are differing between the case studies (cf. the Slovakian and the Italian case). In the National Park 'Kalkalpen' and 'Gesäuse', it is strictly forbidden to access specific areas and to extract any kind of biomaterial. These measures are expected to contribute to preserving a 'primary forest' and are accompanied by scientific monitoring. Also neighbouring forest owners, practicing conventional or sustainable forest management, are closely watching the outcomes of experiments, like long-time monitoring on effects of leaving every biomaterial in place or not feeding red deer during wintertime, as practised in 'Kalkalpen'. In some cases, new practices found their way into the management schemes of the extractive forests neighbouring the National Park. Nevertheless, the surrounding forests are meant for timber extraction and spreading of bark beetles or an overpopulation of game is not accepted since both could cause severe damage in the forests used for extractive purposes.

Sweden 'Älska Skog' (Love the Forest)
Sweden has a strong forestry sector including several large forest owners and forest-related industries. In the case of Sweden's largest forest-owner association as well as Sweden's state-owned forest-owning company, timber extraction and timber processing into sawn timber, paper, and pulp go hand in hand. However, the latter is also engaged in seedlings production, the development of forests as venues for hunting, fishing, and other nature-based experiences, and promoting growing forests as a substantial contribution to climate regulation. The Swedish forest agency is aiming at balancing objectives of production and environmental/nature protection. Yet, large volumes of timber production in Sweden tend to dominate environmental values related to forests. Timber extraction in large volumes raises problems due to neglected environmental values. Nevertheless, the Swedish forest-owner association highlights that "*it is crucial to find the balance between the environment and increased production*".

Subsequently, the most recurring debates among Swedish stakeholders are referring to the balancing of preserving FES and the extractive use of resources. One debate is around forestry management practices using clear-cutting or selective logging. The other debate is on whether all growth volumes should be used as a renewable resource if the forest should be left for improved carbon sequestration.

4.3. Need for reforestation vs. need for preservation of open cultural landscape

In several case studies, stakeholders seem to have different opinions and objectives with respect to the need for reforestation in a certain area or the need for preserving an open cultural landscape, including preventing scrub encroachment on land no longer used for agricultural purposes. Some of these objectives are manifested in concrete policies – often co-designed by politically influential stakeholders – determining actual land-use decisions. In many rural areas that have been intensively used for arable farming and as pastures, demographic changes, changes in farming practices, soil degradation, and changes in agricultural policies, lead to land abandonment, or at least very extensive forms of use.
This (former) agricultural land is often threatened by being overgrown with bushes/shrub encroachment and (early) forests. In contrast, in other cases, forests are under pressure as agricultural land use in the neighbouring areas is becoming more and more intensive, and some forest areas are also threatened to be converted into arable land, and sometimes pastures. Finally, very intensive use of forests and extensive clearcutting may trigger reforestation needs. Finally, degraded forest areas have to be regenerated with appropriate forest management practices, or even reforestation.

Finland 'Habitat Bank'
The Finnish case study advances biodiversity conservation in forests. Otherwise, biodiversity conservation is governed by the state via regulation and incentives for voluntary protection. One of the biggest threat for forest biodiversity degradation is forest management. Most stakeholders acknowledge that forest management reduces the amount of dead wood and influences forest soils, and most stakeholders also acknowledge that the best management practices aim at protecting biodiversity. In addition, forest owners are generally interested in biodiversity conservation. Yet there is some underlying friction between the positions of conservation and use. The governance innovation aims at developing and implementing a financing tool that helps to regenerate degraded areas, in most of which overuse caused problems to biodiversity.

Austria 'Value chains for forests and wood'
The Austrian case study is located in a mountainous area. National parks cover remote, rocky areas at the end of the valleys and are restricted in use and access in order to preserve biodiversity.

Within the valleys, the traditional cultural landscape is dominating the living and working environment for the resident population, but also serves as recreational area. Due to demographic changes and changes in employment decisions of the rural Youth, more and more extensively used agricultural areas, especially in the remote areas of the valleys, are not mowed any more, which leads to overgrowth with bushes and forests. However, in many of these areas, forests have already a share of 70 to 80% of the land cover. Local residents and their political representatives fear a loss of traditional landscape and cultural heritage. Many efforts have been made to keep the land open. Here, the visions and aims of the National Park administration and the local municipalities stand in opposite to each other.)

4.4. Costs vs. benefits of FES provision – Fair distribution of costs and benefits

Providing and preserving FES depends largely on the efforts - in particular, financially and time - taken by different stakeholders. At the same time, using some FES, like wood, does generate benefits for the stakeholder extracting timber, but may incur costs for other stakeholders (since there are trade-offs between wood and other FES, negatively affecting the benefits generated by the latter). For example, management activities carried out for renewing and fostering the provision of FES that are made in one place, often generate benefits - or induce costs - for other stakeholders depending on this particular forest ecosystem, or for stakeholder groups that live elsewhere. If benefits and efforts or costs are perceived to be distributed unfairly, this may lead to conflicts or to motivational problems on part of the 'disadvantaged' stakeholders. If there is a lack of effective mechanisms rewarding efforts or compensating costs incurred, societal problems could be the result and redistribution an issue potentially to be addressed by a governance innovation.

In many cases, it is some state authority that finances efforts - or compensates costs - towards preservation via payment schemes or subsidies. However, private firms and enterprises profit from ecosystem services provided by individual and the state, too. For example, the tourism and recreation sector is highly profiting from forests and cultural landscapes with high biodiversity, but also from infrastructures like pathways and roads or hunting facilities.
Further, local residents may benefit from recreational usages of the forest or from their ability to prevent avalanches. Yet, these stakeholders usually are not directly involved in financially supporting and governing respective management activities (except, of course, indirectly, via taxes).

Local and regional state authorities are designating areas for protection from avalanches and soil erosion or for water protection. This often comes along with specific practices that are restricted for forest owners, while other measures are compulsory. These measures usually highly benefit a larger community/ group of stakeholders/people. They also influence access and usage in these areas, for example, invoking restrictions on stakeholder groups to enter certain parts of the forest, or to carry out specific activities (mountain biking, mushroom picking). In several national parks, for example, no recreation activities are allowed; in others, visitors are limited to a certain number or type. In the Austrian National Park 'Kalkalpen', featuring beech forests that only recently were awarded as natural heritage by UNESCO, the National Park administration struggle to, on the one hand, allow visitors to experience the heritage, and to avoid the risk of destruction.

'Who is paying for FES?', is a question addressed in several case studies, more explicit in some than in others. The examples of 'Habitat Banking' in Finland and the 'Waldaktie' in Germany feature and promote instruments for financing managing activities (efforts) or to compensate costs incurred, especially in the area of biodiversity conservation.

Which kind of instruments are chosen, which organisations, enterprises, and land-/forest-owners are integrated in designing and implementing these tools, and how the tool-inherent redistribution mechanism looks like, does influence fairness and equity of the distribution.

In cases like Italy or the Czech Republic, stakeholders are highly involved in improving the provisioning of ecosystem services but perceive a lack of redistributive efforts for rewarding these activities by those who are benefitting. Stakeholders in the Italian case study point out, that in the recent past it was not clear, who is responsible for securing the provision of FES, while forest owners, forest department, and municipalities are named as possible addresses. In fact, no clear or sufficient regulation has been found so far, registering and avoiding biodiversity losses.

4.5. Access for extractive vs. non-extractive and conservational use forests

The construction of forest roads and related infrastructure is seen as a major precondition for providing access to a broad range of stakeholders using FES in forests. Among these are local residents and other private citizens visiting forests for recreation, for collecting mushrooms, and for berry picking. Further, hunters need a certain number and density of forest roads or pathways to the forests. Especially tourists are using roads and pathways for hiking, cycling, horse riding, mountain biking, or other recreation activities. Therefore, also the tourism industry and related businesses, such as hotels, are indirectly benefiting from forest roads and other provided access and infrastructure. Often, private and public forest owners are obliged to build forest roads, which are planned for extraction or other management purposes. Further, a certain access to forests is usually provided in connection with regular forest management activities such as clearings that can be useful for hunting. Thus, providing access may also trigger forest degradation (e.g. intensive, overly extractive forest management or excessive use by (too) many tourists).

Italy 'Mountain Forest Management'

Experiences of Italian stakeholders show, that once a forest road is opened, the number of people entering the forests in the area increases, which is positively associated with the multi-functionality of the forests. Relevant stakeholders include tourists, hunters, mushroom pickers, and horse-riders. In the Italian case, private and public landowners are responsible for the construction of roads they need for the management of their forests or pastures (situated within the forest area) by provincial law. By doing this, the land owners are providing infrastructure from which different other stakeholder groups are benefitting. However, municipalities in the Italian case study area complain about narrow rules for the construction of forest roads, which are at the moment only allowed for forest management-related purposes. Yet, as observed on the local scale, forest roads are often serving other forest-related functions, too.

Forest Commons Hybe (Slovakia) 'Hybrid Ecosystem Service Governance'

In the Slovak Republic, the wider area where the Forest Commons Hybe is located is very popular with tourists in winter as in summer. In particular, cyclists use forest roads that enable access to the private forests. The community supports this form of tourism by providing some accommodation and related infrastructures, from which they derive additional income. Yet, cyclists using forest roads pose also the risk for collisions with forest trucks. The forest roads are constructed and maintained by the forest owners. Unlike in the Italian case, however, the forest owners can also get rewards/financial support for the provision of these forest roads if they partly serve to allow tourists access to their accommodations (e.g. tourist huts).

4.6. Active vs. passive forest management

In mountainous regions, as in the Austrian and Italian case study, forests are fulfilling a broad range of protective functions including water protection, erosion protection or protection from heavy storm damages and avalanches. Forest ecosystems in high-mountain areas in particular are providing several services to the local residents living in the valleys below. Therefore, specific forest management activities must be carried out in higher areas while the people most benefiting from it are living in lower areas. Here, active forest management is essential to preserve resilient forests. Regularly managed forests are considered to be more resistant to extreme weather conditions, which are expected to occur more frequently in the future.

In several case studies, stakeholders indicate that in some areas, especially in remote or difficult-to-access areas an active forest management by the forest owners is missing, for example, because of slope inclination or specific underground. In both examples presented below, the management of forests at steep slopes and high altitudes is difficult and time intensive, especially as technical equipment is not necessarily adapted to special conditions in these areas. In many cases, timber haulage is much more expensive and time-consuming compared to other regions, which makes it economically less attractive. This might also explain the lack of regular and active forest management in these areas. On the other hand, active forest management is regarded as important measure with respect to water, erosion, and avalanche risk protection. Further, hunters and civil society, accessing the forests for hunting, recreation and mushroom or berry picking, are in favour of forest management measures securing 'healthy conditions' of the forest, thus ensuring the provision of different ecosystems and supporting biodiversity conservation.

Austria 'Value chains for forests and wood'

In Austria, forest managers are encouraged and sometimes even obliged to adapt the forest management to be 'climate fit'. Apart from a few forest owners with larger properties, traditionally a large number of farmers own small forest lots.
The management activities of these private, small-scale forest owners differ in many respects; for example, as these activities are preferably performed in times when agricultural activities pause. The agricultural chamber is advising the farmers (here, forest-owners) to carry out management activities regularly, and encourages them to develop forest management plans.

Italy 'Mountain Forest Management'

The Forest Department representing the Italian case study region is emphasizing how the active management of forests and landscape performed in the study area is peculiar and primarily driven by the characteristics of the mountain environment, for example, as forests are needed to ensure slope stability. The forest-pasture system, which is in the focus of the case study activities, is helpful to achieve the management of the forests also in regions difficult to reach.

Further, hunters are worrying about a lack of active management in some forest areas. The Hunters Association is making proposals for the improvement of forest management. The association has recognized an 'excessive expansion' of forests that leads to the disappearance of some species' habitats. For example, dense patches of creeping pine reduce the presence of black grouse (*Lyrurus Tetrix*), which needs open habitats. Hunters also perceive that roe deer move to lower elevations as the forest has expanded at higher elevations. Habitat for 'huntable' species should be preserved and hunters need to settle their access even to hard-to-reach areas as hunting is needed to prevent an overpopulation that might, in turn, hinder rejuvenation of forests. The latter is important not only for biodiversity conservation but also improve the resilience of mountain forests against several incidents.

4.7. Improving collaboration between private and public stakeholders

Improving collaboration across sectors is a major aim of InnoForESt. Stakeholder analysis in the case studies shows the relevance of this aim, as communication and collaboration between stakeholders even within the same sector is not always given. Depending on the character of the innovation, also the collaboration with stakeholders of other parts of the value chain and/or of different sectors is considered to be helpful. The outcomes of the individual stakeholder analyses are expected to provide useful or even essential information for planning future activities, in particular concerning the (better) collaboration of stakeholders. Collaboration between stakeholders at different levels - local, regional, national, and international - and different spheres - public, private, and collective - can help to overcome obstacles and can lead to satisfying solutions in order to manage efforts to maintain FES as the following examples show.

Italy 'Mountain Forest Management'

In the Italian case study, the regional Forest Department practices a collaboration between private firms (timber production) and public administration (administration, supervision) for forest management activities and considers this as working successfully. Results are described as high-quality, convenient for both private firms and public administration. On the other hand, municipalities in the region claim that more collaboration between state authorities and local stakeholders is needed.

Slovakia 'Hybrid Ecosystem Service Governance'

The case study in Slovakia is focussing on an innovation that intends to both conserve and economically utilize the forest in a community owned association. As a part of the community forest area is also part of the National Park 'Low Tatra Mountains', this area is under protection and the new management concept is causing conflicts between the state authorities, environmental activists and NGOs, and the commons association. Although the National Park administration as well as the third sector activists may hamper the progress of the innovation advancement, no cooperation has been established so far.

5. Limitations of the analysis

There are some limitations of the empirical and analytical approach used for this Deliverable which made – in particular – cross-case study comparison difficult. In the following, these limitations will be presented and discussed. First, the pre-existing level of knowledge on part of the case study team and its individual members about stakeholder constellations proved to be quite heterogeneous. This is related to, second, the different 'histories' of the governance innovation under scrutiny. In some cases, there have been 'predecessors' to build on (e.g. the 'Waldaktie' in Germany, the Habitat Bank in Finland, the 'Älska Skog' project in Sweden), in some others this was not the case (Italy, Czech Republic, Slovakia). Third, for practical and/or other reasons, different empirical methods were employed by the case study teams to collect or generate knowledge, ranging from mainly discussions within case study teams to a multitude of semi-structured interviews and/or group discussions with stakeholders. As a result, fourth, in some cases only limited information is available on interrelations and interdependencies between actors, on their respective power and knowledge resources, and other stakeholder characteristics. Here, apart from specific empirical approaches taken, also strategic considerations on part of the case study teams may have led to a situation where those aspects were not actively explored, or at least not documented case study inputs for this Deliverable. More light on these interrelational aspects is expected to be shed by D5.1 (due in M15) and via the Net-Maps (WP4) carried out in all case studies.

Fifth, in some case studies there is also not yet a clear idea and shared understanding – at least among case study team members – on how and in what direction to (further) develop the innovation. Depending on the options and scenarios pursued and developed, different stakeholders (types and/or categories) might become relevant in the future. Finally, sixth, and related to the above, in some case studies stakeholders relevant for the innovation are not already interconnected. Governance innovations (to be) initiated or further developed in InnoForESt may initiate and/or (re-)shape this interaction in the first place, or it may change existing interrelational 'structures', (inter-) dependencies, and dynamics.

6. Conclusions

The stakeholder analyses carried out by the case study teams and the analysis of results across case studies resulted in highly interesting and practically useful information both within the individual case studies and for other InnoForESt case studies. With respect to conflicts, issues, and visions, we identified and discussed six cross-cutting issues: (1) Preserving vs. using forests: Balancing conservational and extractive use of FES; (2) Need for reforestation vs. need for preservation of open cultural landscape; (3) Provision of FES – Fair distribution of efforts/costs and benefits; (4) Access to forests and using FES in forests – who benefits?; (5) Active forest management needed for the provision of some FES; and (6) Improving collaboration between private and public stakeholders.

These are certainly issues that need to be addressed carefully when planning activities to select and/or further develop innovations in the respective individual case studies. Being aware of these conflicting issues may trigger the involvement of additional stakeholders, or the way of involvement of stakeholders being already part of the innovation platform/network. Further, it is also likely to encourage case studies facing similar conflicting issues (or issue types) to interact and to exchange ideas on how to tackle these issues in practice.

Annexes

ANNEX I. FACTSHEET STAKEHOLDER ANALYSIS

Factsheet InnoForESt Stakeholder Analysis

Christian Schleyer, Peter Stegmaier, Jutta Kister, Michael Klingler, Ewert Aukes

V3.1

1. Main purpose of stakeholder analysis in InnoForESt

The **project aims** for an integrated approach to knowledge generation, stakeholder interaction, and triggering governance innovation. Thus, identifying, mapping, and integrating a diversity of stakeholders' interests, visions, and concerns, including civil society perceptions, user demands, and facilitators' suggestions is crucial.

WP2 provides a basic overview mapping, the **case study teams** describe and empirically assess their –case-specific stakeholder constellations, and **WP5** integrates findings from both into a typology that helps comparing the cases and understand the bigger picture. The assessment of the stakeholders' key orientations regarding forest ecosystem services (FES) governance innovation should also **foster** the co-production of the innovation networks and prototypes.

In this factsheet, we focus on the first analysis of FES stakeholders in the case study regions to be compiled in D5.2 (month 12).

2. Typology and analysis of FES stakeholders (T5.2/D5.2)

2.1 For keeping the InnoForEST innovation action as **compatible** as possible with stakeholders' perspectives, we need to know who the stakeholders are, how they are interlinked, and what their interests, visions, and concerns are. **Building on** the actors mapping in WP2, and the relevant work in WP3 and WP4, partly running in parallel, partly only starting after the completion of D5.2 in month 12 (October 2018), this task will develop a **common analytical framework** to identify and assess stakeholder characteristics in the case studies, i.e. taking a primarily local and regional perspective, yet without ignoring relevant national stakeholders.

Practically, the case study teams (practice partners together with scientific partners) will be chiefly **responsible** to organise and carry out the empirical work. Some harmonisation with respect to stakeholder types/categories targeted, analytical categories used for assessing the characteristics of stakeholders (including interests, visions, and concerns), and appropriate empirical methods/approaches will be aimed at since this will allow for comparative analyses of relevant characteristics and types across all InnoForESt case studies and for developing a corresponding cross-cutting stakeholder typology, to be compiled in D5.2 due in month 12. This typology will also flow into the T5.1 interim *FES governance innovation navigator* (due in month 15) *(see Factsheet on Governance situation analysis – T5.1/T4.2/D4.2/D5.1*).

There will be considerable flexibility and room for manoeuvre on part of the **individual case study** teams to allow for case-specific contexts, stakeholder constellations, and stages of innovation development as well as for time and resources available/assigned to the stakeholder analysis in the case studies. It is also very important to keep in mind that the results of the individual stakeholder analyses are crucial ingredients for planning the activities in the respective case studies supposed to foster the innovation development/process. Thus, the respective knowledge needs should chiefly guide the stakeholder selection, the data gathering as well as the categories used analyse the data.

2.2 In the following, we suggest a list of a) stakeholder categories/types to be considered; b) analytic categories to be covered; c) a range of possible empirical approaches:

a) **Stakeholders/stakeholder categories** that might be considered in the stakeholder analysis include (not restricted to; might be partly overlapping):
   - *Forest Owners (public, private, collective)*
   - *Land owners (outside forests) (public, private, collective)*
   - *Forest managers/Farmers managers (might overlap with owners, but not necessarily so)*
   - *Protected Areas organisations (National Parks, Biosphere reserves, etc.)*
   - *Public administration (national, regional, local)*
   - *Civil society actors (NGOs, forestry organisations, environmental, nature conservation, tourism; hunting, leisure, sport, other interest groups)*
   - *Municipalities (local community, villages)*
   - *Forestry industry, including sawmills and other major wood-processing; wood traders*
   - *Smaller businesses (SME)(wood) craftsmen, carpenters, (wood)-designer, tree-nurseries*
   - *Networks for forestry or wood processing, federations of forest-/wood-related companies*
   - *Consumers, including various types of tourists (day tourists, over-night tourists; hunters, youth organisations, 'everyman' – local)*
   - *Scientific/Research organisations (universities, research institutes)*
   - *Educational stakeholders (kindergardens, schools, universities)*
   - *Tourism industry/enterprises*
   - *Locals (using forests through collecting wood, fruits, mushrooms; for leisure and recreation; traditional use; religious use)*
   - *Financial enterprises (e.g. banks, funding agencies; business support funds)*

There are many ways to **categorise** and 'sort' **stakeholders**. For example, they may have different actual or potential roles with respect to the governance innovation (process) under scrutiny, like funders, implementers, or mediators/intermediaries. They may come from different societal spheres, such as public/state, private, and civil society; or they might be (actual or potential) beneficiaries of or (negatively) affected by the innovation. Further, they might be situated/active a various spatial and administrative scales, such as local/regional, national, or perhaps even international – and some might even be active at several scales at the same time. With respect to stakeholders, it can also be distinguished between 'interested individual citizens' und 'organised civil society actors' with the latter typically representing organisations, enterprises, authorities, etc. Finally, they might be rather enablers of the governance innovation, or slow down and oppose the innovation (process).

Thus, the first step of the stakeholder analysis would actually mean to **identify** those actors that are involved in and/or affected by (actual or potential) the innovation governance targeted in the case study at the various levels and in the different realms

b) Some stakeholder characteristics may refer to individual stakeholders, others more to the organisation/administration/interest group he/she represents; sometimes both will be relevant, and perhaps distinct. Some of the characteristics might be directly related to the governance innovation, others might be more or less independent. If possible and appropriate for the individual case study, for each (type) of stakeholder identified as relevant (actual/potential) the analysis should shed light on the following characteristics:

- *Interests/motivations with respect to forest ecosystem services, forest governance, and the governance innovation*
- *(Actual/potential) Influence/role within organisation/within forest governance and, if applicable, the governance innovation*
- *Available knowledge, competencies, educational background*
- *Available power and other resources (incl. positional power, coercion, financial); control over resources*
- *How/to what degree affected (positively or negatively; politically, scientifically, financially) by forest governance/the governance innovation*
- *Employed forms and means of communication between relevant stakeholders*
- *Visions with respect to (management/use of) forest ecosystem services, forest governance, and the governance innovation*
- *Concerns with respect to (management/use of) forest ecosystem services, forest governance, and the governance innovation*
- …

c) There is a **wide range of empirical tools and methods** that can be used to identify, describe, and assess stakeholder interests, visions and concerns. Which (combination of) method(s) to choose, **depends** to a large extent on the time and personnel available for undertaking the analysis, the degree of detail and comprehensiveness of the results of the analysis needed, the availability and quality of relevant previous stakeholder analyses, and the complexity of the stakeholder context. Empirical **approaches** for stakeholder analysis include identifying and analysing relevant published research, legal documents, planning materials, policy documents, and other written sources. Particularly fruitful are further, exploratory (open) and/or semi-structured interviews with (key/all relevant) actors, either face-to-face or per telephone as well as focus groups or other kinds of workshops or meetings with practice partners, and surveys.

2.3 Time schedule

What	Who	Deadline
Draft heuristic for case study teams (stakeholder categories, analytical framework for stakeholder characteristics, and empirical methods suitable)	WP5/T5.2	06.03.18
Discussion, revision of heuristic	WP5/T5.2 with scientific CS leaders	20.04.18
Pre-final heuristic for case study teams; Example: Factsheet on Austrian case study (Eisenwurzen)	WP5/T5.2 with CS team Austria	30.04.18
Case-specific implementation plans, i.e. translation of heuristic in CS-specific plans for stakeholder analysis (iterative process)	CS teams, supported by WP5/T5.2	15.05.18
Carrying out stakeholder analysis at CS level – Stakeholder descriptions – Sorting	CS teams	20.06.18
Compiling the results of stakeholder analysis at CS level – draft CS report	CS teams	09.07.18
Discussion, and perhaps revision of stakeholder analysis CS level	CS teams with WP5/T5.2	30.07.18
Cross-CS comparison, typology, integration of WP2 results (stakeholder analysis national/EU levels) – draft D5.2	WP5/T5.2, supported by WP2/T2.2	31.08.18

ANNEX II. APPROACH TO STAKEHOLDER ANALYSIS IN CASE STUDY 'EISENWURZEN, AUSTRIA

Factsheet InnoForESt Stakeholder Analysis – Approach used for Case Study Austria 'Eisenwurzen'

Jutta Kister, Michael Klingler, Christian Schleyer

V1.2

1. Main purpose of this Factsheet

For keeping the InnoForEST innovation action as compatible as possible with stakeholders' perspectives, we – case study teams and other WPs – need to know who the stakeholders are, how they are interlinked, and what their interests, visions, and concerns are. Thus, identifying, mapping, and integrating a diversity of stakeholders' interests, visions, and concerns, including civil society perceptions, user demands, and facilitators' suggestions is crucial. Moreover, a common understanding on stakeholder and analytical categories as well as empirical methods will facilitate compiling the case-study specific stakeholder analyses in D5.2 and will, thus, improve its outcomes by allowing for a proper cross-case study analysis. These insights will make D5.2 a valuable resource not only for all case studies in InnoForESt but also for other WPs referring to or building on these outcomes.

With this factsheet, we aim to demonstrate how we, the Austrian case study team, have been operationalising the **Factsheet InnoForESt Stakeholder Analysis (D5.2)** and how we tailored it to the context and 'needs' of our case study. We use the **Austrian case study**, located in the 'Eisenwurzen' region, as an example for **one** possible conceptual, analytical, and empirical way to applicate the frame provided in the Stakeholder Analysis factsheet. We are aware, as every case study is different in its regional context, that the Stakeholder Analysis will most likely be comported in a different and case-specific way.

This approach presented here should be seen as work in progress, since we are still in the middle of our empirical and analytical work. With its presentation we share our work in order to enable exchange of application strategies across case studies, across disciplinary boundaries of and within case study teams, and contribute to a working structure which is able to effectively produce comparable results for integrating case-study specific stakeholder-related knowledge. Additionally, we hope to illustrate how the Stakeholder Analysis can be situated in the larger activities in and work flow of an individual case study.

We describe the approach in an understandable way in order to ease exchange it between inter- and transdisciplinary case study teams. More details can be given on request. Please feel free to comment and/or share your approach.

2. Empirical Approach – aims and methods

a) *General aims:*
The aim of our empirical study has been to gather information about the stakeholders of the case study region which are relevant for the objectives of our case study and the governance innovations focussed here. Thus, we collected information using these guiding questions:

- Who are the relevant stakeholders? Who has a stake in forest and wood-related economic activities? (located in the region and also in regional and national capital) – to make sure not to overlook stakeholders that may be important contributors to the case study network)
- What are their interests, visions and concerns (related to forest and wood-related economic activities)?

- How are these actors interlinked? Are there existing networks of co-operation?
- Which actors are open to innovation? Who is blocking innovation? What are constraints and options?

b) *Specific aims*:
The aim of the case study 'Eisenwurzen' is to build up a network of innovative collaboration in order to improve sustainable use of forest and wood related resources with improved benefits for the region and the people living and working there. The region consists of a very high share of forest on its land use; protected areas are of relevance. Similar to many other comparable rural regions, it is confronted in increasing loss of population.

Our aim has been to deepen our knowledge of the stakeholder constellation in the region. After analysing the results, we will be able to conceive a series of workshops that suit the interests of the stakeholders' best, link up to their needs, and consider and address their concerns. By using semi-structured interviews with key stakeholders, we have also been able to directly address potential participants, to inform them about InnoForESt, to explore their motivation to join the innovation activities, and, thus to (potentially) integrate a larger diversity of actors in the innovation network. In doing so, we hope to increase interest in InnoForESt innovation activities.

As the stakeholders have never been looked at in this contemplated way – integrating whole regional wood and forest-related commodity chains – before, there is a high added value of the study's results for the region itself, especially for regional planning, local policy making processes, and farmers' union (representing small-scale forest owners).

c) Empirical methods:
For investigating this data, we use qualitative survey methods, semi-structured interviews to be precise, as they are used in human geography and other social sciences. Interviews are taking place on the workplace of the interviewed person. We developed a set of open questions which are relevant for all types of stakeholders, but added interviewee-specific questions if appropriate (for the questions see 3). The interviews usually last about 1 hour or longer.
d) *Selection of interview partners*:
In order to identify the relevant interviewees, we

- made a collection of potential addressees together with our local practice partner and prioritised them. We aimed to do at least one interview per stakeholder category (for stakeholder categories see 4). We further intended to ensure a certain regional distribution as the region is divided into several political and administrative districts.
- integrated other stakeholders that were mentioned in the interviews (snowball system) and prioritized them when they were mentioned more often.

d) *Data Analysis:*
The audio files of the interviews are transcribed and analysed by using codes (using MAXQDA software) based on the analytical categories in the interview guideline. These codes help us to structure the text and (re)connect information to the research questions.

3. Qualitative survey – Interview guideline

For the semi-structured interviews, we developed a guideline of open questions that structure the interview.
Introduction: We start with a short introduction of the aims and scope of InnoForESt and why we chose 'Eisenwurzen' as a project region. We explain what we want to achieve with the interview and how we will analyse the data.

1) Please present yourself, your institution and your tasks.
2) What do you consider the main challenges and opportunities in the topic of forest management and industry as well as regional value creation?
3) Are you/is your institution involved in activities or projects in this topic or have you been involved in the past?
   (Which one? With whom? Describe experiences? Your motivation?)
4) Do you know about other projects, ideas, concepts dealing with forest, forestry, wood processing or value creation out of wood that are taking place/took place in the region?
   (Which one do you think are promising? Why? How do these support local value creation? What is missing to these initiatives to get more successful? How support?)
5) What exactly, do you consider "innovative" about these named projects/ideas/initiatives?
6) With regard to the region: which areas do you consider in need for innovative development (related to forestry, wood processing …)?
   (Largest potentials for innovation? potentials to implement innovations? what hinders? difficulties?)
7) Which persons, institutions, and networks do you know, that drive innovative ideas forward?
   (Who is important bringing change and innovation to the region? What is this person, institution or network contributing? Resources, contacts, integrative capabilities, that this person (…) consists of?)
8) How do you consider your role in this topic?

4. Stakeholder categories

The stakeholders that we are addressing can be classified into categories. By doing so we can check, if we are addressing all relevant stakeholder categories and prevent to exclude stakeholders that might be of importance for improving the governance innovation. We also assess which stakeholder categories are of great or sufficient importance to our region, and which are not (yet). Over the project time, we keep on monitoring the stakeholder constellation, if maybe this picture is changing (new stakeholders may be included, stakeholders involve themselves into innovation process, ...).

Thinking ahead to the preparation of D5.2 the categories help us to compare the case-study specific Stakeholder Analyses and to synthesise core stakeholder features.
Stakeholder categories in 'Eisenwurzen'

Stakeholder Category	**Concrete stakeholder in the case study region**
Protected Areas organisations	National Park ‚Gesäuse', National Park ‚Kalkalpen'
Public Administration	Federal Environment Agency, LTSER-Administration, Deputy of National Assembly (out of the region), local public administration
Municipalities	Mayors (Steinbach/Steyr, Steinbach/Ziehberg)
Network for Forestry or Wood processing	MHC Möbel- und Holzcluster OÖ
Smaller businesses (SME)	Carpenter (furniture and construction), Wood trader, saw mill
Federation of forest-/ wood- related companies	Local Chamber of Commerce
Forest owners	Farmers' union (also representing small-scale forest owners), Monasteries, Styrian state forests,…
Regional Development Agency	Regional management agents (several subregions)
Scientific Organization	STUDIA (local practice partner)
Scientific Organization	University of Innsbruck

ANNEX III. CASE STUDY BRIEFS

This Annex contains summaries of the inputs provided by the InnoForESt case study in the context of the stakeholder analysis. Each case study brief is structured as follows:

1) (Very) brief description of case study
2) Empirical methods and sources used for stakeholder analysis
3) List and typology of relevant stakeholders
4) Venn-Diagram
5) FES related to stakeholders

Please note the following remarks to some of the elements:

ad 3) The table presented here contains all stakeholders or stakeholder groups referred to in the case study team inputs.

ad 4) It is important to note that the size of the portion of the pie chart – which represents the respective 'Sphere' – contains no specific information/is irrelevant. Instead, it is linked to the software's limitations for visualizing a higher number of stakeholders within one sphere. Further, there is one stakeholder (Cmelák z.s. from Czech Republic) who is associated with the private and the collective 'Sphere'. With respect to 'Scale', for those stakeholders operating at more than one scale, for example, at the local and the regional scale, they are placed in-between scales. Details about the ranges covered by particular stakeholders can be found in Section 3 of the case study briefs. Finally, bubble sizes correspond to varying levels of 'openness to innovation'.

ad 5) This table is dedicated to structure case-study related information about the two following questions:

1) Which FES are crucial for the case-study specific innovation(s)?
2) Which stakeholders/stakeholder groups explicitly address/relate to which FES, and how (e.g. are they using, benefiting from and/or affecting its provision)?

Once more, all information compiled in this table is based on the empirical material detailed in the inputs provided by the case study teams; mainly from the Stakeholder Analysis, and partly relevant information from the Governance Situation Analysis. Concrete references to stakeholders/ stakeholder groups, specific FES, and case-study specific innovation(s) are only made when explicitly mentioned and detailed. We tried to avoid general statements/conclusions that, for example, nature conservation agencies are interested in biodiversity conservation or water regulation, and that forest enterprises (only) are interested in the timber/wood. It is in there only if it was specified as relevant for the innovation process. The same is true for relating stakeholders/FES to a particular innovation. We described that link only if this was clearly related to the innovation(s) under scrutiny.

The table shows a list of FES in the left column. The list is based on the selection of FES already used in the institutional mapping in WP2, in the context of D2.1, and derived from the CICES (Common International Classification of Ecosystem Services) scheme, with a primary focus on those ecosystem services that are related to forests. We supplemented this list by the FES 'aesthetic value', because this FES was often and explicitly referred to by many stakeholders across the cases and/or is closely related to the innovation(s) under scrutiny.

In the last-but-one line, we accounted for stakeholders that are addressing FES in general (i.e. in its entirety), or when stakeholders just mentioned FES in general, but did not specify any further. Most likely, however, there are underlying preferences with respect to specific FES, but they did not make them explicit. If there is a distinction between the FES crucial for the case-study specific innovation(s) and those FES important/relevant for the case study (region) in general, maybe because the innovation is still to be selected or too vague; yet, we tried to make this clear in the table.

The very last line tries a preliminary assessment, about what type of relationship between FES and stakeholders is dominant in the respective case study (related to the innovation(s) under scrutiny): extractive use (blue), or use of services within the forests (orange)? Alternatively, is there a strong attempt to balance both (green)?

Final remarks

Please also note that we found it useful for the purpose of this stakeholder analysis to treat – mostly – the case study regions in the Czech Republic and Slovakia separately. Not the least, since the stakeholder constellations were quite different, both with respect to stakeholder categories relevant and individual stakeholders. Although not representing different spatial case study regions, in the Austrian case study, we presented and assessed three – partly – different stakeholder constellations, related to the three pre-selected governance innovations likely to be pursued further. Unlike in the Czech Republic and Slovakia cases, though, overlaps between stakeholder groups are substantial.

III-I CS Italy 'Mountain Forest Management'

i. (Very) brief description of case study

The innovation pursues an active, balanced and integrated management of the forest-pasture system in mountain areas. This entails the promotion of close-to-nature silviculture aiming to foster natural regeneration, improve structure and composition, and keep production levels constant over time, and the adoption of livestock breeding practices helping support production activities related to mountain grazing and limit the abandonment of agricultural and grazing activities. The main goal is to stimulate stakeholders to manage their resources in a way that can guarantee a better provision of ecosystem services.

ii. Empirical methods and sources used for stakeholder analysis

Key stakeholders were identified by PAT (practice partner) based on its long-standing experience in the area. A first list of stakeholders was progressively refined also through discussions with UNITN (scientific partner) in order to get a sample that is as comprehensive and relevant as possible. The perspectives of stakeholders were investigated by means of semi-structured interviews conducted by PAT. Overall, 13 interviews were conducted between the end of May and the beginning of July 2018. The interviews followed a pre-defined structure, but were significantly adapted to the context and interviewee; i.e. some questions were modified or eliminated depending on the circumstances.

iii. List and typology of relevant stakeholders

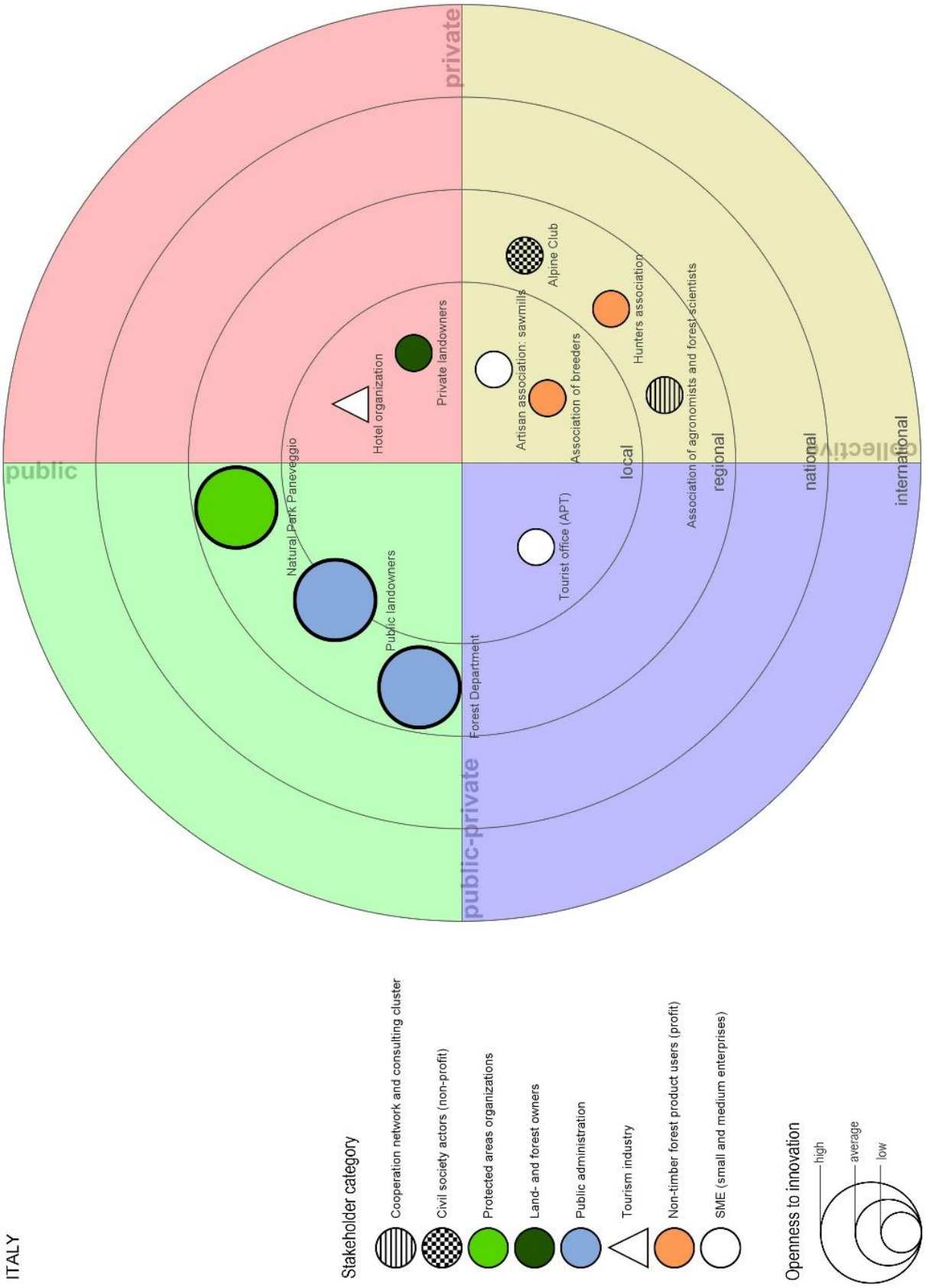
Table A III-I. CS Italy 'Mountain Forest Management'

Stakeholder (UNITN & PAT)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
Artisan association: sawmills	SME	C	Sawmill/timber merchant	L	A
Association of breeders	Non-timber forest product user	C	Peasantry	L	A
Hunters association	Non-timber forest product user	C	Hunting	R	A
Hotel organization (hotels, restaurants, huts)	Tourism industry	PR	Hotel enterprise	L	A
PU landowners (municipalities)	Public administration	PU	Forest and natural resource management	L-R	H
Private landowners	Land- and forest owners	PR	Forest and natural resource management	L	A
Natural Park (Paneveggio)	Protected areas organizations	PU	Forest and natural resource management	R	H
Forest Department	Public administration	PU	Forestry service	R	H
Tourist office (APT)	SME	PU-PR	Tourism and travel related services	L	A
Alpine Club and other (CAI/SAT/Accompagnatori del territorio)	Civil society actors	C	Nature conservation and tourism	R	A
Association of agronomists and forest scientists	Cooperation network and consulting cluster	C	Research and consulting service	R	A

* SME (Small and medium enterprises) // ** PR (Private), PU (Public), PU-PR (Public-Private), C (Collective) // *** L (Local), R (Regional), N (National), I (International) // **** L (Low), A (Average), H (High)

iv.

Figure A III-I. Venn-Diagram CS Italy 'Mountain Forest Management'



v. FES related to stakeholders

Forest Ecosystem Service	Stakeholder (groups or individual actors)
Wood	**Sawmills association** – timber extraction **Private landowners** – timber extraction **Municipalities as forest owners** – timber extraction, economic interest
Bioenergy	**Sawmills association** – woodchip extraction during forest cutting as additional forest product **Municipalities** – woodchip extraction during forest cutting as additional forest product and adding value of its property **Forest owners** – woodchip extraction during forest cutting as additional forest product and adding value of its property
Edible plants and other non-wood forest products: berries, mushroom, cork, other	**Breeders Association** – economic use of forest pasture, cattle on forest pasture for milk production **Municipalities -** earn money on mushroom picking licenses **Local residents** – picking mushrooms
Biodiversity conservation	**Natural Park 'Paneveggio'** – main interest in biodiversity protection, forest management **Hunter's association** – aiming for biodiversity conservation in relation of diversity of huntable game **Municipalities -** are in favour of keeping landscape open by establishing forest-pastures and/or mowing the meadows
Erosion and water protection	**Forest Department** (state)**-** forests ensure slope stability in steep mountains and thus protect against avalanches, falling rocks, landslides, etc.
Climate regulation, carbon sequestration and stock	
Game	**Hunter association** – aiming for diversity and sufficient supply of huntable game, interested in forest management and its impact on hunting opportunities
Recreation: cultural, physical and experiential interactions	**Tourist office** – use of forests by tourists, benefits from FES **Hotels association** – concerned about landscape quality as it enables tourists to appreciate the region; benefitting from FES **Alpine club** – mountaineering **Local residents**
Cultural heritage	**Tourist association** – cultural and spiritual value for touristic use **Alpine club** – cultural and spiritual value, benefits
Resilience (risk control and climate change adaptation)	
Aesthetic value	**Tourist association** – aesthetic landscapes for touristic use

	Hotel association - concerned about landscape quality as it enables tourists to appreciate the region; benefitting from FES **Alpine Club** – addressing aesthetic service by mountaineering **Municipalities -** as hosts of tourists and securing well-being of local residents
FES in general, not specified	
What is dominant in case study to respective innovation: extractive use (blue); use of services within the forests (orange); or a mix of both (green)?	Combining both through forest-pasture system, while using services within the forest is a little bit stronger

III-II CS Germany 'Waldaktie' (Forest Shares)

i. (Very) brief description of case study

A new payment scheme for climate protection, in which actors (mainly tourists) can compensate their (holiday-) CO_2 emissions by paying for (buying) 'forest shares'. A 'forest share' describes a certified payment of 10 Euros for the tree maintenance on an area of 5 square meters in a 'climate forest'. The buyers can also plant the trees by themselves. Services provided through the payments are, besides climate services (voluntary carbon market), also biodiversity and water quality. Furthermore, 'Waldaktie' is an education tool (education for sustainable development) to explain the ecosystem services of forests to non-specialists. It can be used by companies to make their products more attractive. Main initiator of the tool 'Waldaktie' and responsible for its management is the Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania. The innovation is about to further develop this financing tool.

ii. Empirical methods and sources used for stakeholder analysis

Main empirical sources were a stakeholder meeting in June 2018, and the Net-Map Interview (WP4) with the Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania in July 2018.

iii. List and typology of relevant stakeholders

Table A III-II. CS Germany 'Waldaktie' (Forest Shares)

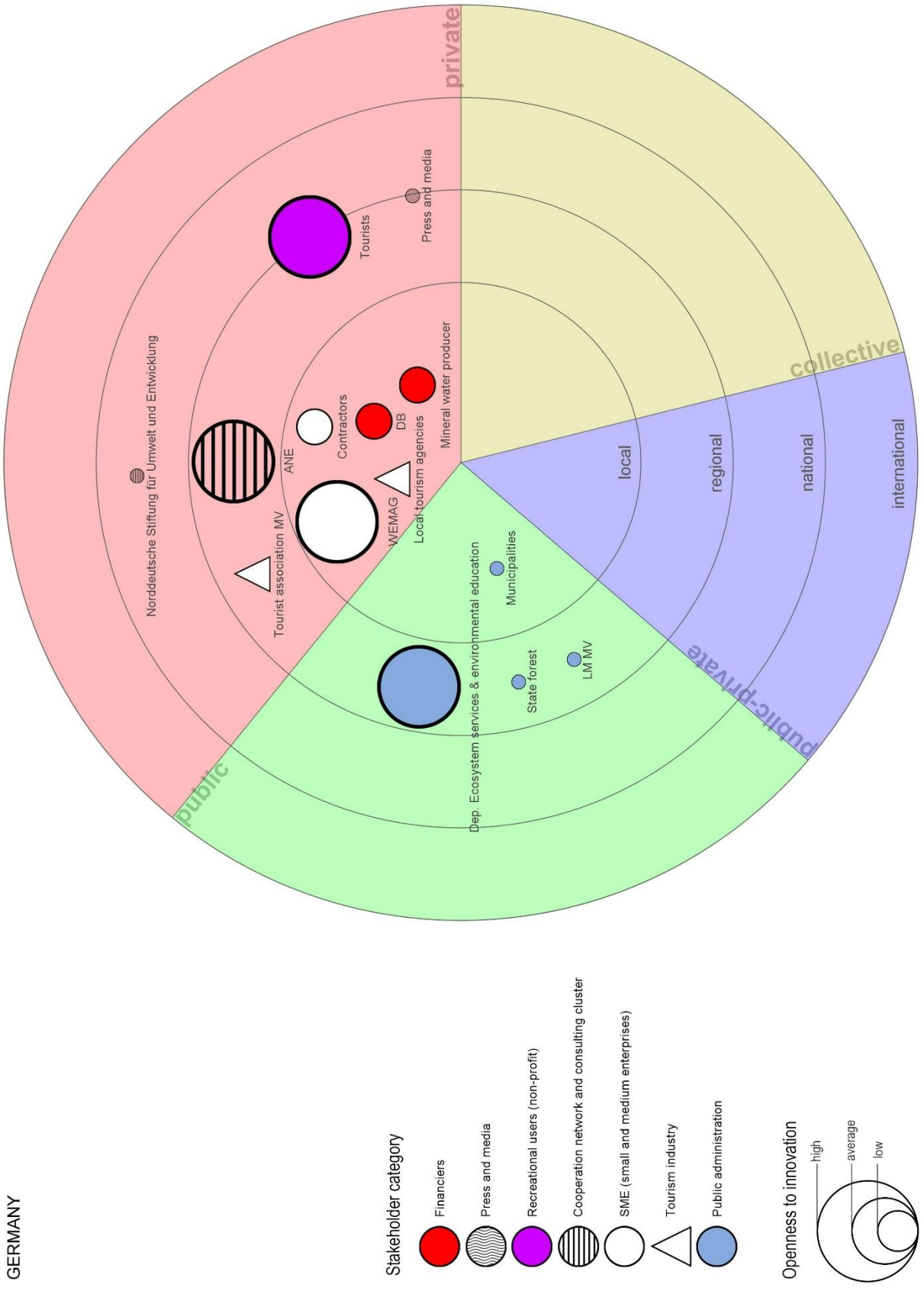
Stakeholder (ZALF, ANE)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
LM MV (Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania)	Public administration	PU	Forest and natural resource management	R	L
Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania	Public administration	PU	Forest and natural resource management	R	H
Landesforst (Federal forest agency Mecklenburg-Western Pomerania)	Public administration	PU	Forestry service	R	L
Municipalities	Public administration	PU	Forest and natural resource management	L	L
Tourist association MV	Tourism industry	PR	Tourism and travel related services	R	A
WEMAG	SME	PR	Energy supply	L	H
Contractors (Forest companies)	SME	PR	Forestry service	L	A
Norddeutsche Stiftung für Umwelt und Entwicklung	Cooperation network and consulting cluster	PR	Funding sponsor and consulting service	N	L
ANE (Akademie für Nachhaltige Entwicklung e.V.)	Cooperation network and consulting cluster	PR	Funding sponsor and consulting service	R	H
Tourists	Recreational users (non-profit)	PR	Tourism	L-I	H
Press and Media	Press and media	PR	Public relations	L-I	L
Deutsche Bank, Fielmann	Financiers	PR	Funding sponsor	L	A

Mineral water producer	Financiers	PR	Funding sponsor	L	A
Local tourism agencies	Tourism industry	PR	Tourism and travel related services	L	A

* SME (Small and medium enterprises) // ** PR (Private), PU (Public), PU-PR (Public-Private), C (Collective) // *** L (Local), R (Regional), N (National), I (International) // **** L (Low), A (Average), H (High)

iv.

Figure A III-II. Venn-Diagram CS Germany 'Waldaktie' (Forest Shares)



v. FES related to stakeholders

Forest Ecosystem Service	Stakeholder (groups or individual actors)
Wood	**Contractors** (forest companies) – Tree planting (financed by shares) by contractors (forest companies) organised by the Environmental Foundation **Tourists** – tourists can participate in planting actions (regular events)
Bioenergy	
Edible plants and other non-wood forest products: berries, mushroom, cork, other	
Biodiversity conservation	**Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania** – initiated policy instrument 'Waldaktie' and considers it also as a tool for biodiversity conservation ('Waldaktie' designated as UN Decade on Biodiversity project)
Erosion and water protection	**Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania** – initiated policy instrument 'Waldaktie' and considers it also as a tool for water protection
Climate regulation, carbon sequestration and stock	*Note:* 'Waldaktie' was designed as policy instrument fostering tree planting and climate forests **Head of Department for Ecosystem Services and Environmental Education of the Ministry of Agriculture and the Environment of the Federal state of Mecklenburg-Western Pomerania** – initiated policy instrument 'Waldaktie' **Ministry of Agriculture and the Environment of the federal state of Mecklenburg-Western Pomerania** – supporting climate forests **Federal Forest Agency Mecklenburg-Western Pomerania (Landesforst)** – aims to create climate protection image, make climate forests economically attractive **Tourist association** – promoting environmentally-/climate-friendly tourism. Impact on the image of Mecklenburg-Western Pomerania as innovator **ANE (Akademie für Nachhaltige Entwicklung e. V.)** – aims at spreading ‚Waldaktie' as climate protection tool and integrating it in municipal processes **Environmental Foundation ('Stiftung Umwelt und Entwicklung')** – manages financial transactions, share selling, finances tree planting

Game	
Recreation: cultural, physical and experiential interactions	**Tourists** – when participating in planting actions (events). Climate forests are intended to become an opportunity for 'experiencing FES/climate forests'
Cultural heritage	**Local businesses –** invest in natural environment in the federal state of Mecklenburg-Western Pomerania by compensating CO_2-emissions and supporting 'Waldaktie' **Tourists –** Planting trees as an activity with generally positive connotation
Resilience (risk control and climate change adaptation)	**ANE (Akademie für Nachhaltige Entwicklung e. V.) –** aims at integrating the 'Waldaktie' tool into an integrated sustainability approach for municipal processes
Aesthetic value	**Tourist association** – promoting an image of Mecklenburg-Western Pomerania as an near-natural landscape
FES in general, not specified	
What is dominant in case study to respective innovation: extractive use (blue); use of services within the forests (orange); or a mix of both (green)?	Aim: financing tool for planting climate forests

III-III CS Austria 'Value chains for forests and wood'

i. (Very) brief description of case study

The governance innovation in the case study is expected to better capture the value of forests and concrete FES in the mountainous and densely-forested areas of Eisenwurzen. The aim is to build up a network of innovative collaboration in order to improve sustainable use of forest-and wood-related resources with improved and sustainable benefits for the region and the people living and working there. In particular, regional value chains for timber and forest-products are to be created in order to secure local artisanship and create future-oriented sustainable solutions for forest management. Stakeholders from different sectors are hoped to become involved in the network, including representatives from two National Parks as well as economic and administrative actors. The innovation is in an early stage of identifying and linking stakeholders. At the moment, three options are on the table for further discussion: (A) furniture, design, and region, (B) mobile wooden houses and tourism, (C) experiencing forests and wood (e.g. for hiking, recreation, or education).

ii. Empirical methods and sources used for stakeholder analysis

For the stakeholder analysis, we employed qualitative empirical methods. Overall, 15 semi-structured interviews have been conducted with key stakeholders of various categories in the region. The stakeholders have been chosen based on the in-depth local experience of the practice and associate partners, and with a focus on covering a broad range of stakeholder categories. Thus, it was aimed to identify, map, and integrate a diversity of stakeholders' interests, visions, and concerns. Interviews took place on the workplace of the interviewed persons and lasted between one and two hours (see Annex II for further details).

iii. List and typology of relevant stakeholders

Table A III-III. CS Austria – (A) 'Furniture, Design & Region'

Stakeholder (UIBK, STUDIA)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
Regionalforum Steyr-Kirchdorf/ state deputy/mayor	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	H
WKO (chamber of commerce)	Public administration	PU	Chamber of commerce	L	H
LAG LEADER-Region Traun4tler Alpenvorland	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	H
LAG LEADER-Region Nationalpark Oö. Kalkalpen	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	H
Nationalpark Gesäuse	Protected areas organizations	PU	Forest and natural resource management	R	A
Nationalpark Kalkalpen	Protected areas organizations	PU	Forest and natural resource management	R	L
MHC – Furniture and Wood business cluster Upper Austria	Cooperation network and consulting cluster	PU-PR	Furniture and wood business cluster	R	H
Baumfreund	SME	PR	Joinery	L	H
Pastarro	SME	PR	Joinery	L	H
Bezirksinnung Steyr-Kirchdorf	SME	C	Joiner's guild	L	A
Tischlerei M.	SME	PR	Joinery	L	H
Wood Designer A. G.	SME	PR	Wooden design	L	A

Forstbüro R. (Forest office)	SME	PR	Forestry service and consulting	R	A
University of Innsbruck	Scientific organization	PU	Research, knowledge exchange, innovation network	I	H
STUDIA Schlierbach	Civil society actor	PR	Regional development, research and consulting	N	H
Sawmills and timber merchants	SME	PR	Sawmill and timber merchants	L	A

Table A III-IV. CS Austria – (B) 'Mobile wooden houses & Tourism'

Stakeholder name (UIBK, STUDIA)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
SPES Zukunftsakademie	Cooperation network and consulting cluster	PR	Training and research center	R	H
Regionalforum Steyr-Kirchdorf/ state deputy/mayor	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	H
WKO (Chamber of commerce)	Public administration	PU	Chamber of commerce	L	H
LAG LEADER-Region Traun4tler Alpenvorland	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	H
LAG LEADER-Region Nationalpark Oö. Kalkalpen	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	H
MHC – Furniture and Wood business cluster Upper Austria	Cooperation network and consulting cluster	PU-PR	Furniture and wood business cluster	R	H
Tourismusverband (tourism association) Nationalpark Region Ennstal	Tourism industry	PR	Tourism and travel related services	R	A
Tourismus Region Oberes Kremstal	Tourism industry	PR	Tourism and travel related services	R	A
Tourismusverband (Tourism association) Gesäuse	Tourism industry	PR	Tourism and travel related services	R	L
Nationalpark Gesäuse	Protected areas organizations	PU	Forest and natural resource management	R	A
Nationalpark Kalkalpen	Protected areas organizations	PU	Forest and natural resource management	R	L
Zimmerei W.	SME	PR	Carpentry	L	H
Biomasseverband ÖÖ. (bBomass association Upper Austria) (	Cooperation network and consulting cluster	C	Consulting service on bioenergy	R	A
Forstbüro R. (forest office)	SME	PR	Forestry service and consulting	R	A
University of Innsbruck	Scientific organization	PU	Research, knowledge exchange, innovation network	I	H
STUDIA Schlierbach	Civil society actors	PR	Regional development, research and consulting	N	H
Sawmills and timber merchants	SME	PR	Sawmill and timber merchant	L	A

Table A III-V. CS Austria – (C) 'Experiencing Forests & Wood'

Stakeholder name (UIBK, STUDIA)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
Regionalforum Steyr-Kirchdorf/state deputy/mayor	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	A
LAG LEADER-Region Traun4tler Alpenvorland	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	H
LAG LEADER-Region Nationalpark Oö. Kalkalpen	Public administration	PU	Rural regional development, cooperation and knowledge exchange	R	H
SPES Zukunftsakademie	Cooperation network and consulting cluster	PR	Training and research center	R	A
MHC – Furniture and Wood business cluster Upper Austria	Cooperation network and consulting cluster	PU-PR	Furniture and wood business cluster	R	H
Tourismusverband (Tourism association) Nationalpark Region Ennstal	Tourism industry	PR	Tourism and travel related services	R	A
Tourismus Region Oberes Kremstal	Tourism industry	PR	Tourism and travel related services	R	A
Tourismusverband (Tourism association) Gesäuse	Tourism industry	PR	Tourism and travel related services	R	L
Nationalpark Gesäuse	Protected areas organizations	PU	Forest and natural resource management	R	H
Nationalpark Kalkalpen	Protected areas organizations	PU	Forest and natural resource management	R	H
Stift Admont (Abbey Admont)	Land- and forest owner	PR	Forest and natural resource management / Forestry service	L-I	L
Biomasseverband ÖÖ. (Biomass association Upper Austria)	Cooperation network and consulting cluster	C	Consulting service on bioenergy	R	A
Bezirksbauernkammer Kirchdorf Steyr (District chamber of agriculture)	Public administration	PU	Forest and natural resource management/Forestry	L	A
Bezirksbauernkammer Kirchdorf Steyr (District chamber of agriculture), Forstberatung (forest consultancy)	Public administration	PU	Forest and natural resource management/Forestry	L	H
R. Waldschule (forest school)	SME	PR	Environmental education	L	H
Forstbüro R. (forest office)	SME	PR	Forestry service and consulting	R	A
University of Innsbruck	Scientific organization	PU	Research, knowledge exchange, innovation network	I	H
STUDIA Schlierbach	Civil society actors	PR	Regional development, research and consulting	N	H
Tourists and leisure users	Recreational users	PR	Tourism and local recreation	L-I	A
WKO (District chamber of commerce)	Public administration	PU	Chamber of commerce	L	H
Waldbauernvereinigung (farmers forest association)	Land- and forest owner	C	Forest and natural resource management/Forestry service	L	A
Large forest owners	Land- and forest owner	PR	Forest and natural resource management	L-I	L
State forest owner	Public administration	PU	Forest and natural resource management	N	L

* SME (Small and medium enterprises) // ** PR (Private), PU (Public), PU-PR (Public-Private), C (Collective) // *** L (Local), R (Regional), N (National), I (International) // **** L (Low), A (Average), H (High)

iv.

Figure A III-III. CS Austria – (A) 'Furniture, Design & Region'

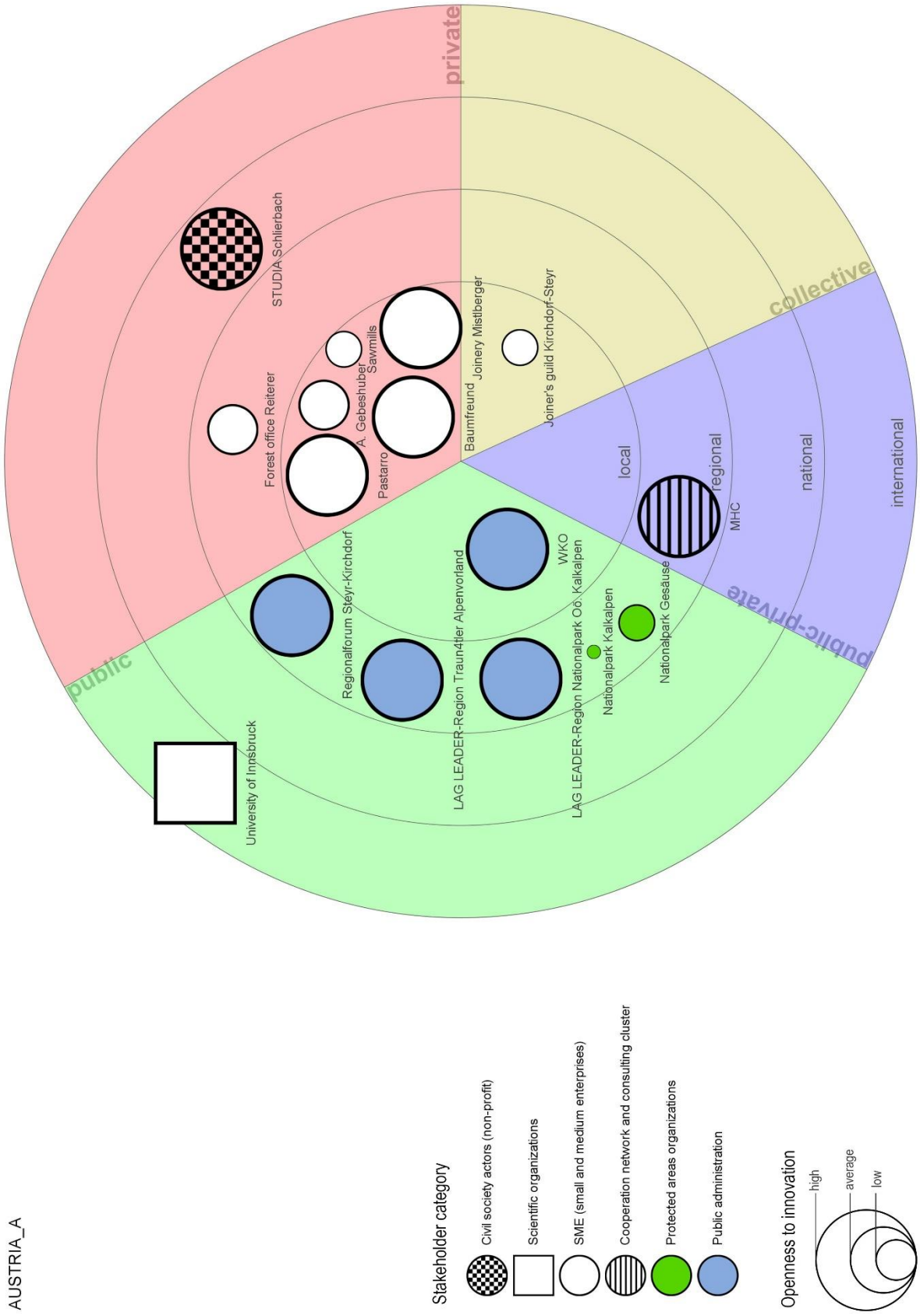


Figure A III-IV. CS Austria – (B) 'Mobile wooden houses & Tourism'

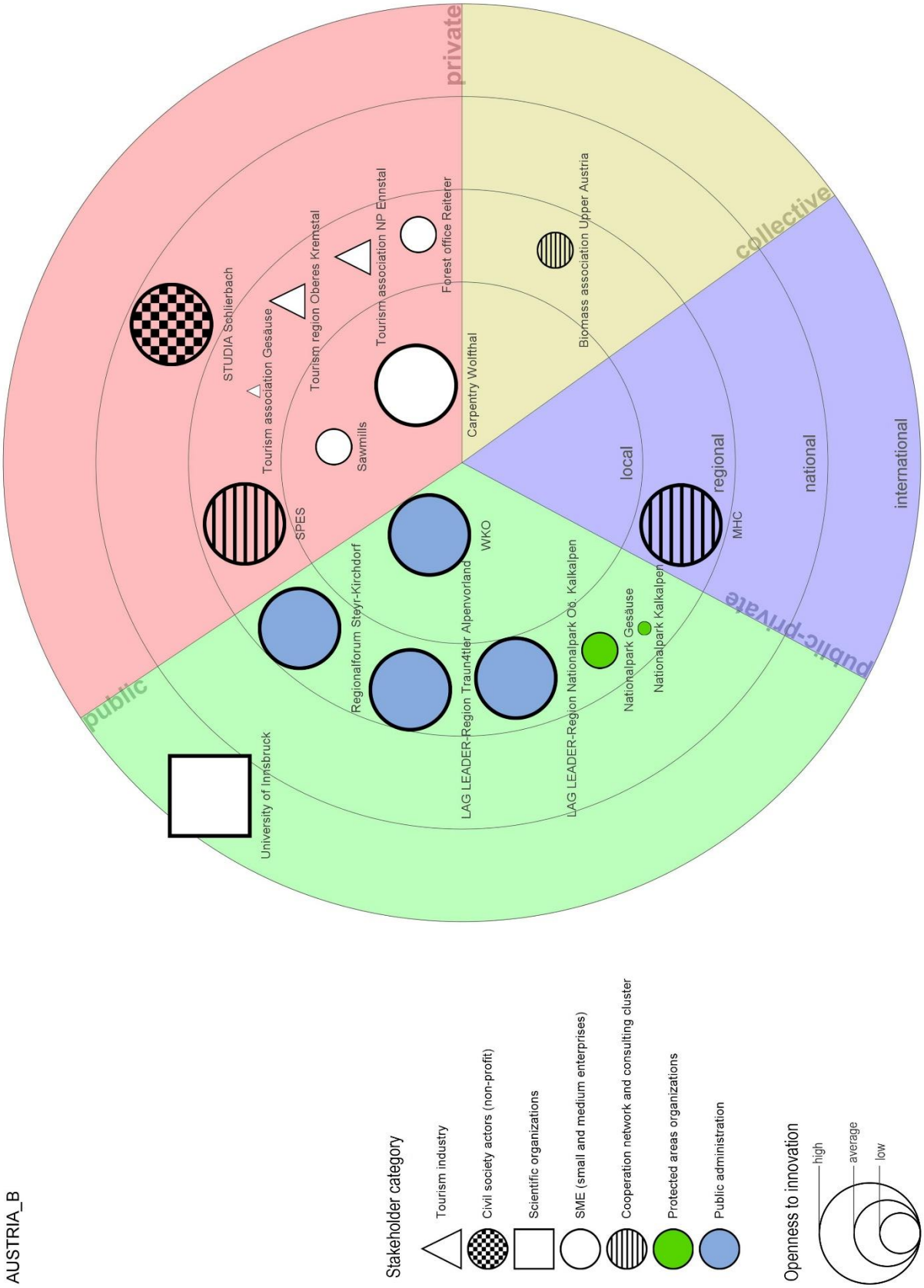
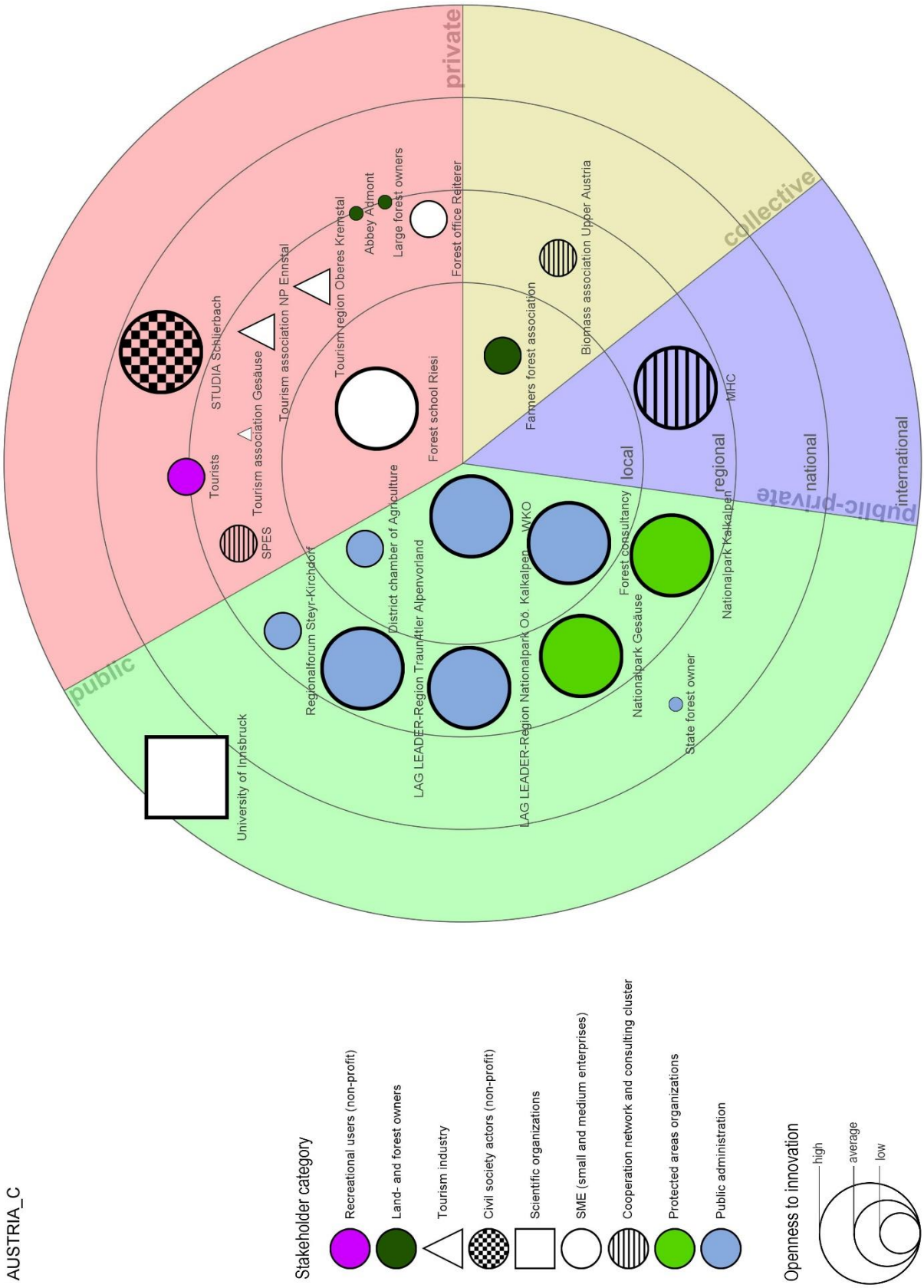


Figure A III-V. CS Austria – (C) 'Experiencing Forests & Wood'



v. FES related to stakeholders

Forest Ecosystem Service	Stakeholder (groups or individual actors)
Wood	**Regional development agency** – supports innovation related to timber processing (in particular, for wooden houses and furniture), emphasising value creation in region, and use of local timber produced in a sustainable manner. Stakeholder benefits from this FES. **MHC** ('Furniture and Wood business cluster', regional) – network for strengthening innovation in the furniture and timber construction. Supports value creation in region, using local timber produced in sustainable manner. This FES is offering innovation opportunities to MHC clients, therefore the stakeholder profits from this FES. **Economic chamber** - supports innovation related to timber processing (in particular, for wooden houses and furniture), emphasising value creation in region, use of local timber, and produce produced in a sustainable manner. Stakeholder profits from value creation out of timber processing. **Local (wood-related) craftsmen** - support innovation related to timber processing (in particular, for wooden houses and furniture), emphasising value creation in region, use of local timber, and produce produced in a sustainable manner. Stakeholder profits from value creation out of timber processing.
Bioenergy	
Edible plants and other non-wood forest products: berries, mushroom, cork, other	
Biodiversity conservation	**Mayor and delegates (local and regional level**) – support timber extraction and economic use of wood to create employment, especially for traditional (wood-related) craftsmen, also in order to support socio-ecological approaches to forestry management in the region, especially to foster/increase socio-ecological management practices among small-scale private forest owners. **Administration of National Parks 'Gesäuse' and 'Kalkalpen**' – stand for strict conservation of forests in certain (protected) areas; advocate and follow respective management practices to support biodiversity. Stakeholder restrict access of the public to certain (protected) forest areas; National Park 'Kalkalpen' is obliged to preserve UNESCO world natural heritage 'Beech woods'.
Erosion and water protection	**Forest Department (local)** – responsible for land use planning with respect to forests; important aspects are water protection, avalanche protection, prevention of erosion; designate forest zones with specific use restrictions in order to ensure erosion and water protection.

Climate regulation, carbon sequestration and stock	**National Parks 'Gesäuse' and 'Kalkalpen'** – stand for strict conservation of forests in certain areas; monitor and document forest development over time.
Game	
Recreation: cultural, physical and experiential interactions	Many stakeholder groups, in particular Mayor, administration of National Park 'Kalkalpen', MHC – Focus on 'Experiencing FE' in general
Cultural heritage	
Resilience (risk control and climate change adaptation)	**Forest Department**
Aesthetic value	**MHC** (Furniture and Wood business cluster, regional) – interested in well-designed furniture; foster 'experiencing well-being' in wooden houses; Experiencing FES in general **STUDIA** (practice partner) – interested in sustainable regional (innovation) development **Economic chamber** **Regional development agency** **Local (wood-related) craftsmen**
FES in general, not specified	Mentioned by several stakeholders – 'Experiencing FES'
What is dominant type of FES use in the case study regional, in general, and/or in your respective innovation in particular: extractive use (blue); use of services within the forests (orange); or a mix of both (green)?	Creating value out of forests/timber processing

III-IV CS Finland 'Habitat Bank'

i. (Very) brief description of case study

Habitat bank is a novel payment scheme for biodiversity conservation, in which actors degrading biodiversity compensate the loss they generate by buying offsets from landowners who restore and/or protect sites as offsets. InnoForESt develops offset supply among private landowners.

ii. Empirical methods and sources used for stakeholder analysis

Identifying and assessing relevant stakeholders is based on long and deep knowledge of forestry sector in Finland on part of the members of the case study team. The number of relevant stakeholders is quite small and their role is stable. Stakeholders have been interviewed individually and also together in the context of workshops.

iii. List and typology of relevant stakeholders

Table A III-VI. CS Finland 'Habitat Bank'

Stakeholder name (SYKE)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
MTK (The Central Union of Agricultural Producers and Forest Owners)	Cooperation network and consulting cluster	C	Forest and natural resource management	R	H
Metsähallitus (Finish Forest and Park Service)	Protected areas organizations	PU	Forest and natural resource management	N	A
Suomen Metsäkeskus (The Finish Forest Centre)	Public administration	PU	Forestry service	N	H
Ministry of Agriculture and Forestry	Public administration	PU	Forestry service	N	A
Ministry of the Environment	Public administration	PU	Forest and natural resource management	N	A
Tapio	Cooperation network and consulting cluster	PU	Forest management and consulting service	N	A
ELY-keskus (Centre for Centre for Economic Development, Transport and the Environment)	Public administration	PU	Regional development and nature conservation	N	A
City of Jyväskylä (Municipalities)	Public administration	PU	Regional development and nature conservation	L	A
WWF Finland	Civil society actors	C	Nature conservation	N	H
UPM	LE	PR	Forestry industry	N	A
Finish Environment Institute	Scientific organizations	PU	Research and education	N	H
University of Helsinki	Scientific organizations	PU	Research and education	N	A
University of Jyväskylä	Scientific organizations	PU	Research and education	N	A
University of Eastern Finland	Scientific organizations	PU	Research and education	N	A
University of Lapland	Scientific organizations	PU	Research and education	N	A
Rudus	SME	PR	Construction	R	A
NCC	LE	PR	Construction	R-I	A
Angloamerican	LE	PR	Mining	N-I	A

Akordi	SME	PR	Research and consulting service	R	A
Gaia	Cooperation network and consulting cluster	PU-PR	Environmental consulting service	I	A
Ramboll	Cooperation network and consulting cluster	PR	Engineering consulting service	I	A

* SME (Small and medium enterprises) // ** PR (Private), PU (Public), PU-PR (Public-Private), C (Collective) // *** L (Local), R (Regional), N (National), I (International) // **** L (Low), A (Average), H (High)

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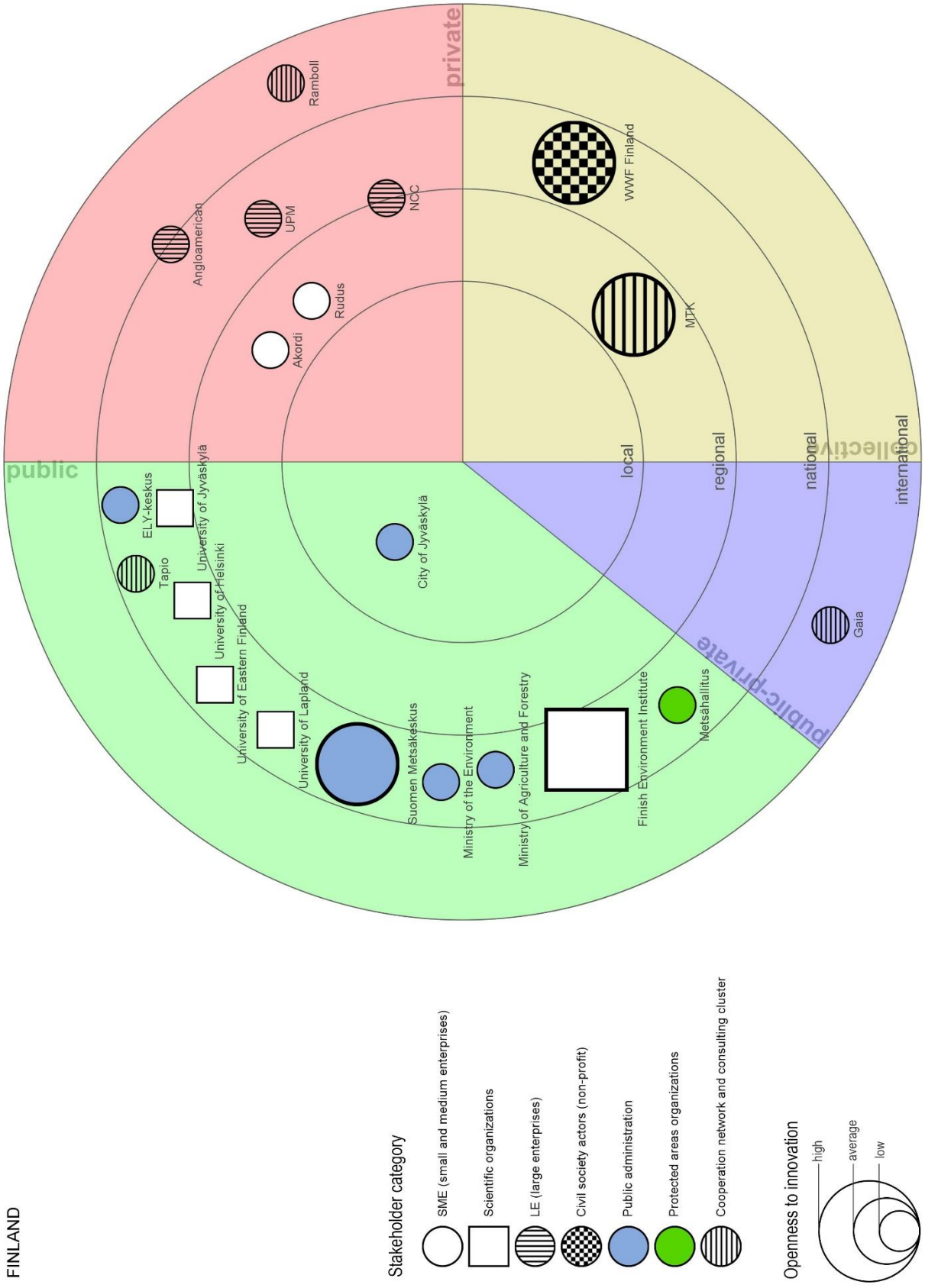
Figure A III-VI. CS Finland 'Habitat Bank'



v. FES related to stakeholders

Forest Ecosystem Service	Stakeholder (groups or individual actors)
Wood	**Private forest owners** – timber extraction **Forestry professionals** – forestry practices, orientation on economic use of forests **Ministry of Agriculture and Forestry** – leads forest policy, emphasises provisioning services
Bioenergy	
Edible plants and other non-wood forest products: berries, mushroom, cork, other	
Biodiversity conservation	*Note*: Develop a mechanism ('Habitat Bank') for biodiversity gains on private forest owner's land **SYKE; University of Helsinki** (Project cluster 'Habitat Bank') – initiators of innovation (Habitat bank) **Private forest owners** **Finnish Forest and Park service** (Metsähallitus) – have restauration expertise and duties **Finnish Forest centre** **Ministry of Agriculture and Forestry** – leads forest policy, integrates new approaches in forestry **Ministry of the Environment** – leads environment and conservation policy, orientation on endangered features **Forestry professionals** – planning and guiding forestry practices and new conservation practices **Large companies** - seeking possibility to compensate
Erosion and water protection	
Climate regulation, carbon sequestration and stock	**Ministry of the Environment**
Game	**Ministry of Agriculture and Forestry** **The Finnish Wildlife Agency**
Recreation: cultural, physical and experiential interactions	
Cultural heritage	
Resilience (risk control and climate change adaptation)	**Ministry of the Environment**
Aesthetic value	

FES in general, not specified	**ELY-keskus (Centre for Economic Development, Transport and the Environment)** – is responsible for implementing nature conservation policy, with endangeredness as an important orientation principle. Views permanent conservation as a central tool.
What is dominant in case study to respective innovation: extractive use (blue); use of services within the forests (orange); or a mix of both (green)?	New approach to promote ecological compensation and co-operation between private forest owners and companies.

III-V CS Sweden 'Älska Skog' (Love the Forest)

i. (Very) brief description of case study

The overall purpose of the Swedish case is to stimulate an interest into Swedish forests and having the younger generation, through activities for schools, reflect on forest management and biomass use for a more sustainable future. This innovation is a form of a communication and education project bringing together different Swedish forest stakeholders (forest industry, researchers, civil society and policy-makers) with one of the most important groups of society, namely schoolchildren. During the 'Älska Skog' project, schoolchildren learn more about the present and future importance of forest ecosystems and the role of forests for society.

ii. Empirical methods and sources used for stakeholder analysis

Data for this section has been collected from homepages where the organizations present themselves, through document analysis, questionnaires (students and teachers), through focus group interactions (students including participatory sketching) as well as through semi-structured interviews with ÄS partners (five partners and continues interaction with Universeum partner and Christa).

iii. List and typology of relevant stakeholders

Table A III-VII. CS Sweden 'Älska Skog' (Love the Forest)

Stakeholder (ULUND)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
Existing partners of Innovation					
SME (Universeum Science center)	Scientific organizations	PU-PR	Research and education	N	H
Södra Skogsägarna (Forest owner association)	Land- and forest owners	PR	Forestry service	N	H
Sveaskog (State owned forest company)	Land- and forest owners	PU	Forest and natural resource management/Forestry service	N	H
Church of Sweden	Land- and forest owners	PR	Forest and natural resource management	N	A
Skogssällskapet (Swedish Forest Society)	Cooperation network and consulting cluster	PU	Forest and natural resource management	N	H
FSC (Forest Stewardship Council)	Civil society actors	C	Forest and natural resource management/Certification	I	A
Skogsstyrelsen (Swedish Forest Agency)	Public administration	PU	Forest and natural resource management/Forestry service	N	A
Gothenburg University (Department of Earth Sciences)	Scientific organizations	PU	Research and education	N	A
Chalmers University of Technology	Scientific organizations	PU	Research and education	N	A
Teachers	Recreational users	PU	Social and environmental education	L-N	H
Students	Recreational users	PR	Social and environmental education	L-N	H

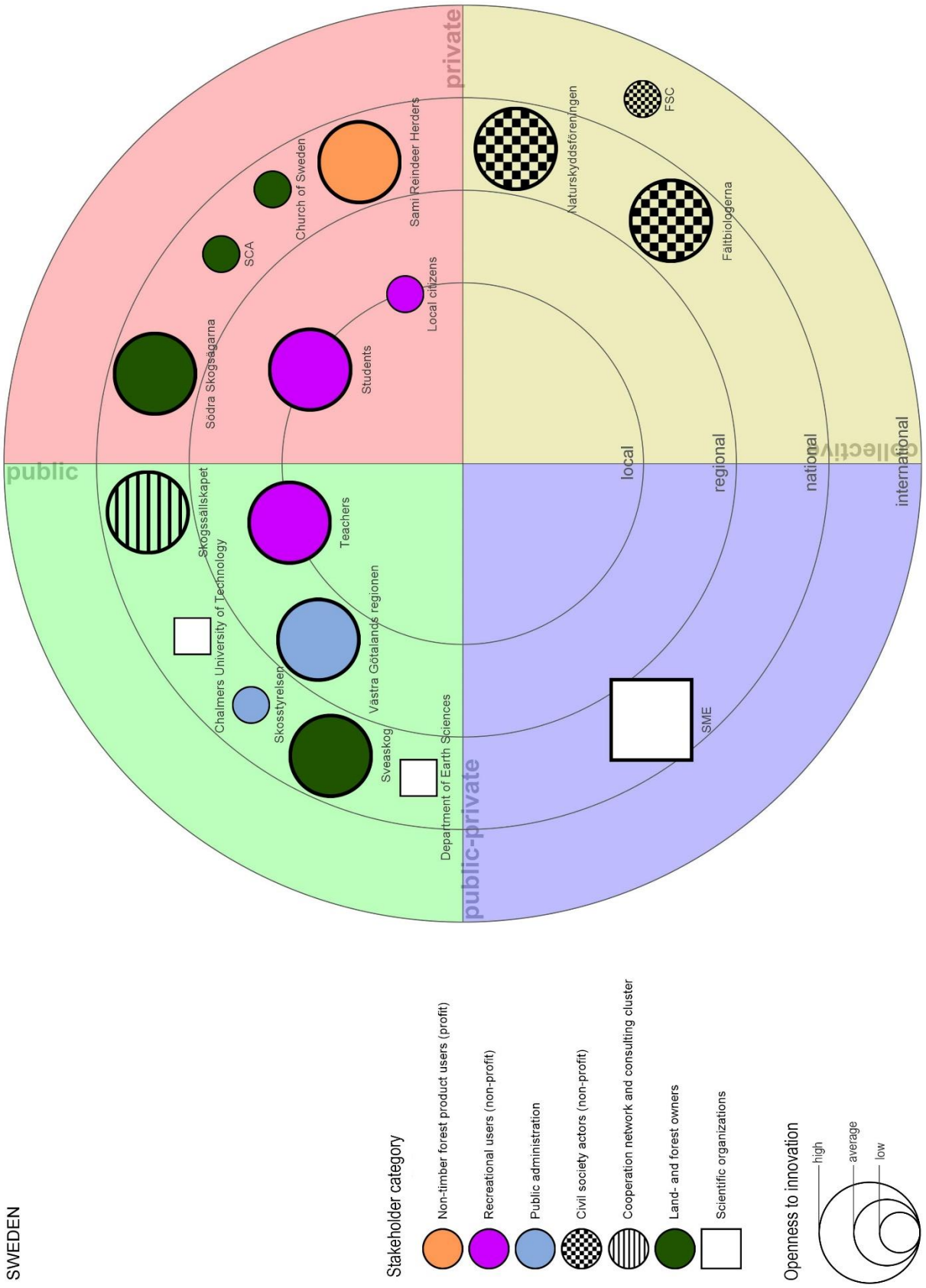
Potential partners of Innovation					
SCA (Svenska Cellulosa Aktiebo-laget)	Land- and forest owner/LE	PR	Forestry service	N	A
Bergvik Skog Väst AB	Land- and forest owners	PR	Forestry service	N	A
Västra Götalands regionen	Public administration	PU	Regional development and nature conservation	R	H
Naturskyddsföreningen (Swedish Society for Nature Conservation)	Civil society actors	C	Forest and natural resource management	L-N	H
Fältbiologerna (Nature and Youth Sweden)	Civl society actors	C	Social and environmental education	L-N	H
Sami Reindeer Herders	Non-timber forest product user	PR	Reindeer husbandry	L-N	H
Local citizens	Recreational users	PR	Recreation/tourism	L-R	A

* SME (Small and medium enterprises) // ** PR (Private), PU (Public), PU-PR (Public-Private), C (Collective) // *** L (Local), R (Regional), N (National), I (International) // **** L (Low), A (Average), H (High), N.A. (not applicable)

Please note that the Swedish case study team defined ‘Openness to innovation’ for ‘Existing partners of innovation’ mainly as engagement in terms of committed resources in the ‘Älska Skog’ project.

iv.

Figure A III-VII. CS Sweden 'Älska Skog' (Love the Forest)



v. FES related to stakeholders

Forest Ecosystem Service	Stakeholder (groups or individual actors)
Wood	**In general, (strong) Forestry sector** – focussing on wood extraction **Forest industry** – processing timber; producing paper, pulp, sawn wood **Forest owner 'state'** – timber extraction, owns 14% of forest land **Forest owners association 'private owners'** – timber extraction, owns industrial facilities and processing plants for its members´ forest products into sawn timber, paper and pulp, linkages to international forest industry **Forest owner 'Swedish Church'** – timber extraction **Swedish Forest Society** – managing forests for forests owners according to their demands, also financing research and disseminating knowledge regarding forestry and nature conservation
Bioenergy	**Forest industry** – producing raw material for energy production
Edible plants and other non-wood forest products: berries, mushroom, cork, other	**Sami Reindeer Herders** – indigenous group, traditional herders **Local people** – mushroom picking, berry picking **Companies, as well as people seeking wage labour** as far away as from Thailand – mushroom picking, berry picking
Biodiversity conservation	**Forest Agency** – aims at economically and ecologically sustainable forests, balancing economy and environment **Swedish Society for Nature Conservation** – to exchange forest land with high value from forest owners through an exchange program
Erosion and water protection	
Climate regulation, carbon sequestration and stock	**Forest Agency** – aims at economically and ecologically sustainable forests, balancing economy and environment **Forest owner 'state'** – some climate compensation projects are currently being developed, but not yet implemented
Game	**Forest owner 'state'** – is advocating/practicing balanced wildlife management **Forest Agency** – aims at economically and ecologically sustainable forests, balancing economy and environment. **Local people** – hunting
Recreation: cultural, physical and experiential interactions	**Forest owner 'state'** – provide right of public access **Forest Agency** - aims at economically and ecologically sustainable forests, balancing economy and environment, mental health dimension, physical health and recreation. Contribute to the provision of these FES **Forest owners association 'private owners'** – fostering health and recreation as very important dimension of forests

	Swedish Forest Society – managing forests for forests owners according to their demands, also financing research and disseminating knowledge (incl. education) regarding forestry and nature conservation **FSC** (Forest Stewardship Council) – important for a range of 'social dimensions' of the forests including recreation and mushroom picking **School children** – playing in the forest, forest as educational object; benefitting from FES. **Local people** – leisure activities
Cultural heritage	**Sami Reindeer Herders** – indigenous group, traditional herders
Resilience (risk control and climate change adaptation)	
Aesthetic value	**Forest owner 'state'** – according to surveys, mono-cultural pine forest is perceived as the most beautiful forest
FES in general, not specified	**School children** – are supposed to learn about ecological functions and services of forest in general, understand importance for society and 'value' of forests **Forest Agency** – aims at economically and ecologically sustainable forests, balancing economy and environment **FSC** (Forest Stewardship Council) – promote forestry methods taking environment and social conditions into account **Forest owner** (**Swedish Church)** – sustainable management of church-owned forests **Universeum** – education and courses for teachers and school classes; FES not specified **Swedish Forest Society** – managing forests for forest owners according to their demands, also financing research and disseminating knowledge regarding forestry and nature conservation
What is dominant in case study to respective innovation: extractive use (blue); use of services within the forests (orange); or a mix of both (green)?	Both: education for reflecting forest values and forest products for society

III-VI Forest Commons Hybe (Slovakia) & Land Trust Association Čmelák (Czech Republic): 'Hybrid Ecosystem Service Governance'

i. (Very) brief description of case study

The case stud is/studies are based on collective action of self-organized long lasting institution (common forest owned/managed by group individuals (1) with share in forest ownership, or (2) who are members of land trust = forest commons) to address the social dilemma of balancing individual interests to forest overuse over societal interest in sustainable forest ecosystem services provision. In particular climate regulation, biodiversity, recreation and education are concerned. The case study sites are the Forest Commons Hybe (SK) and forests owned and managed by the Land Trust Association Čmelák (CZ). In both sites, innovative 'collective actions' were developed based on self-organization of the community. The self-organization enables innovative practices in forest management to support the provision of non-wood timber forest products and services, in particular enables the evolution of nature-based forestry.

ii. Empirical methods and sources used for stakeholder analysis

The first workshop in Hybe in Slovakia, 3rd July 2018 with representatives of Forest Commons Hybe. The workshop was used for identification of key milestones, influencing factors and stakeholders for the innovative activities. The focus group in Liberec, Czech Republic, on 17th July 2018 with representatives of the Land Trust Association Čmelák. The focus group was used for identification of key milestones, influencing factors and stakeholders for the innovative activities.

iii. List and typology of relevant stakeholders

Table A III-VIII. Forest Commons Hybe (SK) - 'Hybrid Ecosystem Service Governance'

Stakeholder (CETIP, IREAS)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
Game hunters	Non-timber forest product users	PR	Hunting	L	L
Forest Commons Hybe	Cooperation network and consulting cluster	C	Forest and natural resource management/Forestry service	L	H
National Park Low Tatra Mountains	Protected areas organizations	PU	Forest and natural resource management/Nature conservation	R-N	A
Slovak government	Public administration	PU	Forest and natural resource management/Nature conservation	N	L
Municipality of Hybe	Public administration	PU	Forest and natural resource management	L	L
Land and Forestry Department	Public administration	PU	Forestry service/Forest and natural resource management	R	L
Tourists/Cyclists	Recreational users	PR	Tourism	R	L
Environmental activists/organizations	Civil society actors	C	Nature conservation	R-N	H
Customers	Recreational users	PR	Users of forest production ecosystem services	R-N	A
National Forest Centre Zvolen	Protected areas organizations	PU	Forest and natural resource management/Research	N	A

Table A III-IX. Land Trust Association Čmelák (CZ) 'Hybrid Ecosystem Service Governance'

Stakeholder name (CETIP, IREAS)	Stakeholder category (UIBK) *	Sphere **	Business type	Scale ***	Openness to innovation ****
Land Trust Association Čmelák z.s.	Civil society actors/land- and forest owners	PR-C	Forest and natural resource management/Nature Conservation/Forestry service	L	H
Forest expert	Public administration	PU-PR	Forest management and consulting service	L	H
Department of Planning Authority	Public administration	PU	Forest and natural resource management	R	L
Department of Forest Protection	Public administration	PU	Forest and natural resource management/Forestry service	R	L
Nature Conservation Agency of the Czech Republic	Protected areas organization	PU	Forest and natural resource management	N	A
National ministries	Public administration	PU	Forest and natural resource management/Forestry service	N	L
Self-governed region	Public administration	PU	Regional development and nature conservation	R	L
Small municipalities	Land- and forest owners	PU	Forest and natural resource management/Forestry Service/Tourism	L	L
Municipality of Liberec	Public administration	PU	Regional development and nature conservation	L	L
State Environmental Fund	Public administration	PU	Funding sponsor and consulting service	N	A
State Administration of Hunting	Public administration	PU	Forest and natural resource management	L-R	L
Volunteers	Recreational users	PR	Nature conservation	L-R	A
Tourists	Recreational users	PR	Tourism	L	L
Neighbouring forest owners	Land- and forest owners	PU-PR	Forest and natural resource management/Forestry service	L-R	L
Land trusts	Civil society actors/land- and forest owners	C	Forest and natural resource management/Forestry service	L	L
Supporters	Financiers	PR	Funding sponsor	L-R	H
Environmental NGOs	Civil society actors	C	Nature conservation	L-N	L
Businesses	SME	PR	Funding sponsor	R	A
Scientists, experts	Scientific organizations	PU-PR	Research and consulting	R-N	A-H
Local citizens	Recreational users	PR	Recreation/tourism	L	L
Environmental inspection	Public administration	PU	Nature conservation	N	L
Hunters	Non-timber forest product users	PR	Hunting	L	L

* SME (Small and medium enterprises) // ** PR (Private), PU (Public), PU-PR (Public-Private), C (Collective) // *** L (Local), R (Regional), N (National), I (International) // **** L (Low), A (Average), H (High)

iv.

Figure A III-VIII. CS Forest Commons Hybe (SK) 'Hybrid Ecosystem Service Governance'

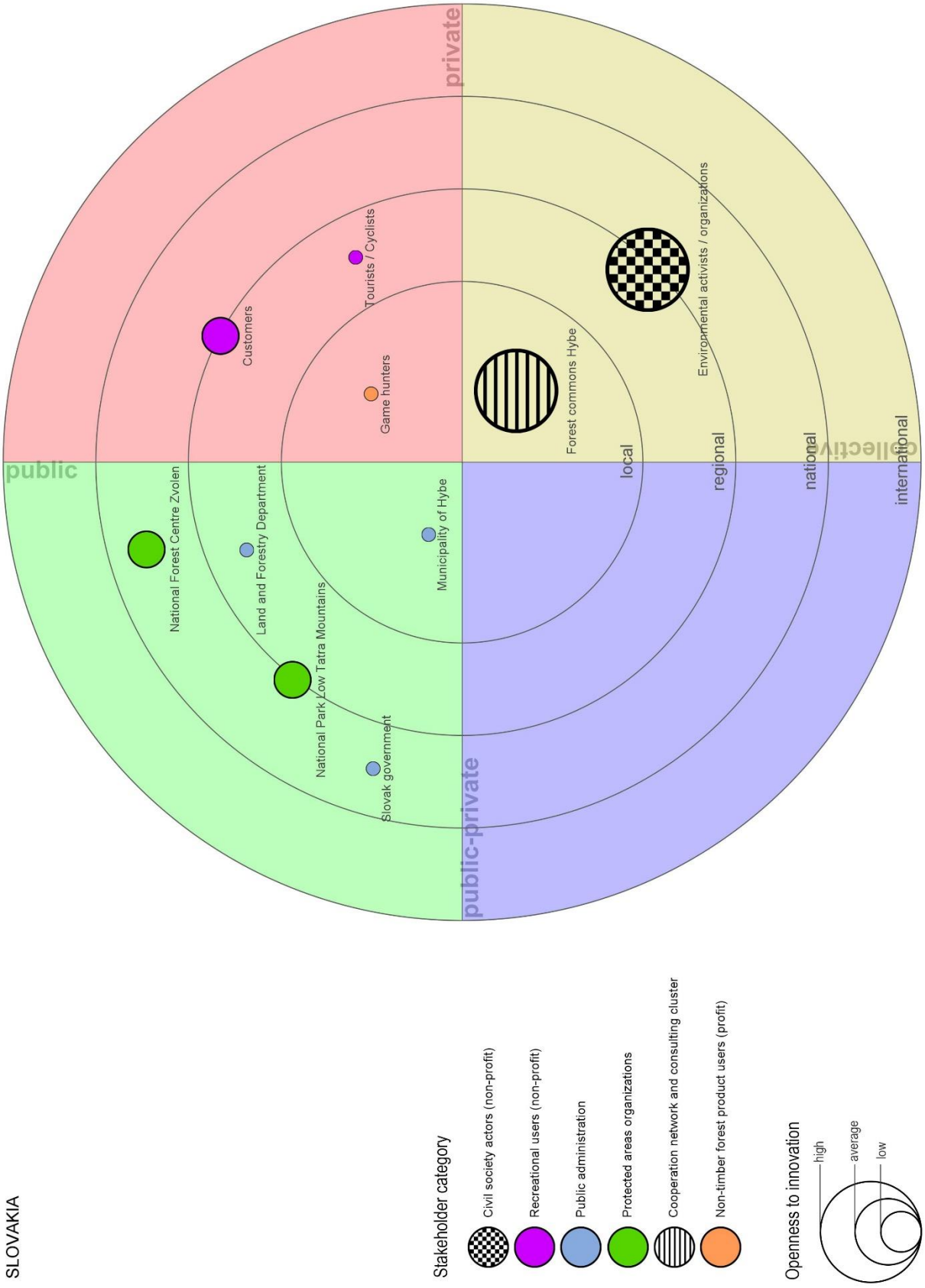
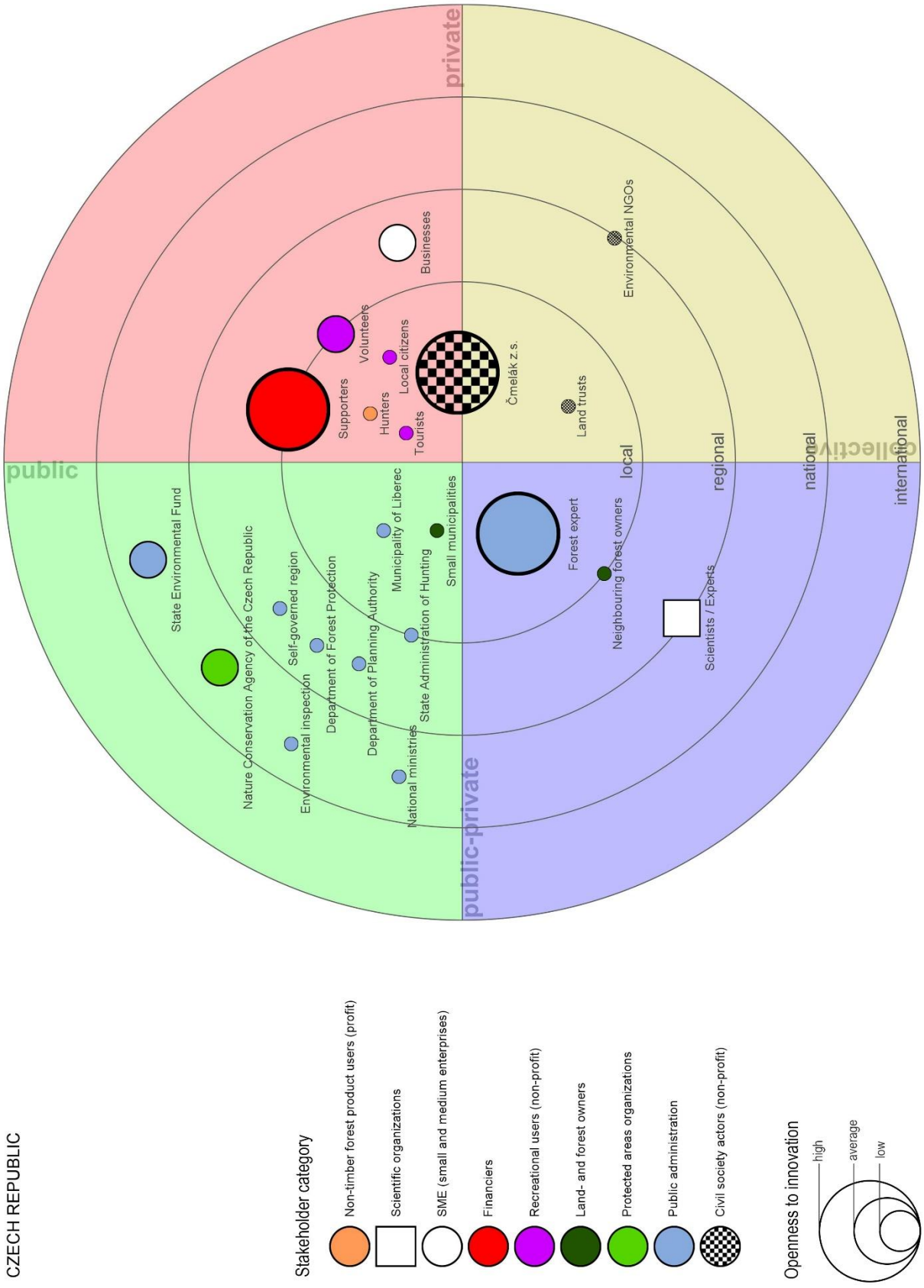


Figure A III-IX. CS Land Trust Association Čmelák (CZ) 'Hybrid Ecosystem Service Governance'



v. FES related to stakeholders

Forest Commons Hype (Slovakia) 'Hybrid Ecosystem Service Governance'

Forest Ecosystem Service	**Stakeholder (groups or individual actors)**
Wood	**Forest Commons Hybe** – is a collective self-organized organiation, financially benefits from forestry: sale of raw wood, timber, runs own sawmill; generating financial resources to cover costs for forest cultivation and to increase benefits for shareholders; as wood production is the dominant activity, the stakeholder and its shareholders are benefiting from this FES
Bioenergy	
Edible plants and other non-wood forest products: berries, mushroom, cork, other	**Local citizens** – picking berries, mushrooms, wish accessible forests
Biodiversity conservation	**National Park 'Low Tatra Mountains'** – nature protection and conservation, strict legislation and restriction on activities **NGO** – environmental issues **Environmental activists** – support protection, actively preventing accelerated timber extraction after storm events and droughts in protected area (thus contributing to faster reproduction of bark beetle and thus causing conflicts with the Forest Commons Hybe (forest owner) **District office** – land and forestry department
Erosion and water protection	**Forest Commons Hybe –** quality of forest affects the quality and quantity of water; also Forest Commons Hybe's shareholders/ community members profit from water regulation **Local citizens and municipalities** – quality and quantity of water is important issue for them
Climate regulation, carbon sequestration and stock	**Forest Commons Hybe** – open to discuss about 'carbon forestry' activities in the future **All Forest Commons Hybe community members** – open to carbon forestry issues
Game	**Forest Commons Hybe** – services for hunting offered **Game hunters**
Recreation: cultural, physical and experiential interactions	**Forest Commons Hybe** – offers accommodation in tourist huts, profits from FES; also Forest Commons Hybe's shareholders/ community members profit from recreational services **Summer and winter tourists, cyclists** – using private forest roads, also provided by the Forest Commons Hybe **Local citizens** – go hiking, cycling, prefer accessible forests
Cultural heritage	

Resilience (risk control and climate change adaptation)	
Aesthetic value	**Summer and winter tourists, cyclists** – attractive tourism area
FES in general, not specified	**All community members** are co-owners of land and natural resources and manage it for individual and collective benefits
What is dominant in case study to respective innovation: extractive use (blue); use of services within the forests (orange); or a mix of both (green)?	Currently focused mainly on timber extraction Aim: balancing individual interests on forests overuse over societal interest in sustainable FES provision

Land Trust Association (Czech Republic) 'Hybrid Ecosystem Service Governance'

Forest Ecosystem Service	Stakeholder (groups or individual actors)
Wood	**Land Trust Association Čmelák** - want to demonstrate that multi-species forest is profitable/economically viable; timber extraction by selective cutting in multi-species forest is intended benefit of the innovation
Bioenergy	
Edible plants and other non-wood forest products: berries, mushroom, cork, other	**Local citizens** – picking mushrooms, berries, prefer accessible forest
Biodiversity conservation	*Note*: Re-naturalization of old monocultures ('New primary forest') is the innovation **Land Trust Association Čmelák** – growing own seedlings for nature protection and biodiversity, currently most dominant FES the stakeholder is benefiting from **Private Donors and sponsors** **Ministry of Regional Development of the Czech Republic** **Ministry of Agriculture of the Czech Republic** **Ministry of Environment of the Czech Republic** – provide subsidies from EU or national grant schemes for eco-education, restoration of biodiversity, increase of retention capacity of the landscape **Municipalities and self-governing region** – provide subsidies mainly for (eco-)educational activities for primary school students or general public (educational paths), yet decreasing funds. **Department of Planning Authority** (on behalf of state government) at municipal level; Department of forest protection (on behalf of state government) at municipal level (conflict with Land Trust Association Čmelák regarding fences, build to protect seedlings against game) **State Environment Fund** – provides grants (co-)financed by EU, important funding option for the innovation under scrutiny **Foundations** – provide grants (e.g. The Deutsche Bundesstiftung Umwelt DBU (German Federal Environmental Foundation), VIA Foundation (Nadace VIA), Czech Environmental Partnership Foundation (Nadace partnerství) **Volunteers** **Environmental inspection** – nature protection and conservation
Erosion and water protection	**Land Trust Association Čmelák** – multi-species forest have larger potential for water protection than spruce monocultures
Climate regulation, carbon sequestration and stock	**Land Trust Association Čmelák** – open to discuss 'carbon forestry' activities in the future

Game	**Local game hunters** – conflict about fence and damaged seedlings **State administration for hunting** – regulation and support of hunting
Recreation: cultural, physical and experiential interactions	**Local citizens** – prefer accessible forest **Tourists** – innovation 'new primary forest' is attractive for tourists **Land Trust Association Čmelák** – develops non-timber products and services, such as own forest kindergarden, as well as cultural and educational services: educational nature trail, own accommodation capacities in heart of the 'new primary forest'
Cultural heritage	
Resilience (risk control and climate change adaptation)	
Aesthetic value	**Tourists and local citizens** – species-rich forest is perceived more attractive for recreation than spruce monocultures
FES in general, not specified	
What is dominant in case study to respective innovation: extractive use (blue); use of services within the forests (orange); or a mix of both (green)?	Biodiversity conservation is currently dominant. Yet, the innovation 'new primary forest' as multi-species forest will include extractive use of forests. Aim: balancing individual interests of forest (over)use and societal interest in sustainable FES provision