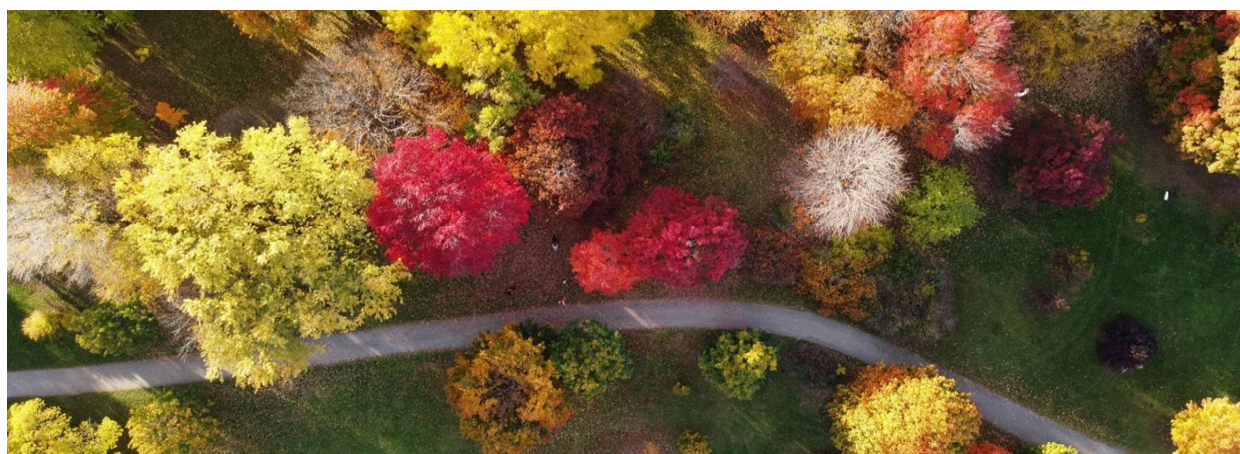




Urban green infrastructure governance approaches

In-depth analysis of alpine space case study regions



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Abbreviations & Acronyms

AG7	Action Group 7	ICRA	Agricultural Institute of Slovenia
ASP	Alpine Space Programme	IT_MA	Ivrea Morainic Amphitheatre (Metropolitan City of Turin)
AlpES	Project: Alpine Ecosystem Services - mapping, maintenance, management	IT_RP	Rural Park South Milan (Metropolitan City of Milan)
AlpFoodWay	Project: Alpine food cultural heritage	IT_ST	Malles/ Vinschgau Valley (South-Tyrol)
AT_NP	Raab-Örség-Goričko Nature Park (South-Burgenland)	KULAP	<i>Kulturlandschaftsprogramm</i> (Cultural Landscape funding programme)
AT_S	Central Area of Salzburg	LCA	Land Care Association Freising
CH_GR	Trin / Domleschg region (Canton of Grisons)	LOVT	Landscape and high stem fruit association
DE_FS	District of Freising (Metropolitan Region of Munich)	LUIGI	Project: Linking Urban and Inner-Alpine Green Infrastructure
DE_RO	County Rosenheim (Metropolitan Region of Munich)	MCM	Metropolitan City of Milan
CVB	<i>Contrat Vert et Bleu</i>	MCTo	Metropolitan City of Turin
EMM	Metropolitan Region of Munich	PP	Project partner
ESS	Ecosystem Services	RMB	Regional management Burgenland
EUSALP	EU Strategy for the Alpine Region	SI_GI	Goriška – Idrija-Cerkno region (Goriška region)
FIBL	Research Institute of Organic Agriculture	SIR	Salzburg Institute for Regional Planning and Housing
FRAPNA	<i>Fédération Rhône-Alpes de Protection de la Nature</i>	SME	Small and medium sized enterprise
FR_NP	Zone Albanais Haute-Savoie (<i>Parc Naturel Régional du Massif des Bauges</i>)	TUM	Technical University of Munich
FR_VB	Vercors and Belledonne mountain massifs (Metropolitan Region of Grenoble)	UGS	Urban green space
GAM	Metropolitan Region of Grenoble (<i>Grenoble-Alpes Métropole</i>)	VNP	<i>Vertragsnaturschutzprogramm</i> (Environmental protection contracting programme)
GI	Green Infrastructure	WP	Work Package
HNV	High nature value		
HSWT	University of Applied Sciences Weihenstephan-Triesdorf (<i>Hochschule Weihenstephan Triesdorf</i>)		

1 Introduction

1.1 About LUIGI

Orchards, forests, rivers, green paths... There is a great variety of blue and green infrastructure, connecting mountain ecosystems and urban centres. Each of these natural or semi-natural spaces brings environmental, economic and societal benefits, such as the supply of food, clean water, materials, opportunities for recreation, tourism, ecological functions such as pollination, climate regulation. It is precisely this wide range of benefits, called ecosystem services (ESS), that LUIGI explores and intends to strengthen in Alpine, rural and urban areas. LUIGI – Linking Urban and Inner-Alpine Green Infrastructures – is a project of the European Union, approved on the fourth INTERREG V B tender of the Alpine Space Programme (2019-2022). It gathers 14 partner institutions and 26 observers from six countries – namely Austria, France, Germany, Italy, Slovenia, and Switzerland –, working together on future-oriented solutions to enhance ecosystem services and green infrastructure networks.

By recognising the pressures on Alpine ecosystems and the services they deliver to areas beyond mountain regions, the project aims to strengthen the link between mountain ecosystems and urban centres at the foot of the Alps, based on sound economic and social exchanges. The project aims to recognise and valorise the joint benefits deriving from Green Infrastructure (GI), linking rural and urban areas. The potential of GI for sustainable economic development, based on natural capital and ESS that play a role in assuring higher quality of life and better environments to people living in urban centres is in focus. Furthermore, the project aims to implement the EU Strategy for the Alpine Region (EUSALP), a political declaration by states and regions on GI.

With this in mind, the LUIGI project aims at shaping a trans-Alpine GI-network as ecological, economic and cultural connectivity factor of rural & urban Alpine territories. The project aims at:

- a) making policy makers aware of Alpine ecosystems, GI and the services they deliver to urban areas;
- b) identifying and assessing the economic, environmental and social benefits delivered by Alpine ESS through GI to urban centres and metropolitan areas;
- c) developing business models to seize the market potential of conserving and enhancing rural ESS/GI mobilise financial resources (e.g. through public-private partnerships) in their support;
- d) sharing on the transnational level knowledge on Alpine/rural ecosystems/GI effective techniques for their maintenance and enhancement;
- e) providing tools to match demand and supply of Alpine ESS in regional, metropolitan and urban markets.

Based on EU standards for GI and ESS (e.g. Map and Assess the state of Ecosystems and their Services – MAES) and outcomes of ASP projects (e.g. AlpES, AlpFoodWay), representative GIs (food-tree-based land use systems, metropolitan farms, etc.) and value-chains for goods and services are analysed, related business models, financial and policy instruments are framed and spread. Based on sound experience on GI-planning, ESS, and town-networks,

With good-practice examples and implementing actions in pilot-regions in six Alpine countries, LUIGI contributes to the EUSALP political declaration of Alpine States and Regions on “Alpine GI” (2017) calling for setting up transnational pilot projects addressing EU-relevant GI. LUIGI also aligns to the thematic actions of the Green Economy Action Plan of the Alpine Convention, adopted by the 15th Alpine Conference (2019).

1.2 WP3 – participatory and governance approaches

As part of the LUIGI project, the work package 3 (WP3) contributes to one of the five specific objectives of the EUSALP AG7; to strengthen, improve and restore biodiversity, as well as ESS by GI, by improving GI-governance approaches (EUSALP, 2020). To address participatory and governance approaches for spatial development of GI in the pilot regions, WP3 aims to:

- synthesize the state of the art on GI governance, GI management practices in the LUIGI pilot regions by collecting case study areas in respective regions (Activity 3.1);
- analyse more deeply the GI governance mechanisms in case studies selected (Activity 3.2) as well as to set up a participatory, co-creative and co-productive knowledge transfer within the project partnership as well as among the stakeholders.

Based on the knowledge gained, report aims to set up a framework for transferring approaches to GI governance (Activity 3.4).

1.3 Governance as a GI-principle

1.3.1 The relevance of governance

Governance approaches belong to one of five specific objectives of the EUSALP AG7. Its aim is to maintain, strengthen, improve and restore biodiversity and ESS by GI to “develop a strategically planned network of natural and semi-natural areas, including features in rural and urban areas which together – functionally interconnected – ensure diverse advantages for nature, as well as social benefits and economic prosperity for humans.” (EUSALP, 2020). The hereby underlying GI understanding is linked to the EU Strategy on Green Infrastructure that has been adopted by the European Commission in 2013 to become part of the six main targets of the EU Biodiversity Strategy to 2020 (European Commission, 2011). It defines GI as “a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services” (European Commission, 2013). Due to the EU Strategy on GI, research gained substantial momentum in the

last years to explore solutions for good practices in GI planning. However, a recent literature review in comprising about 100 sources reveals that although participation and citizen engagement in green spaces planning is being considered as crucial for successful implementation (Monteiro *et al.*, 2020). Still, their relevance as key principle still seems to be underestimated, suggesting unused potentials to enhance processes to develop GI. As management and maintenance, strongly depend upon the appreciation and support of local people their active participation in planning processes is crucial to accomplish GI development with its goals and objectives.

1.3.2 The concept of governance

Governance emerged as an alternative to traditional, top-down forms of government, which until then had been considered the only legitimate form of public action and inaccessible to other actors (Bryant, 2018). The approach shifted decision making processes from traditional top-down mechanisms to more open governance structures that can be observed in public as well as private sectors at various levels (Kersbergen and Waarden, 2004; Frahm and Martin, 2009). Essentially, governance describes the way how state and non-state actors work together (Arnouts *et al.*, 2012). Governance structures vary significantly depending on the goals and actors involved (Ingram *et al.*, 2018), the form of interactions among them encompassing knowledge, overview, information or resources (Sehested, 2003), as well as rules they agree upon in order to achieve certain – quite often common – goals (Tacconi, 2011).

Whereas the basic principle of governance aims to solve very diverse and complex problems (Sehested, 2003), environmental governance as a subtopic is understood as changing decision-making processes towards sustainable development (e.g. Lemos and Agrawal, 2006; Newig and Fritsch, 2009; Tacconi, 2011; Armitage *et al.*, 2012). This strongly relates to environmental stewardship as “actions taken by individuals, groups or networks of actors, with various motivations and levels of capacity, to protect, care for or responsibly use the environment in pursuit of environmental and/or social outcomes in diverse social-ecological contexts” (Bennett *et al.*, 2018). Evidence clearly suggest that governance strategies considering the perspectives of local ecosystem stewards are effective to safeguard biodiversity and ecosystem services (Kenward *et al.*, 2011). Hence, a systematic way about the role of actors and their relation to driving forces on landscape change is considered as crucial and needs to be considered (Plieninger *et al.*, 2016).

In urban contexts the involvement of citizens in green space governance has developed public participation in government and local governments policy initiatives towards much a more active citizenship and in order to maximize the range of benefits of urban ecosystem services (van der Jagt *et al.*, 2016). For GI planning, participatory governance concerns the arrangements in which different actors make decisions and manage green space networks at different levels (Ambrose-Oji *et al.*, 2017). The arrangements comprise a different mix of actors, involving citizens, entrepreneurs, and NGOs, with or without the active involvement of government

authorities and public agencies. These also vary in resources, in terms of time, money, skills, and other tangible and intangible assets (e.g. political and social relationships around those resources). In addition, these differ in ways how relationships and actions are managed (including legislations, regulations, social and cultural norms) as well as discourses (beliefs, values, objectives and other, motivations and main drivers of action). Thus, governance arrangements can be very diverse (ibid.).

1.3.3 Different types of governance arrangements

Governance can be described by types of governance arrangements (Arnouts *et al.*, 2012) that can be adapted and applied to green space management (Buizer *et al.*, 2015; Buijs *et al.*, 2016; Ambrose-Oji *et al.*, 2017). The spectrum ranges in-between government led approaches on the one side and non-government led approaches on the other side, with various forms of co-governance in-between (Figure 1).

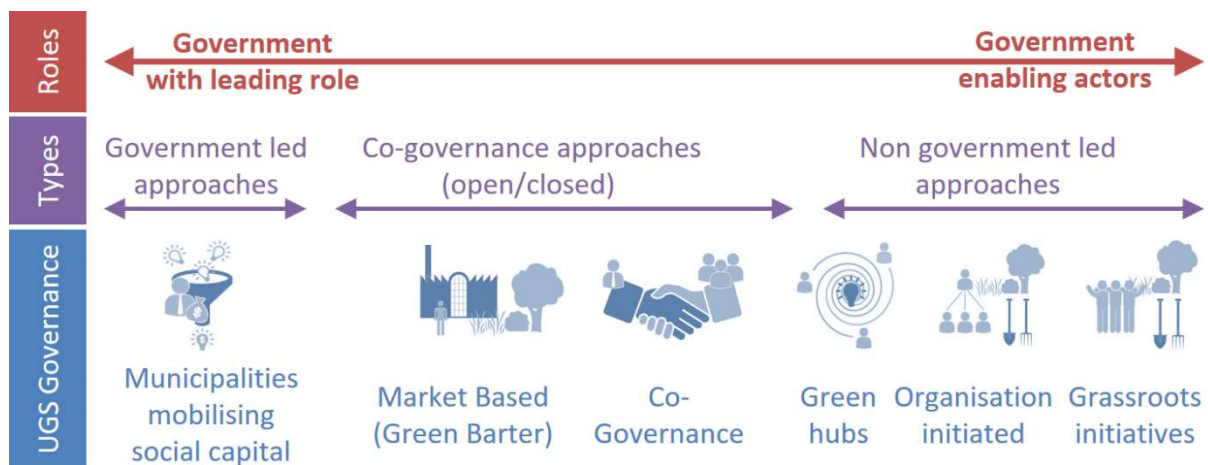


Figure 1: Typology of different kinds of governance approaches applied on innovative urban green space (UGS) governance.

Source: based on and adapted from (Arnouts *et al.*, 2012; Buizer *et al.*, 2015; Buijs *et al.*, 2016; Ambrose-Oji *et al.*, 2017)

Government led approaches

Government led approaches refer to the situation when all tasks are directed by the government, with non-state actors playing a subordinate role (Kooiman, 2003) and are often considered as a quite efficient approaches (Ingram *et al.*, 2018). Non-state actors can be involved in such a governance processes, but within the framework set by the government only. Decisions are enforced in the top-down principle (Arnouts *et al.*, 2012). Accordingly, this type is considered as the classic top-down approach. In UGS planning, it refers to rather municipality led initiatives, often included as part of a formal planning process, bound to administrative units, such as the metropolitan borough or a specific neighbourhood area (Buijs *et al.*, 2016). Here the power in decision-making is primary in the hands of the municipality. However, the local

community, individual citizens or grassroots initiatives may be invited to participate in strategic or site level actions (Ambrose-Oji *et al.*, 2017). Their role might be about consultation and information sharing, involvement in planning, or contributions to management and maintenance of green spaces. Such an example is the Participatory Budgeting in Lisbon, Portugal, a city-scale project where any citizen can submit their ideas about developing local public spaces, for which finally every citizen can vote for its implementation. The municipality set aside a budget of 2.5 million Euros annually to implement the winning proposals. Hence, government led approaches are indeed able to innovative the development and maintenance of green space by and engaging and involving citizens (Buijs *et al.*, 2016) and should not be considered as an anti-democratic top-down planning approach per se.

Non-government led approaches

Non-government led approaches on the other end of the scale in Figure 1, are related to self-governance, describing the predominance of non-state actors while the government holds back (Kooiman, 2003). Therefore, the coalitions that manifest are mainly composed of non-state actors. Self-governance pursues common goals that are scaled up or linked to societal goals (Ingram *et al.*, 2018). It is not necessarily the case that the power in self-governance arrangements lies with the non-state actors alone. The government can still control resources. However, non-state actors, who can thus influence events to a considerable extent, mainly mobilize them. This gives actors a high degree of autonomy. State actors in principle do have the possibility to interfere, but only if the control activities exceed certain limits. The rules of interaction ensure that the non-state actors involved have the freedom to steer as they see fit. This means that decisions are implemented according to the bottom-up principle and access is more open to non-state actors (Arnouts *et al.*, 2012).

In UGS planning, these approaches are mostly under active citizenship but can come in various forms (Buijs *et al.*, 2016; Ambrose-Oji *et al.*, 2017). In case citizens are initiators, it is considered as grassroots initiatives, such as self-organised urban agriculture or guerrilla gardening. These are relatively small-scale initiatives, focused on a specific site, often located on public or municipal land. Such initiatives are often started and maintained by local residents autonomously. However, grassroots initiatives appear to face significant threats to their existence in long term. To tackle this challenge such initiatives may seek to become more formalised over time (Buijs *et al.*, 2016). Another variant can be considered as organisation initiated grassroots initiatives, in case larger NGO's or social enterprises take the initiatives to mobilize citizens (Ambrose-Oji *et al.*, 2017). These often take place on public or municipal land, or on land with public access. These initiatives are characterised by power sharing between the organisation and citizens in which some coordination with municipalities occur. Furthermore, Green Hubs have been identified, as some rather experimental and creative approaches, where citizens, businesses, and non-governmental organisations may come together and from its cooperation emerge innovations, such as new networks, enterprises or business models.

Examples for these have been investigated by Buijs *et al.* (2016), such as “TreeXOffice” in London, experimental “Gardens of Art” approach in Poland, or “Green Wish” network of small social enterprises and individuals in the Netherlands.

Co-governance approaches

Co-governance approaches build a form in between non-government and government led approaches, where both state and non-state actors participate in decision-making processes and take on administrative tasks (Arnouts *et al.*, 2012). These types are characterised by situations where actors can only achieve a certain goal if they work together and all actors thereby negotiate the goals pursued between each other (Ingram *et al.*, 2018). To characterise the variants and further distinguish, Arnouts *et al.* (2012) divide these approaches into two types: closed and open co-governance. Whereas closed co-governance is characterized by a rather much more restricted, structured and fixed form of cooperation between governmental and non-governmental actors than open co-governance which implies a more accessible and flexible form of shared governance. Buijs *et al.* (2016) and Ambrose-Oji *et al.* (2017) consider co-governance as sub-type and differentiate with market governance as another sub type of co-governance, that has been introduced earlier by Buizer *et al.* (2015). Co-governance in UGS planning and management are considered as partnerships between citizens or citizen organisations and municipalities with power being shared between those involved, usually located on municipal land and may involve additional public assets. The partnership between the partners is formalised, but at least some of the power and decision-making processes are shared between municipality and the organisations involved. Across Europe, numerous different practice examples have been identified, such as Buijs *et al.* (2016), such as cooperation between local agrarians, administrations and local people, forming initiative, in which the actors together take land care by low intensity land use management in order to maintain semi-natural green spaces. In comparison to this market governance, as one kind of co-governance, differs in the type of actors involved and the objectives pursued. It involves a particularly large number of actors along the value chain (producers, processors, marketers) (Buizer *et al.*, 2015), with the main aim of linking public objectives with economic interests (Ingram *et al.*, 2018). These kind of governance approaches have been named Green Barter (Buijs *et al.*, 2016; Ambrose-Oji *et al.*, 2017) and are defined as businesses that develop and/or maintain green space in exchange for a formalised right to use the values of those spaces for business purposes and profits.

1.3.4 Governance dimensions

Governance for GI-planning can be analysed with emphasis on the respective governance arrangement according to Buijs *et al.* (2016) and Ambrose-Oji *et al.* (2017), adapted from (Arts *et al.*, 2006; Liefferink, 2006). They view governance for urban green space (UGS) as a tetrahedron, in which each of the four corners represent a different governance dimension (Figure 2). Any change on one of the dimensions will affect the other dimensions (Arts *et al.*, 2006). A

fundamental assumption in systems science. For instance, does a change of actors involved in the coalitions, may also alter availability and distribution of resources and power.

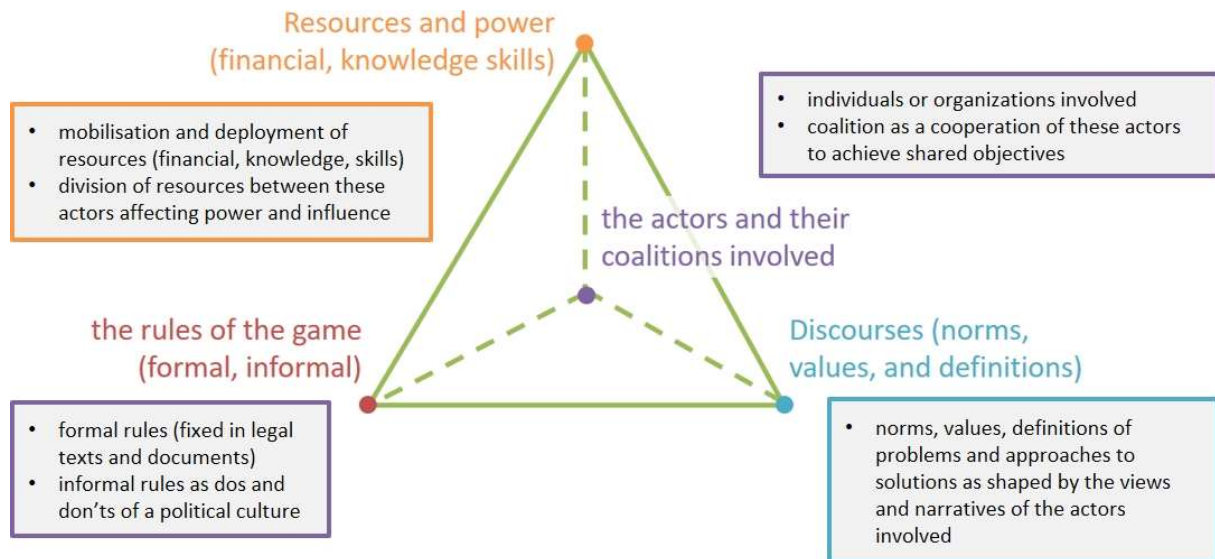


Figure 2: Tetrahedron of four different dimensions of governance.

Source: based on (Arts *et al.*, 2006; Liefferink, 2006)

Actors are individuals and/or organizations involved (Buizer, 2008). As an outcome of the Status Analysis in selected Alpine Metropolitan regions (Schrapp *et al.*, 2020), a broad number of relevant stakeholder have been identified across the selected case studies, such as public authorities (at different levels from local to national), non-governmental organisations & associations, community groups, business partners / SMEs, education and research groups, citizens (public, inhabitants, recreational visitors) among others. These actors can be part of a certain governance arrangement and can be more or less influential. They may act in coalitions as a cooperation of actors to achieve (more or less) shared objectives (Buijs *et al.*, 2016).

Along with the actors involved, different resources may be available and effect the process. According to Buijs *et al.* (2016) resources can be mobilized by the different actors to achieve certain outcomes, and can be found in different types. Besides financial resources these also comprise knowledge (local, expert), skills (professional), land properties and ownership or status are also sources of power (Van Tatenhove *et al.*, 2000).

The analysis of discourses comprises the norms values and definitions of problems and approaches to solutions as shaped by the views and narratives of the actors involved. According to Buizer (2008) it is important to consider how these visions are perceived and socially constructed and to how they are embedded in social and institutional practices of the actors (Buijs *et al.*, 2016). According to the selection criteria as predefined by Schrapp *et al.* (2020), there is a broad spectrum of different intentions of the actors, representing visions, values and

norms such as ecologic (biodiversity, ecological connectivity), social (heritage, welfare, well-being, health, recreation...) and economic (potential of products & services and/or ability to mobilize financial resources...).

The rules of the game are considered as a set of boundaries within which actors operate and that can be both, constraining and enabling (Buijs *et al.*, 2016). A number of formal rules, that are fixed in legal texts and documents, as well as informal ones have already been identified within the case study areas (Schrapp *et al.*, 2020).

1.4 Aims and research question

The predecessor report “status analysis” (i.e. LUIGI deliverable D3.1.1) by Schrapp *et al.* (2020) elaborated on the current state of GI governance and GI management practices with respect to key Alpine GI within six LUIGI pilot regions.

This “in-depth analysis” (LUIGI deliverable D3.2.1) builds upon various explorative activities within WP3 and will investigate several case study areas in-depth with the aim to explore their governance structures in more detail and to identify how and why the governance approach contributes to the success or innovation in this particular context. To answer these questions, the in-depth study is structured into three parts:

- The first part gives an overview about the networks and governance approaches in selected case study regions to address the sub question: How do the arrangements function in their individual environmental and political contexts and promote innovations?
- In the second part, it will investigate the governance dimensions across cases and relates to the sub question: What do governance arrangements like in terms of: actors, resources, discourses, and rules of the game?
- The third part will synthesise the outcomes to derive conclusions with regard to the prevailing governance type in the regions.

2 Methodology

2.1 General approach and study design

As visualized in Figure 3, the preliminary status analysis by Schrapp *et al.* (2020) conceptualized the in-depth analysis in terms of selection of case studies within the LUIGI pilot areas, selection of interview partners and preparation for the interview and questionnaire and to adjust the analysis foci. Furthermore, the range of governance structures in the LUIGI partner countries and study regions and the status of development regarding the management capacities of key Alpine GI, was taken into account.

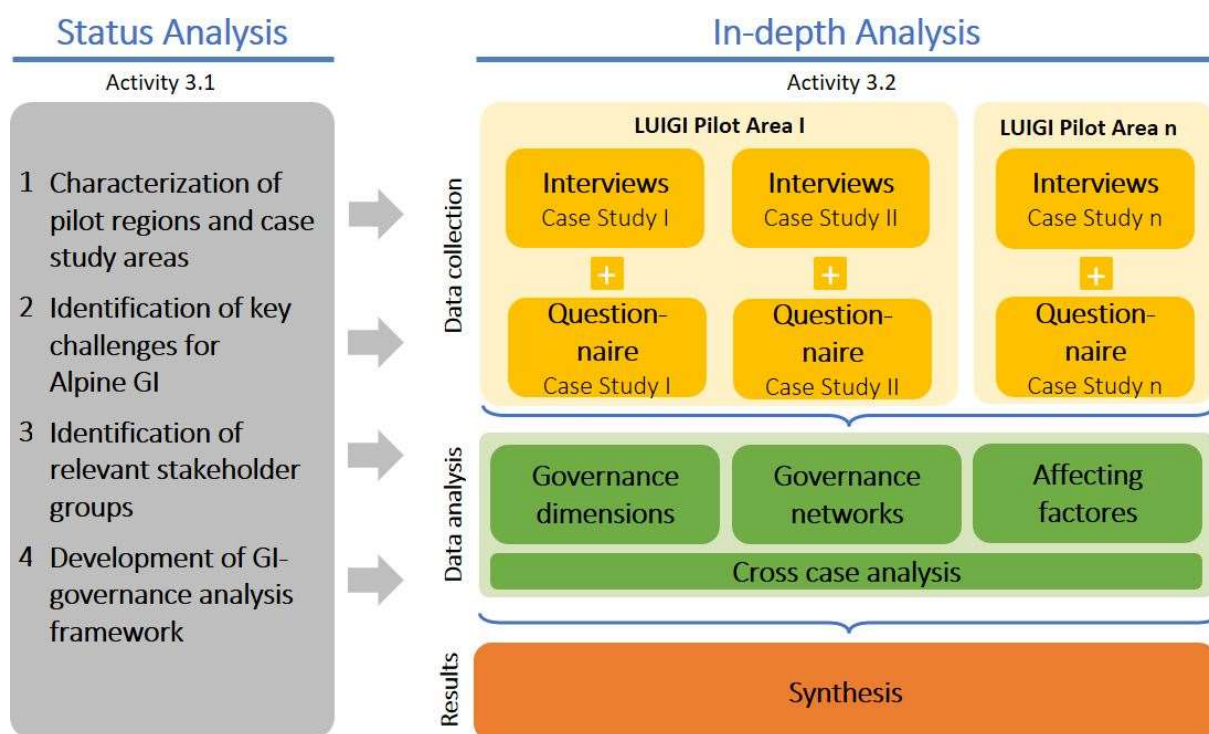


Figure 3: Structure of the in-depth analysis and its relation to the status analysis.

The data analysis for this study included two phases: a) a case by case analysis of governance dimensions, stakeholders' networks and affecting factors (e.g. formal vs. informal), followed by b) a cross-case analysis, focusing more on relative composition of governance aspects. Finally, the synthesis will bring the results together.

The in-depth analysis and the study approach was developed in the beginning of 2021, while data collection and the in-depth case studies were carried out between May and September 2021. The region-by-region and cross-case analysis took place thereafter until December 2021.

2.2 Regional focus

2.2.1 Case study selection criteria

The aim was to identify instructive governance arrangements and to understand these more thoroughly. Because the selected case studies should be suitable to be subject of a broad set of different cooperative activities within LUIGI across WPs, the identification process was split into two phases. Hence, according to the projects aims and objectives, the case studies need to include representative GIs that are of relevance for value chains for goods & services, and related business models (e.g. food-tree-based land-use systems, metropolitan farms). A first tranche of case study areas of the pilot regions of the previous activity 3.1 had been selected according to the must-have criteria, marked with an asterisk, and to support the further seven “nice-to-have”-criteria (Schrapp *et al.*, 2020):

1. *Addressing characteristic landscapes for the pre- and inner Alpine region;
2. *Economic relevance (ability to mobilize financial resources) and market potential of products and services. Examples of marketing strategies and sales activities.
3. *Presence of GI supporting biodiversity and (or) ecological connectivity.
4. Existing sustainable practices and land management options for food production.
5. Tree-based systems supporting cultural landscape (traditional or innovative/adapted land-use practices).
6. Existence of traditional land use forms with cultural landscape elements.
7. Good example of GIs that serve as functional or spatial connections between urban and rural areas.
8. Applying innovative planning, management, governance solutions and communication strategies on GI.
9. Creating social benefits for the pilot region and its inhabitants (e.g. welfare, well-being, health, recreation etc.) and activating civic engagement.
10. Existing educational practices on GI, for creating and developing knowledge especially for practitioners in the value chain, citizens and regional experts, civic administrations and government representatives.

Within the framework of the pre-work, 18 case study areas in total have been identified, analysed and documented in factsheets (Schrapp *et al.*, 2020). Based on these factsheets the following additional criteria have been applied to identify suitable case study areas for the in-depth analysis with a focus on governance. Thus the selected case studies:

- Need to involve a broad spectrum of different stakeholders.
- Must put emphasis on citizen involvement.
- Include a project existing for >3 years to build upon the stakeholders' experience.
- Should represent a spectrum of different governance structures and political systems.

2.2.2 Overview on case studies

Based on the aforementioned criteria 11 case study areas have been selected for the in-depth analysis (Figure 4).

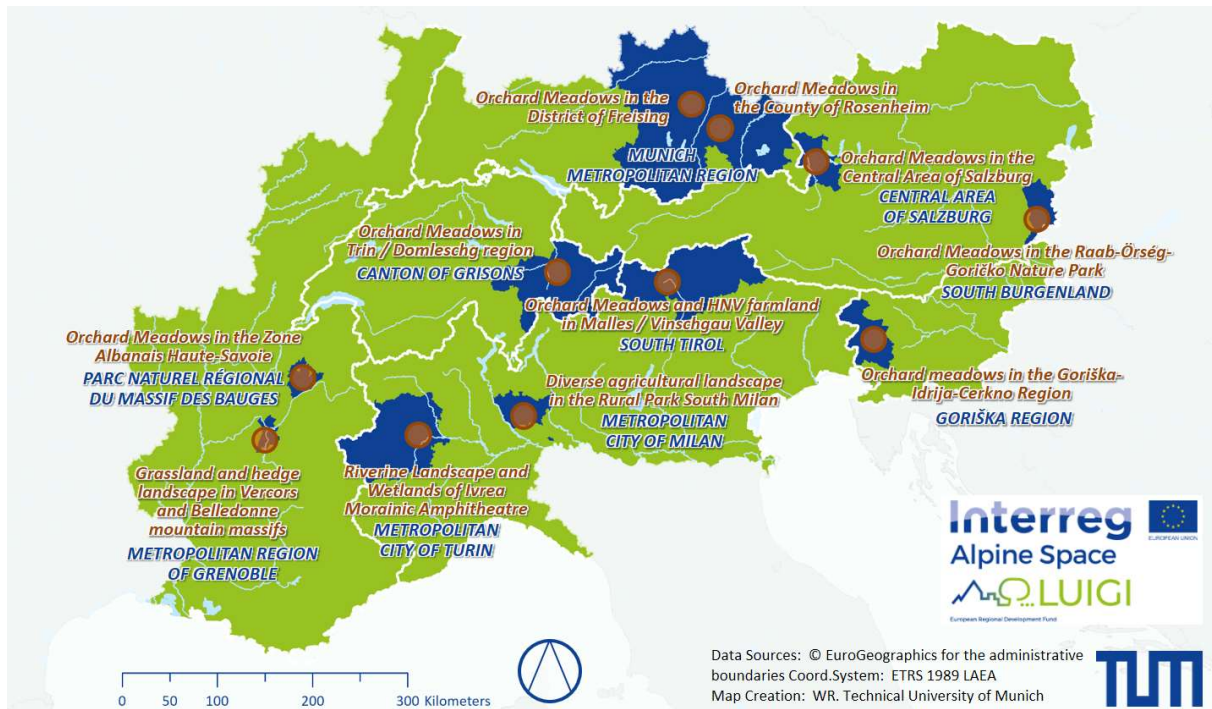


Figure 4: Location of the LUIGI pilot regions (blue) and study areas (red) in the Alpine Space.

All 11 case study areas are assigned to planning families (based on Nadin and Stead, 2008) and to a typology of territorial government systems (based on Tosics, 2013), as well as are characteristic for the respective pilot region.

The overview in Table 1 shows the diversity of representative key-Alpine GIs. Orchard meadow, as one type of food-tree-based land-use system was addressed more often in the pilot regions. Other land uses, such as HNV-farmland, riverine landscapes or hedgerows are also typical for the peri-urban cultural landscape.

Table 1: Overview on the 11 LUIGI pilot regions with the respective case study areas, case study areas as well as targeted key Alpine GI.

Code	Selected case study areas (Pilot regions)	Targeted key-Alpine GI	Typology of planning families	Typology of the territorial government system
AT_NP	Raab-Örség-Goričko Nature Park (South-Burgenland)	Orchard meadows	Central → Regional economic planning: management of regional economy by public interventions into the infrastructure and development	Federal states
AT_S	Central Area of Salzburg (Central area of Salzburg)	Orchard meadows		
CH_GR	Trin / Domleschg region (Canton of Grisons)	Orchard meadows		
DE_FS	District of Freising (Metropolitan Region of Munich)	Orchard meadows		
DE_RO	County Rosenheim (Metropolitan Region of Munich)	Orchard meadows		
FR_NP	Zone Albanais Haute-Savoie (<i>Parc Naturel Régional du Massif des Bauges</i>)	Orchard meadows		Decentralised unitary with strong local and regional level
FR_VB	Vercors and Belledonne mountain massifs (Metropolitan Region of Grenoble)	Grassland and hedge landscapes with pollard trees		
IT_ST	Malles/ Vinschgau Valley (South-Tyrol)	Orchard meadows and HNV farmland	Urbanism → structural planning, urban design through rigid building regulations, zoning and codes	Regionalized unitary
IT_MA	Ivrea Morainic Amphitheatre (Metropolitan City of Turin)	Wetlands, Alpine riverine landscape		
IT_RP	Rural Park South Milan (Metropolitan City of Milan)	Diverse and rich structured agricultural landscapes		
SI_GI	Goriška – Idrija-Cerkno region (Goriška region)	Orchard meadows	Post-socialist → in the process of change	Centralised unitary with strong, integrated local authority level

2.3 Stakeholder groups

Six stakeholder groups that are active or share responsibilities in the field of GI form the base of the group specific analysis. This grouping is adapted from Böhm and Hübner (2020) and was used in the status analysis by Schrapp *et al.* (2020). Stakeholder grouping forms an important basis for the in-depth analysis, because it takes place at the level of the actor groups, thus no individual actors are considered (Table 2).

Since the in-depth analysis focuses on the local and the regional planning level, the stakeholder group “government” is no longer separated into local, regional, cantonal and national. A further modification was made compared to the status analysis by separating the nature conservation organisations from the group “associations”. The reason for this is the different views and values that the nature conservation organizations may represent in comparison to other associations.

Table 2: Description, function and examples of the stakeholder groups.

Stakeholder group	Description	Function	Examples
Government 	State administration at all levels and across all areas of responsibility: authorities, territorial administration such as municipalities, counties, regions, districts (DE), departments (FR), cantons (CH), countries or the EU.	Implementation of the state interest, implementation and control of compliance with laws.	Chamber of Agriculture (DE, AT), Lower Nature Conservation Authority (DE), Office for Nature and the Environment (CH), State Institute for Agriculture (DE), Nature Park (AT, FR, SI), Agriculture & Forestry, Food (IT)
Land Users 	All persons or organisations that maintain or cultivate GI.	Production of raw materials, barter products or otherwise utilize GI.	Farmer, arborist, landscape gardener, beekeeper, foresters.
Business 	All persons or organisations that do not directly cultivate orchards but process and market raw materials or products from them.	Production of planting material, processing of raw materials into products, marketing of products, consulting of stakeholders.	Nursery, juice producer, distiller, retail trade, gastronomy, planning office
Nature Conservation 	All non-governmental organisations and associations with broad activities in nature conservation, without a specific focus on GI of concern within the case studies.	Representation of the interests of the members: primary focus on the protection and maintenance of wild life and habitat.	<i>Bund für Umwelt und Naturschutz</i> (DE), <i>Pro Specie Rara</i> (CH), <i>Meadow Initiative</i> (AT), <i>Orchard meadows association</i> (IT)
Associations 	All non-governmental organisations and associations with a specific focus in the GI, also producers' and consumers' cooperatives	Representation of the interests of the members: harmonize social and economic aims with ecological targets in the GI of concern.	Senior citizens' association, support association (e.g. school), organic farming association, gardening associations, fruit processing association, land care association
Science & Education 	Non-governmental institutions that conduct research or teach knowledge.	Development and transfer of knowledge.	Universities, schools, museums
Public 	All parts of the population who are not included in any other group of stakeholders.	Mostly laymen in the field of GI, but often involved as private land owner or urban dweller	Private individual, interested citizen, tree and/or land owner, consumer, children (kindergarten, school)

2.4 Selection of the expert interview partners

A selective sampling was applied to identify potential interview partners (e.g. Misoch, 2019). For the given stakeholder groups identified in the Status Analysis (Schrapp *et al.*, 2020), LUIGI project partners identified and contacted possible interviewees from the case studies. Figure 5 gives an overview of interviews conducted sorted by stakeholder group.

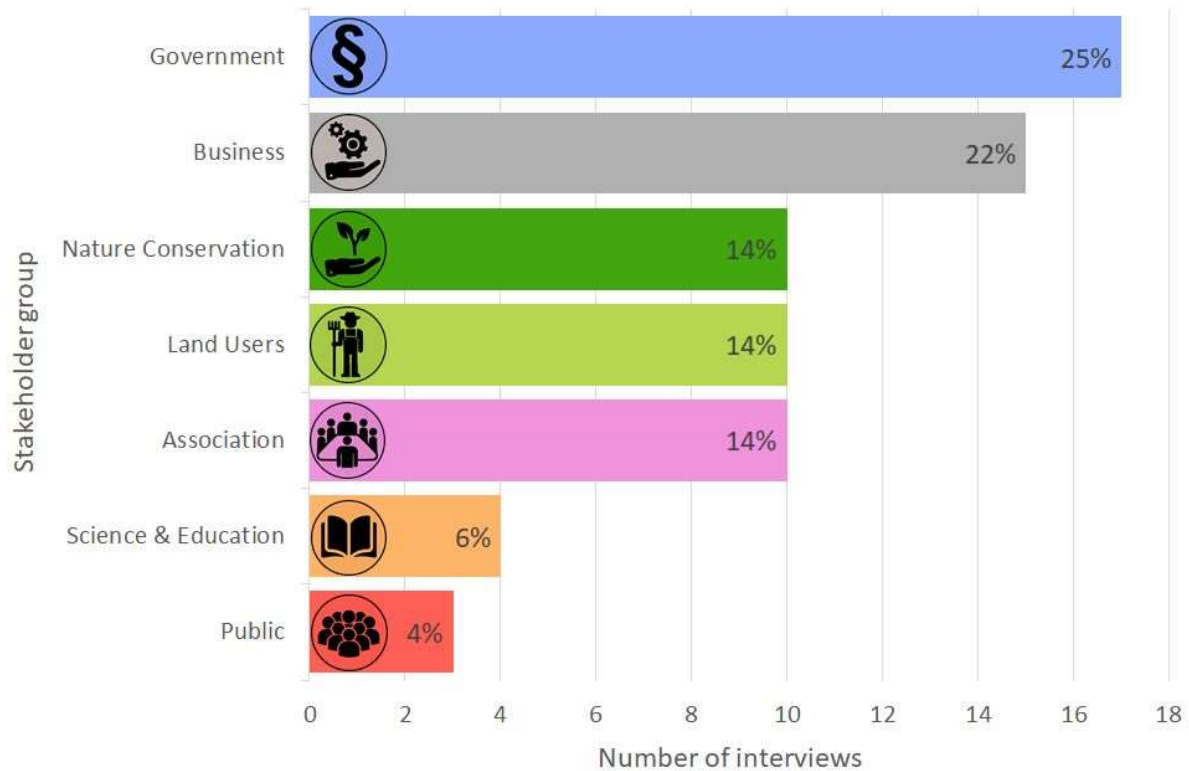


Figure 5: Number and share of interviews per stakeholder group (n=69).

With regard to the procedure, the LUIGI coordinators of each pilot region nominated individuals, based on professional experience and position or function in the region. Out of these nominations the final interview partners were determined based on a number of criteria. The most important criteria were that the different stakeholder groups are represented in the sampling. Another important criterion was that all interviewees were active on the local and/or the regional level. Instead of representatives without local/regional experience, for instance responsible programme manager at upper administrative levels, these criteria aimed to ensure the involvement of people with experience on the ground that might also provide context dependent insights. Furthermore, all interviewees were asked for the willingness to voluntarily contribute to this study and promised anonymity to also gain critical insight in activities and experiences. With regard to the governmental actors were sought that are preferably active in cross-sectoral planning or project coordination, assuming that to have a good overview about cooperation, current activities and their outcomes. To apply the principle of

saturation (Kumar *et al.*, 2020) a minimum of five interviews were conducted for each case study. Furthermore, the study has been conceptualised to include all stakeholder groups evenly. Still, it needs to be noted that due to careful selection in some region single stakeholder groups have been underrepresented while others may have been overrepresented (Figure 5).

2.5 Data acquisition and processing

Data acquisition involved first, a semi-structured interview guided by a list of questions interviews with local stakeholders face-to-face, video or audio call (Appendix A1) and structured online questionnaire (Appendix A2), both in native language of the project partners. In total, 69 interviews were undertaken in between May and July 2021, with a total of 73 persons interviewed, since in few interviews, two stakeholder representatives participated together.

The conduction of personal interviews offered interviewees the possibility to take a more individual perspective and a regionally adapted approach towards the questions, that allows for a qualitative analysis (Lamnek and Krell, 2010; Misoch, 2019). In addition, the online questionnaire gave the opportunity of questions that need more thoughtful considerations, to be suitable for a more general (Brake, 2005; Gläser and Laudel, 2010).

In order to conduct the interviews in native language, the interview guideline was translated with support of the LUIGI pilot coordinators of the different countries. The expert-interviews have been conducted through the local interviewing teams and coordinated by the team of Technical University of Munich (TUM). To prepare and train the local interviewers, preparatory virtual workshops took place to ensure a consistent approach and standardised procedure. Along with the workshops, the local research teams received detailed instructions: “Tips for using the interview guidelines and conducting the interviews” (Appendix A3) and “Recording the Interviews” (Appendix A4). The text of the generalized interview guideline had to be reviewed in each pilot area and minor adaptations took place, usually the term GI was replaced by the GI in focus of the respective pilot area.

After the interviews the local teams were furthermore responsible for a detailed transcription of each interview. Again, the transcription procedure was supported by a second virtual workshop accompanied by detailed transcription guidelines: “Transcription of interviews” (Appendix A5). The recording of audio and/or video was undertaken using different video conferencing solutions, such as ZOOM, GoToMeeting, Microsoft Teams, WebEx, Google Hangouts or Jitsi Meet. The auto-transcription of the native language was largely done with the software HappyScribe, as it offers multi-language solution and can accommodate for accents better. However, for some interview partners with stronger regional accents such as in DE_RO, auto-transcription failed and manual transcription became necessary. In any case, the auto-transcribed texts had to be verified thoroughly by the interviewers.

In the next step, auto-translation of the transcript into the coding language (German) using DeepL-professional was done for all transcripts in Italian, Slovenian and French. Once again, followed by a case-by-case verification of the auto-translated material by native language speakers, partly the project partners, in order to clear way for correctness. As a last step of the procedure of data handling, the transcribed documents (69 interview transcripts, more than 1,000 pages in total) were uploaded and processed in MAXQDA and prepared for the following data analysis.

During execution of WP3, the management of the data acquisition process was continuously monitored and evaluated by the project partners in a feedback round.

2.6 Data analysis

2.6.1 Analysis of governance dimensions

To analyse the governance dimension in place, the four dimensions according to Arts *et al.* (2006) and Liefferink (2006) in Figure 2 were applied to gain insights about how innovative governance arrangements look like in terms of:

- Which actors and coalitions are involved and who are their coalition partners?
- Which discourses and motivations build the narratives that shape processes and how are they shared among the different stakeholders?
- Which resources are effecting the process, how do they build power and what are the roles of the different stakeholders contributing this?
- Which formal and informal rules and instruments shape, constrain and enable processes?

Both, qualitative and quantitative evaluation methods were used to analyse the data collected. We used qualitative structuring content analysis according to Kuckartz (2016) to evaluate the interview transcripts.

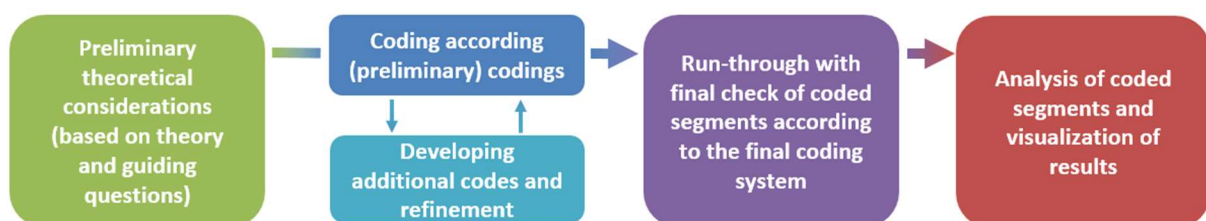


Figure 6: Flow diagram of the qualitative content analysis.

Source: based on (Kuckartz, 2016)

In our work we used thematic coding (adapted from Flick, 2009), which involved a multi-stage procedure to interpret the material, including summarising the material with respect to the

comparability of the analyses. Therefore, a categorical coding system was developed. This included the definition of domains, core categories and different classes that were considered as meaningful and important for each of the four governance dimensions (Figure 6). The coding system was developed by a team working on different cases in parallel, using a combination of inductive and deductive approaches. MAXQDA Plus 2020 (Release 20.4.1) was used to evaluate the transcribed interviews. The statistical analysis of the online questionnaires was carried out with Microsoft Excel 2016.

2.6.2 Networks in relation to governance approaches

For the analysis of the network structures to relate to the governance model, the outcomes of qualitative content analysis of the previous analysis phase, was used as input for social network analysis (SNA) following Wasserman and Faust (1999). Network analysis allows the visual and mathematical analysis of human relationships. This method is considered “one of the most promising research directions in sociology” (according to Emirbayer & Goodwin 1994 in Jansen, 2003). In the Applied Graph & Network Analysis project (AGNA), network analysis (or SNA) was generally defined as a compilation of mathematical methods from social psychology, sociology, ethology and anthropology (Benta, 2003). It reflects an inter-communicating group constructed as a set of nodes, where each node symbolises a member of the group. Furthermore, there are a number of edges, each representing a communication link between the actors (ibid.). It is assumed that the form of the communication processes among each other influences important characteristics of the group, such as its performance, leadership qualities, satisfaction in doing, etc. (ibid.). Krebs (2007) understands SNA as the recording and measuring of relationships and flows between persons, groups, organisations, animals, computers or other beings possessing information / knowledge. According to Jansen (2003), data on the relationships between actors can be collected in the following areas:

- Information exchange (Who influences whom? Who provides information to whom?);
- Exchange of resources (money, personnel, etc.);
- Membership relationships (associations, parties, etc.);
- Relationships of kinship, descent;
- Concrete interactions (participation in conferences, visits, etc.).

Of interest of the SNA within the in-depth analysis in WP3 is to relate the network structures to the GI-governance model in place, especially:

- Which stakeholder groups appear to be active in the regional networks?
- Can strong and weak connections be identified? Are there missing links?
- Are the connections in one direction only or bidirectional, giving some hints on possible hierarchies?

SNA is used to visualise the network of stakeholder groups and to illustrate the organisational structures (cf. Kühl *et al.*, 2005). However, the quantitative analysis of the qualitatively collected data has only limited significance and serves as an orientation in this work (see Lamnek and Krell, 2010). Through the qualitative content analysis, the produced sociograms were put into context. To visualize the networks, the MAXMaps visual tool from MAXQDA Plus 2020 (Release 20.4.1) was used.

In order to condense and present the information from each study region, a standardized template was designed for which the composition and interpretation follows the design in Table 3 (next page).









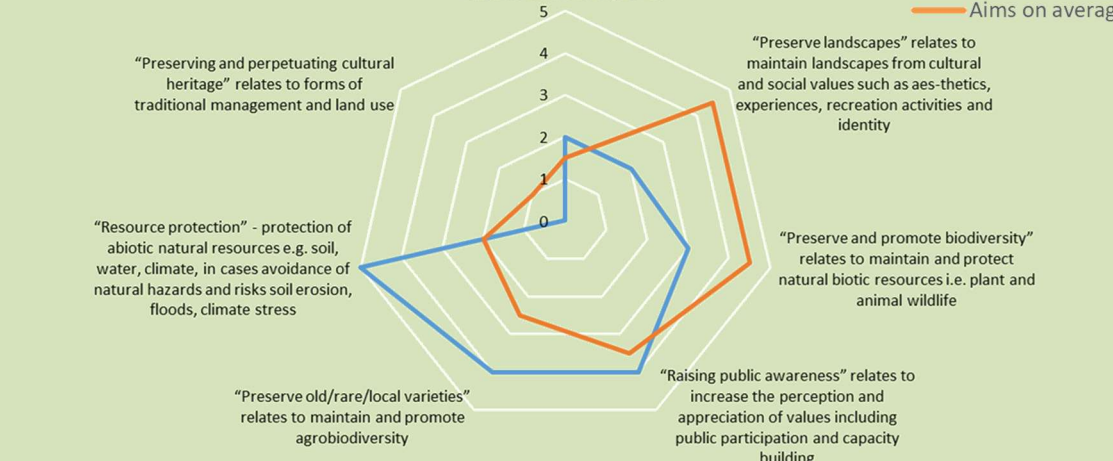
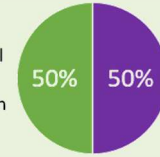
2.6.3 Cross case analysis

The cross-case analysis is performed by a core team to compare and contrast outcomes of the analysis of each case, and to reflect the different strategies and approaches (Kohlbacher, 2005; Schneider and Wagemann, 2010).

However, due to the differences between cases, and the bias regarding interviewees and data availability, not all possible influencing factors could be systematically analysed. Due to the low number of cases explorative factor analysis were not considered as appropriate (Bühner, 2006). Therefore, it was decided to use a combination of variable and case-oriented approaches for cross-case comparisons (Ragin, 1997; Khan and VanWynsberghe, 2008). Therefore, cross-case analysis looked at a) characterisation of the diversity between different approaches, b) identification of common factors and c) identification of differences.

With its help, causal relationships between different governance dimensions, networks and governance approaches were derived. Furthermore, similarities, differences and patterns could be identified across the cases.

Table 3: Interpretation guide for the overviews of policy arrangements.

Case study region		
Actors involved	<p>All persons or organisations involved in the conservation and development of GI are classified in the following stakeholder groups:</p> <div>        </div> <p>Government Business Nature conservation Land user Association Science & Education Public</p> <p>The size of the logo represents the number of mentions.</p> <div>  </div>	
Discourses	<p>Aims of the stakeholder that shape discourses</p> <p>“Economic benefits” - business oriented aims and objectives</p> <p>“Preserving and perpetuating cultural heritage” relates to forms of traditional management and land use</p> <p>“Resource protection” - protection of abiotic natural resources e.g. soil, water, climate, in cases avoidance of natural hazards and risks soil erosion, floods, climate stress</p> <p>“Preserve old/rare/local varieties” relates to maintain and promote agrobiodiversity</p> <p>“Preserve landscapes” relates to maintain landscapes from cultural and social values such as aesthetics, experiences, recreation activities and identity</p> <p>“Preserve and promote biodiversity” relates to maintain and protect natural biotic resources i.e. plant and animal wildlife</p> <p>“Raising public awareness” relates to increase the perception and appreciation of values including public participation and capacity building</p> <p>— Aims per region — Aims on average</p> 	
	<p>Motivations of the stakeholder that shape discourses</p> <ul style="list-style-type: none"> “Joy, quality of life, idealism” are rather intrinsic motivated contributions to the discourse “Economic benefit of GI” are business oriented motivations contributing to the discourse “Appreciation of the landscape” are cultural and social values oriented motivations; “Appreciation of the biodiversity” are motivations that relate to plant and animal wildlife “Protection from environmental influences” are motivations to prevent and adapt hazards and risks, such as to avoid soil depletion, flood prevention or adapt to weather extremes; <p>— Motivation per region — Motivation average</p>	
Resources	<p>The resources available to the network:</p> <ul style="list-style-type: none"> “Legitimacy” ones’ resource, in the means of acceptance and appreciation of an actor by other actors; “Property” relates to access to land and its availability as part of GI but may also include access to further relevant infrastructure needed for processing products; “Labour” includes contribution of actors with time, work and employment “Knowledge” includes any kind of skills and expertise that contributes to the network “Financial resources” addresses the role of actors to unlock financial resources for the network “Network” includes the relevance of actors to provide access to social and professional networks; <p>— Resources per region — Resources on average</p>	
Rules of the game	<p>Rules for cooperation drawn up by the groups of actors involved or imposed by the social/political context. The indicator are formal/written or informal/oral arrangements for cooperation.</p> <div>  </div> <p>formal & written 50% 50% informal & verbal</p>	

3 Results – Networks and governance approaches

3.1 Orchard Meadows in the Raab-Örség-Goričko Nature Park

Contextualisation of the governance in place

The Raab-Örség-Goričko Nature Park is located in the southernmost corner of the pilot region South Burgenland, Austria, with about 142 km² in size. It is bordered by Slovenia in the South. The nature park has diverse nature, landscape, languages as well as a variety of traditional food and drink specialities. The valley of the river Raab and the different facets of the hilly landscape add up a natural mosaic of woodlands, meadows and narrow fields, framed by hidden farms and scattered settlements. Being out of the way in terms of industry, nature in this region has been left nearly untouched. Expanding cultural landscapes – vineyards, orchards, meadows and fields – along with picturesque villages. Unique local values are introduced via educational trails (e.g. the old border, apple road etc.) and guided tours. As recreational highlight, the local/regional products and nature tourism with special offers like canoe trips on river Raab attract visitors from the City of Graz and other urban areas in Austria and in Hungary. The cultivation of orchards is of great importance in the nature park: they are living space for numerous plants and animals, shape the landscape of the region, and offer high value for nature tourism. Therefore, the conservation of old fruit varieties and orchards is an important task of the nature park. Lately, associations' take over the role of orchard managers and producers. The "Wieseninitiative", for example, established a joint farm with 30 landowners. The nature park in the "Weinidylle" also initiated a farm for the preservation of small-structured vineyards and produces a nature park' grape juice and apple juice. Three other nature parks work on the establishment of farms by association.

As indicated by the local experts, conflicts of interest, inefficiency, and a lack of awareness and appreciation are considered as the greatest obstacles to orchard conservation within the region. Although during the past ten years the development of processing and marketing structures led to initial successes, scattered and low harvest yields are still a great challenge that current activities focus on. Furthermore, there are missing marketing structures within the region, such as gastronomy and other food businesses offering regional products. There is potential due to the vicinity of neighbouring countries, thus nearby orchard areas in Slovenia and Hungary, but without any cooperation in this regard. Still, the Raab-Örség-Goričko Nature Park is being considered as an innovative good practice example in the Alpine region offering pathways for solutions that other regions can learn from.

The inhibiting factors identified by the stakeholders of the region are conflict of interest followed by lack of awareness and appreciation and the economic non-viability of GI. The interviewees less often mention the social/political changes as factor.

Characterisation of the network and governance approach

According to SNA, government and business representative build the most relevant cooperation partners within the network (Figure 7). In addition, the other stakeholder groups mention non-governmental organisations and actors representing nature conservation quite frequently. In contrast, the stakeholder group science & education as well as associations, latter ones in terms of producers' and consumers' cooperatives, seem to play a role to a lesser extend as network partners. Science & Education is largely detached from all others. It is worth mentioning, that although the stakeholder groups are quite well connected to each other, the collaboration amongst themselves (self-reference) appears to be rather less intense. None of the stakeholder groups were mentioned dominantly.

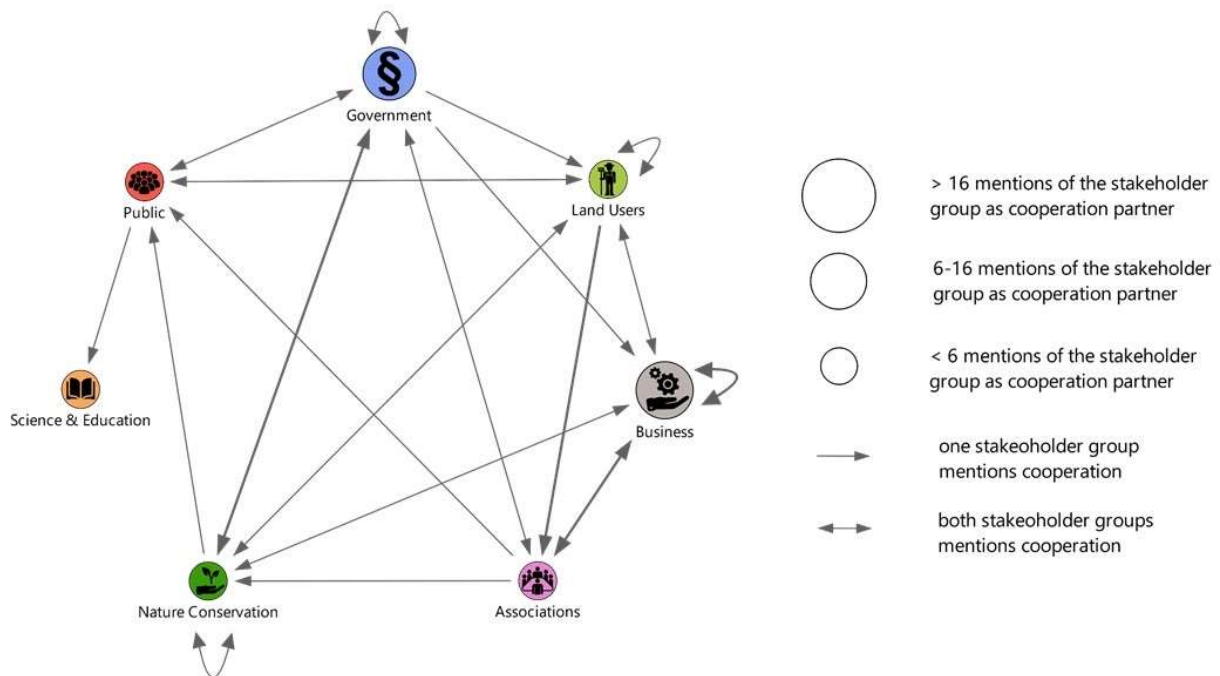







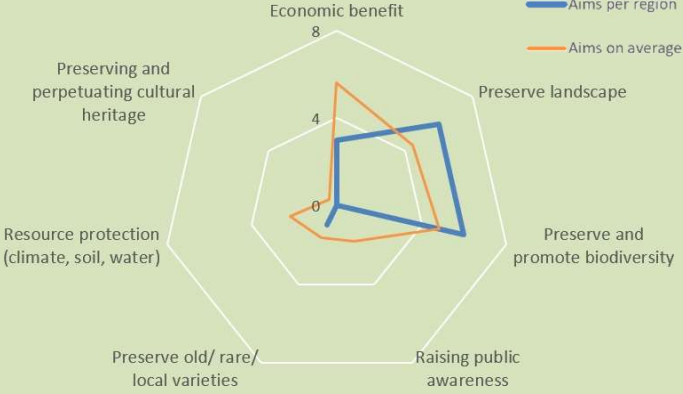

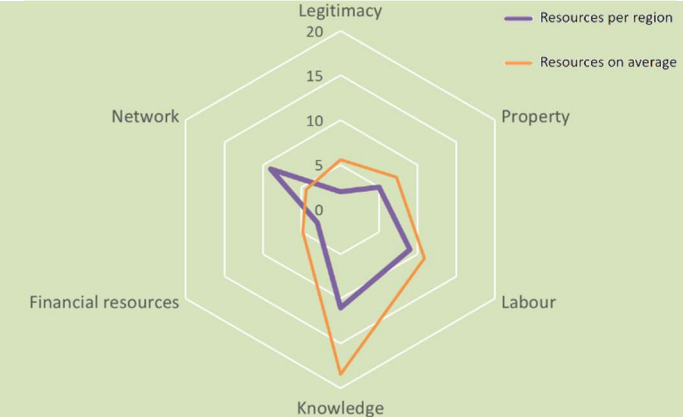



Figure 7: Sociogram of stakeholder groups in the Raab-Örség-Goričko Nature Park.

Initiatives and activities are steered by the nature parks' administration and the Province of Burgenland, incorporating municipalities and different non-government actors (Table 4). Since 2020, the park administration provides a new management concept for the preservation of meadow orchards in the nature park area. Within this frame, a number of different non-state actors and stakeholders act autonomously, supporting to reach the aims of the nature park. Partners involved share a common vision: "the preservation of the meadow orchards". Due to the clear direction set by the governmental actors with participating further stakeholder groups, the region of the Raab-Örség-Goričko Nature Park can be considered as classic closed co-governance approach. The governmental actor group sets the direction while incorporating different stakeholders and local non-state actors. However, this cooperation fully depends on the initiation of the nature park as an appropriate instrument.

Table 4: Overview of policy arrangements in Raab-Örség-Goričko Nature Park.

Raab-Örség-Goričko Nature Park		
Stakeholder	 Government  Business  Nature conservation  Land user  Association  Science & Education  Public	Nature parks' administration and the Province of Burgenland, incorporating the municipalities, of non-governmental organisations and associations representing nature conservation.
Discourses		According to the interviews, the discourses are strongly shaped by the aims to reconcile the aims to protect biodiversity including agrobiodiversity with economic objectives. Also, the conservation of landscapes is of relevance for aesthetic reasons and recreation activities. The Nature Parks aim to protect orchards is defined by the visions "protection through use" and "quality products through orchards".
		Idealism seems to be a strong motivator for Land Users and Nature Conservationist, while the appreciation of the landscape was expressed by the public.
Resources		Governmental actors provide a framework and maintain a network in charge of funds, primary based on ELER and Interreg programmes. Non-governmental actors contribute at the foremost with knowledge and skills, precisely the nature conservation agents and businesses. Financial resource seem to form a bottleneck.
Rules of the game	The governmental actors offer a platform and provides a framework to non-state actors to exchange ideas, pool resources and implement joint activities.	

3.2 Orchard Meadows in the Central Area of Salzburg

Contextualisation of the Governance in place

The Central Area of Salzburg is located on the transition of the northern Alpine foothills and the western part of the northern Limestone Alps. The region is divided in three districts and 51 municipalities, with 1,738 km² and inhabits about 342,990 people. The landscape of the Central Area of Salzburg is quite diverse. The mountains and hills to Salzburg's south contrast with the rolling plains to the north. The region is characterised by good recreation infrastructure. The region suffers of suburbanisation and settlement pressure, which was also the result of the increased pressure on land (urban sprawl of mainly single family-homes) and the establishment of holiday homes in Alpine tourism areas. However, despite the fact that the stands of orchards significantly disappeared across Austria by about 70-80% in the last 50 years, the decline is estimated to be less severe and the stands are considered in good maintenance condition. The region has a long tradition of orcharding through which especially the older population still possesses substantial knowledge about the use of fruit varieties. In the region a number of different business-driven actors come together and form a functioning value chain across different sectors.

According to our in-depth analysis, the situation of the farmers and the processing and marketing structure has improved considerably over the last ten years – some even assume a slight increase of orchard stock – as indicated by the local experts. Nevertheless, there are also challenges: For example, marketers in Salzburg are in competition with large fruit and juice producers. In the last decades this has led to a price decline in the area of scattered fruit, which is gradually recovering. Partly the distance to processing facilities is also a problem in this region. In addition, a shortage of trainers for arborists is predicted in the long term. Nevertheless, the optimistic mood prevails, especially because there are many young motivated actors in the field of cultivation and it is modern to produce regional products.

The inhibiting factors mostly alluded in the region were the economic viability of the GI, the lack of young people, the conflict of interest and the knowledge gap. On the other side, the least referred inhibiting factors considered were the bureaucracy, the social/political change and the lack of care without reason.

Characterisation of the network and governance approach

According to SNA, there are four stakeholder groups that appear to be especially relevant in the Central Area of Salzburg. In particular, governmental actors and associations, such as business cooperatives, are well connected with almost all groups of stakeholders (Figure 8). In contrast, actors from the field of nature conservation as well as science & education seem to be of less relevance in contributing to the network. There is a visible imbalance in networking between the actors: either they are very well connected or rather poorly in connection to each

other. It is noticeable in the Central Area of Salzburg that cooperation between groups of actors is usually initiated by several actors. Exceptional is the frequent involvement of the public by several groups, especially by the associations.

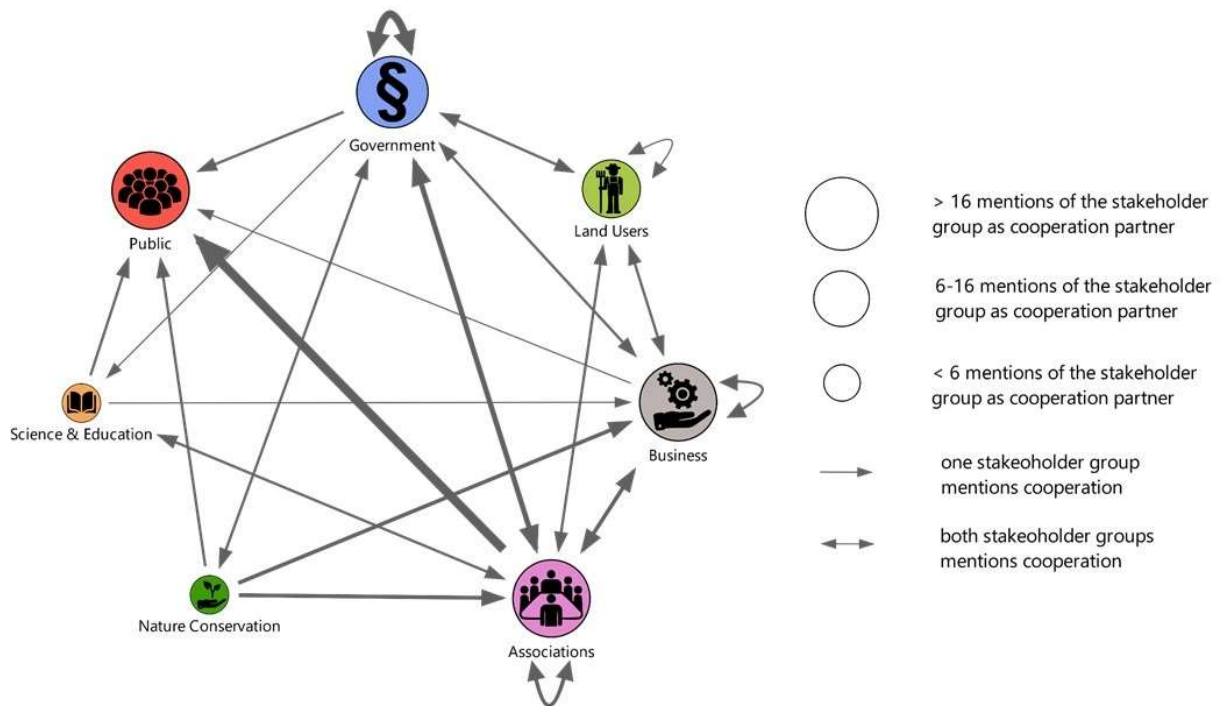







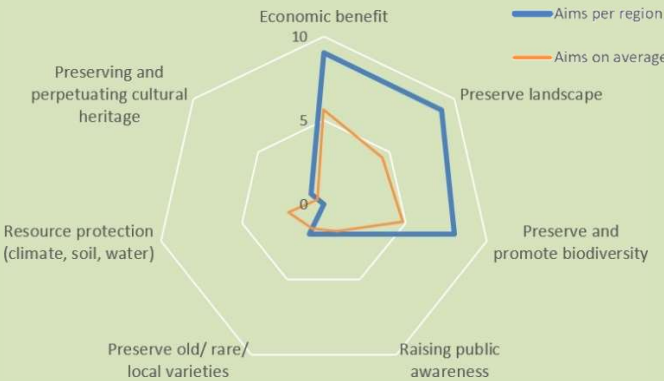
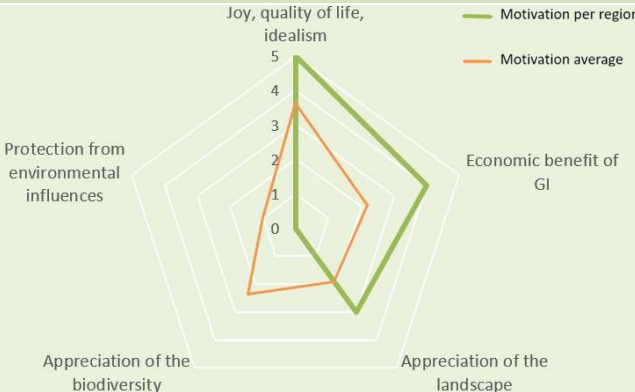
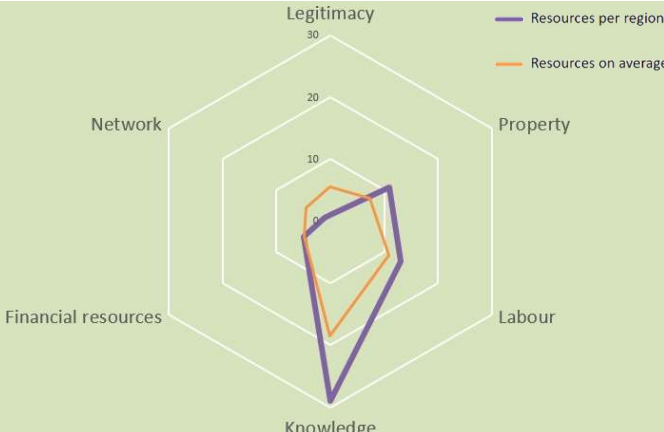

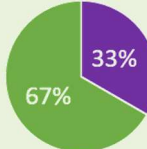


Figure 8: Sociogram of stakeholder groups in the Central Area of Salzburg.

Within the region Central Area of Salzburg, many different partners are involved, whereas the governance approach can be strongly considered as market governance. It is a good example of how business driven approach becomes a driving force to maintain orchards. Due to their high motivation and resources a number of initiatives were started and established, such as a mobile juice processing units or funding programmes for tree planting or the development of the “Obstraube”. Furthermore, due to strong partnerships is a well-functioning value chain has been developed across different sectors. Due to the high commitment of the partners, various activities and product development and an increasing market, the value chain continuously evolves, enhancing the situation.

Table 5: Overview of policy arrangements in Central Area of Salzburg.

Central Area of Salzburg						
Stakeholder	<div><div>Government</div><div>Business</div><div>Nature conservation</div><div>Land user</div><div>Association</div><div>Science & Education</div><div>Public</div></div> <div>Different governmental actors at different levels (official administrations) as well as in NGOs. Farmers, Nature Conservationists and Science & Education currently less involved.</div>					
Discourses	<div></div> <div>Across the different stakeholder groups three main targets are shared, shaping the discourses: protecting biodiversity, including agrobiodiversity, promoting businesses, and maintaining landscapes. Few mentions also address awareness raising.</div>					
	<div></div> <div>Clearly, the quality of live, idealism and joy appears most motivating in the stakeholder interviews. But the economic benefit of GI also has a high standing followed by the appreciation of the landscape. The avoidance of natural hazards does not seem to play a role as it is the case in several regions, however the non-appreciation of biodiversity was to our surprise and way below the average besides the maintaining orchards as cultural heritage is a major goal.</div>					
Resources	<div></div> <div>Knowledge is the currency that keeps the GI management alive in the Central Area of Salzburg, donated mainly by businesses and associations. Legitimate governmental actors provide few resources. Land users are involved when it comes to work force and property together with the public. This non-governmental actors join forces with knowledge and skills way above the average.</div>					
Rules of the game	<div>Various formal and informal instruments and tools of the Central Area of Salzburg exist besides specific funding programmes, targeting orchards and traditional cultural landscapes.</div> <div><div><div><div>formal & written</div><div></div><div><div>33%</div><div>67%</div></div><div><div>informal & verbal</div></div></div></div></div>					

3.3 Orchard Meadows in Trin / Domleschg region

Contextualisation of the governance in place

The trilingual Canton of Grisons (*Graubünden*) is located in the east of Switzerland and very diverse in economic, cultural and political terms. Although it is the largest canton with about 7,105 km², with its 198,500 inhabitants it is the least densely populated canton. The Trin / Domleschg region covers about 225 km² and is one of the most important fruit growing areas in the Canton of Grisons. Throughout Switzerland, compared to the middle of the 20th century, the number of orchard trees has declined by around 70% (Franco, 2021). This means, between 1950 and 1975, 11 million high stem fruit trees (*Feldholzbau*) were felled by the order of the state often against the will of the farmers, namely by the *Eidgenössische Alkoholverwaltung* (EAV) in order to collect taxes. Between 1971 and 1981, 26% decrease by felling almost 2 mill. trees in orchard meadows of Switzerland (EAV and BFS, 1983). In the Canton Graubünden, almost 10,000 trees, a third of all tree disappeared during that period to 20,114 in 1981 (ibid.), from originally about 300,000 scattered trees counted in 1951. Today their number is estimated at 40,000 to 50,000 (Schrapp *et al.*, 2020). Nowadays, preservation and promotion of high-stem trees is already supported by various activities and is carried out in close cooperation with the Grisons Fruit Association. The project: Cultural Landscape Domleschg, which has been running in the Domleschg since 1994, has a long term experience with regards to marketing fruit-growing products. In Trin the landscape and high stem fruit association (LOVT) is active in the promotion of orchard meadows. The proximity of the Trin / Domleschg region to the capital of the canton Grisons and the climatically favourable conditions for fruit growing puts food production in the focus. Furthermore, the orchards serve as an ecological and landscape scenery enhancement and thus contribute to socio-ecological appreciation.

As indicated by the local experts for the region, a further decline of orchards is estimated in the last ten years. However, the remaining orchards seem to be in a well maintained condition. However, all in all actors do not consider any noticeable developments and changes taking place – neither for the better nor for the worse. The situation of growers, processors and marketers has hardly improved in the last ten years. The main problem mentioned is the lack of market access. The existing possibilities are too far away or are still being developed. Another gap in the value chain is the lack of marketing concepts of existing products. Overall, the lack of cooperation between the stakeholders is criticized. In general, the presence of the topic in public discourse and the knowledge about the benefits of orchards are lacking. This is reflected in the very high threat to orchard meadows from building developments and agricultural intensification. Although the region offers innovations and solution pathways for other regions it seeks for innovations themselves to address the current challenges.

This region experiences three main inhibiting factors for the development of the GI, namely the conflict of interest followed by the economic viability and the knowledge gaps. y contrast, the least cited inhibiting factors were the bureaucracy and lack of awareness.

Characterisation of the network and governance approach

According to SNA, it is noticeable that almost all groups of actors in the Trin / Domleschg region in the Canton Grisons share a similar relevance as cooperation partners, with a slightly higher relevance of business partners, exempting partners from science & education (Figure 9). It can also be noted that governmental actors are somewhat less connected than the non-governmental network partners, visible by the low number of outgoing connections. As characteristic for SNA in the field of land-use, the group of land users are mentioned by almost all stakeholder groups, but the person interviewed sees little responsibilities among the other stakeholder groups, especially the government.

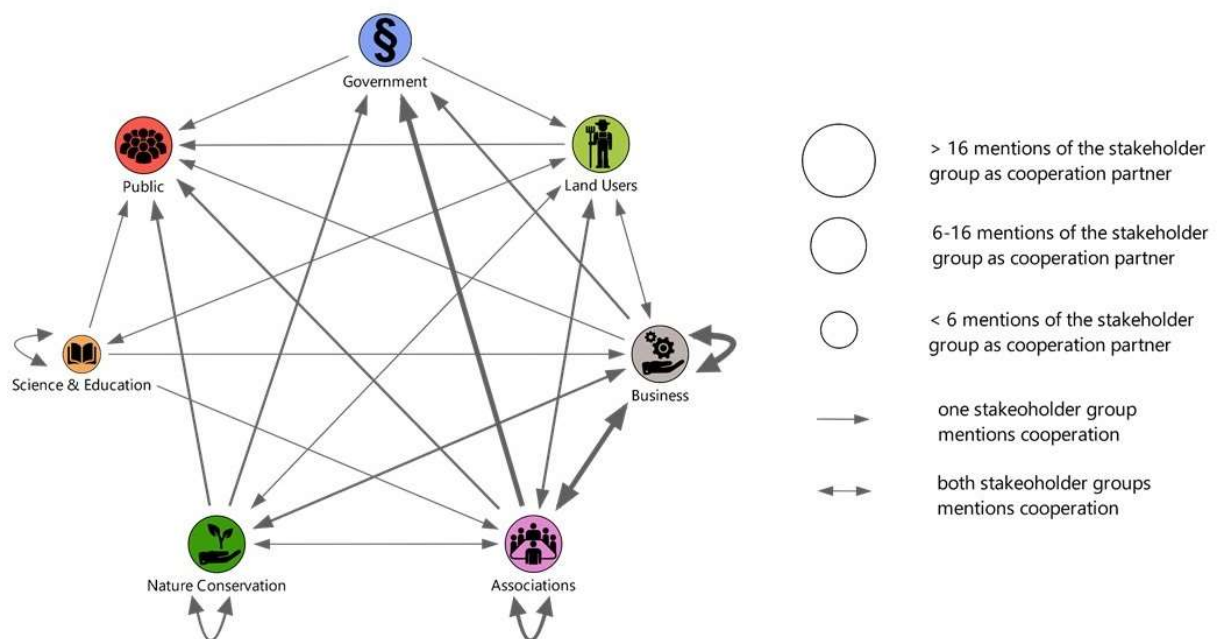







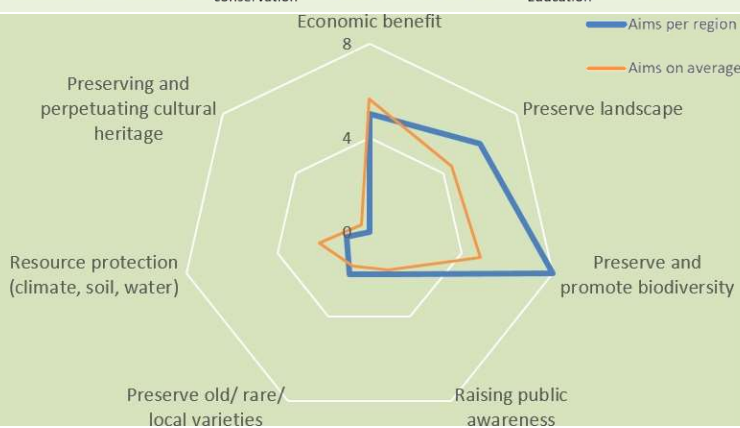

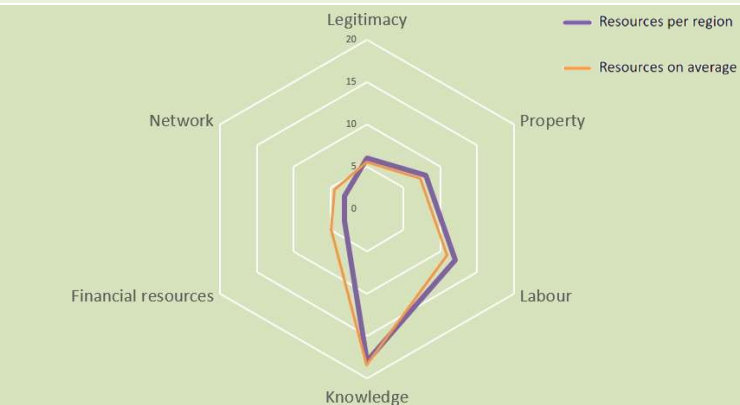
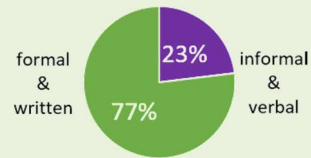


Figure 9: Sociogram of stakeholder groups in the Trin / Domleschg region.

The project area is characterised by the fact that all the actors involved work together in an open network on an equal footing. Cooperation exists between almost all groups of actors and is regulated individually. There is no dominant group of actors that particularly promotes the conservation and development of orchards in the region. The governance structures can be considered as open co-governance.

Table 6: Overview of policy arrangements in the Trin / Domleschg Region.

Trin / Domleschg Region		
Stakeholder	 Government  Business  Nature conservation  Land user  Association  Science & Education  Public	<p>Authorities in different levels (local, regional, national) and non-governmental actors, NGOs, business and Educational partners as well as the wider public.</p>
Discourses	 <p>Aims per region (blue line) and Aims on average (orange line) are shown for the following discourses: Economic benefit, Preserve landscape, Preserve and promote biodiversity, Raising public awareness, Preserve old/ rare/ local varieties, Resource protection (climate, soil, water), and Preserving and perpetuating cultural heritage.</p>	<p>Aims targeting landscape values, the conservation of landscape with its biodiversity are main targets besides economic objectives that drive the discourses. According to single actors further aims are broadly addresses, such as increasing appreciation and abiotic resource management.</p>
Discourses	 <p>Motivation per region (green line) and Motivation average (orange line) are shown for the following discourses: Joy, quality of life, idealism, Economic benefit of GI, Appreciation of the landscape, Appreciation of the biodiversity, and Protection from environmental influences.</p>	<p>In the Canton Grisons, joy, the quality of life and idealism seems to be the pulling force. None of the other attributes seem to play a strong role as motivator in the GI-governance discourse.</p>
Resources	 <p>Resources per region (purple line) and Resources on average (orange line) are shown for the following resources: Legitimacy, Property, Labour, Knowledge, Financial resources, and Network.</p>	<p>The resources solicited for GI management mimics pretty almost perfectly the average over all 11 pilot areas. Financial resources, considering the region, surprisingly low. Substantial contribution of property and labour by the public and associations. Knowledge by far the most important currency, brought in by government and associations from the Trin / Domleschg region.</p>
Rules of the game	<p>As there is no-one taking up a strong lead, there is also little development with regards to the maintenance of Alpine GI. Besides a long tradition, the region somewhat lacks ideas and impulses.</p>	 <p>formal & written: 77% informal & verbal: 23%</p>

3.4 Orchard Meadows in the District of Freising

Contextualisation of the governance in place

The City of Freising is part of the Metropolitan Region of Munich, Germany and situated about 30 kilometres North of Munich, with about 50,000 citizens. The District of Freising is not a traditional orchard area. However, since the 19th century, orchards were established as a dual land use system in combination with grazing systems. In Freising three larger orchard meadows remained. One of them being the surrounding areas of the “Schafhof” (sheep barn). The Schafhof’ history dates back to about 200 years and it served as a sheep production research station, after a near collapse, it was rescued and reopened in 2005 as “European Center for Art Upper Bavaria” with changing exhibitions. Parts of the surrounding 5 hectares of agricultural land form a traditional orchard maintained by the Land Care Association Freising (LCA) by low-intensity sheep grazing. Additional land users are traditional farmers as well as citizens of Freising. A regional juice company processes about 18 tons of apples harvested with the help of volunteers. In future the LCA is planning to extend its current environmental education efforts by establishing a “Landscape School” to actively involve children in the maintenance of the trees and increase nature awareness.

As indicated by the local experts, the existing orchards are in a bad maintenance condition. Although, several new orchards have been planted in the last ten years. The value chain with further processing of the harvested products and marketing has slightly improved, however a local fruit pressing facility maintained at the campus Weihenstephan closed down permanently. Actors are changing. While farmers tend to give up orchard management, new, primary private persons enter into the management. Hence, motivation is less economic oriented. Due to different new activities at the Schafhof and in the surrounding orchards, the site is considered a flagship project for the region with regard to future innovations. Potentials for collaboration offer research institutions in Weihenstephan as well as the proximity to the urban market.

The District of Freising was the region that gave special emphasis to the conflict of interest as the main inhibiting factor. The next inhibiting factors with special relevance considered were the knowledge gaps and the funding deficits. However, the social/political change and the bureaucracy were of minor relevancy as inhibiting factors for the GI.

Characterisation of the network and governance approach

The SNA of the District of Freising revealed a very diverse group of different governmental and non-governmental actors (Figure 10). These interest groups work together on a voluntary and equal basis, as can be seen by the many double arrows. In addition, the Bavarian State Research Institute for Agriculture is located in Freising and considered as an important partner for innovations besides further scientific cooperation partner from research & education, namely TUM and HSWT.

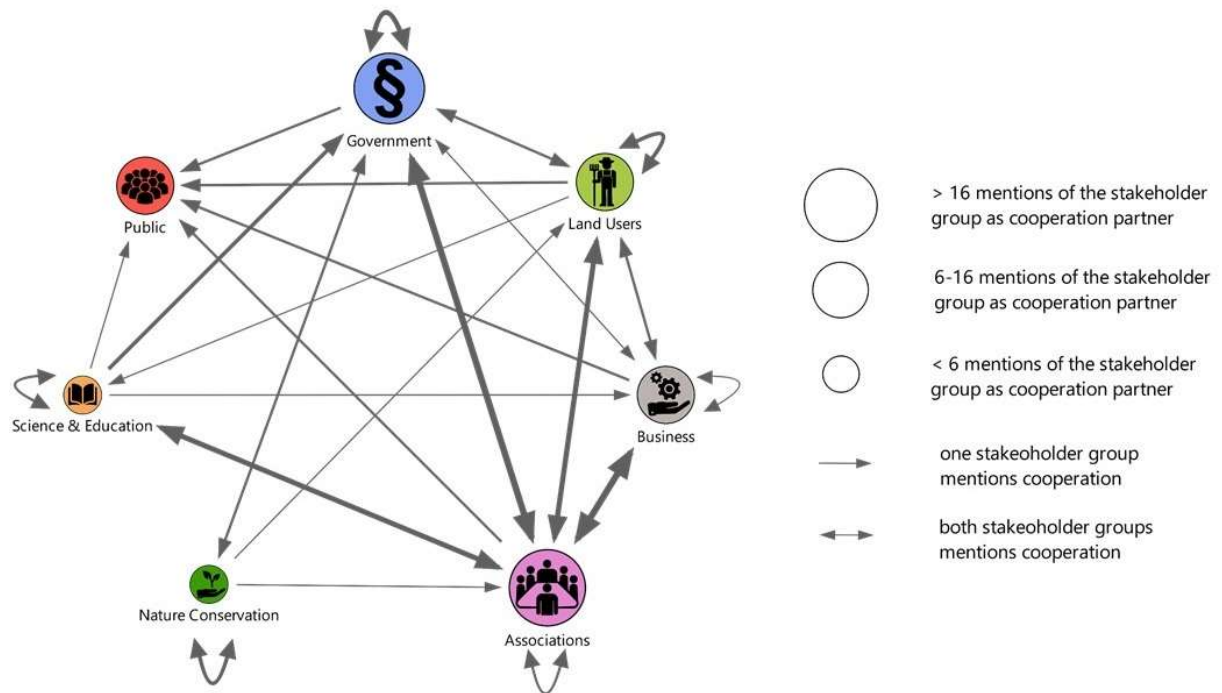







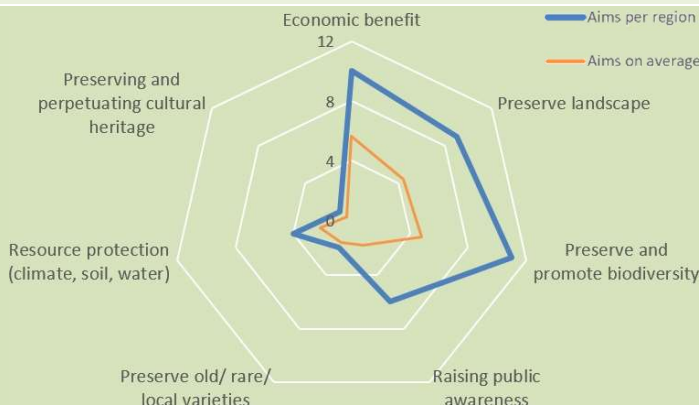
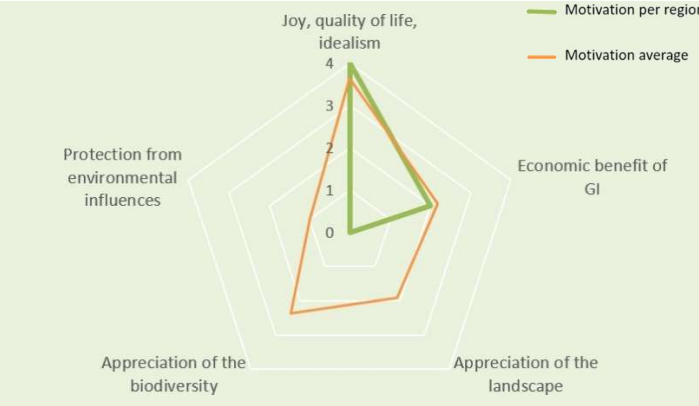

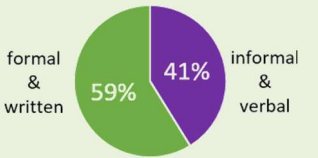


Figure 10: Sociogram of stakeholder groups in the District of Freising.

In the District of Freising, in particular the LCA takes a leading role to maintain and promote orchard cultivation in the region. LCA represent regional non-governmental organisations and implement regional nature conservation measures together with local farmers, nature conservation organisations and municipalities. However, visible cooperation within the region rely on different governmental and non-governmental actors on an individual basis. Some of the are organoid in associations, such as the LCA – some others are not without a fixed network. Hence, the governance approach can be considered as a green hub.

Table 7: Overview of policy arrangements in the District of Freising.

District of Freising		
Stakeholder	 Government  Business  Nature conservation  Land user  Association  Science & Education  Public	Land Care Association of Freising, community groups (family businesses, business partners, various research organisations/schools, quite substantial involvement of the wider public.
Discourse		Three main targets drive the discourses: protecting biodiversity, including agrobi-diversity, promoting businesses, maintaining landscapes. Whereas latter ones comprise a broad spectrum from aesthetic to recreational purposes. Governmental actors target on GI as a strategy to tackle the depletion of abiotic resources and climate regulation. Further mention also address awareness raising and increase public participation
		Idealism, quality of life and joy motivates the stakeholders in the District of Freising, surely amongst the associations, but not with the land users. Maintaining orchards as habitat and development of regional market for local products is a common goal. Business together with science & education mention economic benefits of GI.
Resources		Government provides various funding programmes for nature conservation and preservation measures (<i>Kulturlandschaftsprogramm</i> – KULAP, <i>Vertragsnaturschutzprogramm</i> – VNP), thus in charge for the financial resources. Associations like the Land Care Association provide knowledge, labour and property. Also networking is done by the association and little among the other stakeholder groups.
Rules of the game	Formal and written are more often in place than informal / verbal rules of the game. For the land users the written form and legally binding contracts are a must. However, GI-management advice from government runs on the base of mutual understanding and good-will. No contracts, but rather voluntary offerings of advice, workshops, support.	

3.5 Orchard Meadows in the County of Rosenheim

Contextualisation of the governance in place

The County of Rosenheim is part of the Metropolitan Region of Munich adjacent to the District of Munich in the West, and with the Austrian border in the South inhabiting more than 260,000 people being the second largest county in Bavaria. In comparison to the previously mentioned District of Freising the County of Rosenheim has a very strong orchard tradition, with historically large market shares in the City of Munich. Up until today, this tradition is still existent and known for local specialities from orchards, such as the Bavarian *Kletzenbrot*, a fruit bread baked with various dried fruits. Since the intensification and standardisation of fruit production, traditional orchards in Bavaria are reduced by a rate of about 100,000 trees each year. However, some are still well maintained by small family businesses. Besides a strong connection to traditional values in the District of Rosenheim, with some communities such as Bad Feilnbach being countrywide known for its orchards, there is also the trend of the municipal development extending at the villages fringe towards orchards. In addition, the lack of trained pomologists is noticeable. Overall, the mood in the area is neither clearly optimistic nor pessimistic.

According to our in-depth analysis, the stock of orchard meadows has only slightly decreased as indicated by the local experts. Most of the existing orchards are maintained. On the one hand many businesses are primarily based on juice production, underlying strong market competition along with high price pressure due to large-scale producers. On the other hand, a slight improvement in the marketing structure leads to a steadily increasing activity of farmers in orchard farming, offering new market opportunities. While on the one hand there is a functioning value chain in the region, marketing activities are quite insufficient in some parts. Another important challenge is the maintenance of the knowledge about the local fruit varieties, due to decreasing number of pomologist expertise but again in contrast offers potentials for product development. Hence, the current status faces severe challenges based on the market forces, while the long tradition also offers opportunities to foster innovations.

As in the other region of Germany, the most common inhibiting factor was the conflict of interest nonetheless, District of Rosenheim is experiencing issues of economic viability and funding deficit. On the other end of the scale, the less mentioned inhibiting factors are the lack of care without reason and the gap of the value chain.

Characterisation of the network and governance approach

According to SNA, governmental actors play an important role, to frame conditions (Figure 11). In particular, the associations i.e. producer and consumer cooperatives are very important network partners, besides businesses and land users. Other groups, such as nature conservation agents, science and knowledge transfer as well as the public play a medium role with respect to GI management. Furthermore, nature conservationist' representative refers

strongly to various government agents and land users, however they are not perceived as a partner that come into mind first. In general, it can be stated: if cooperation exists between groups of stakeholders, it is mostly well developed, i.e. with several actors.

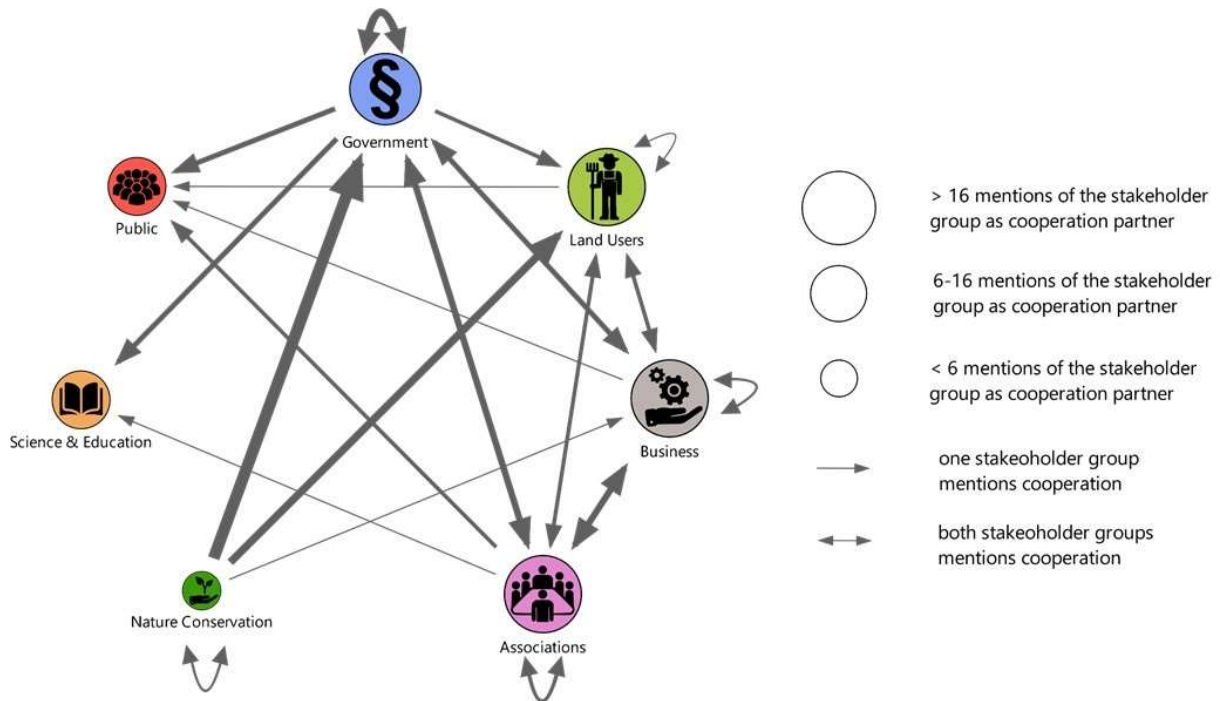







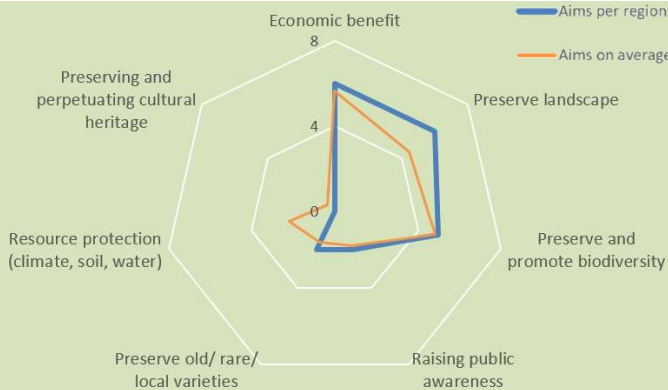

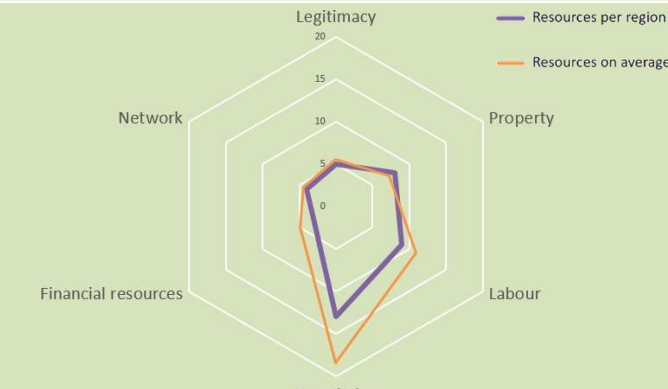
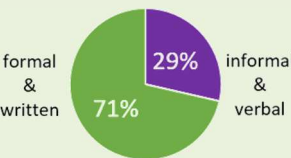


Figure 11: Sociogram of stakeholder groups in the County of Rosenheim.

In the District of Rosenheim different enterprises along the value chain play an important role in maintaining and development orchards. The well established markets and guaranteed purchase prices, orchard products are still an important business for farmers within the region. There are particularly many actors in the District of Rosenheim who can be located along the value chain, i.e. in the area of production, processing, marketing and consulting. Governmental actors are also active, setting framework conditions in which the market can maintain and further evolve. Thus, the approach can be clearly assigned to market governance.

Table 8: Overview of policy arrangements in the County of Rosenheim.

County of Rosenheim						
Stakeholder	 Government  Business  Nature conservation  Land user  Association  Science & Education  Public	Local public authority (e.g.: District of Rosenheim, Nature Conservation Agency; district consultants for garden culture & land maintenance), business partners, co-operatives (e.g. fruit processing cooperative – ORO)				
Discourses						Within the region the preservation of landscape with its social and cultural values along with biodiversity shape the discourses. Another important aspect is the maintenance of businesses and market shares, which also includes products that are based on agrobiodiversity. In addition different stakeholder also target on public awareness and appreciation with regards to the landscape with their products.
Discourses						With respect to the motivation within the discourse, surprisingly little information could be extracted from the interviews. However, some goals encompass to maintain regional old fruit varieties, a common goal for Government and Associations. Biodiversity is mentioned frequently together with the protection of landscape scenery. At the same time, the enhancement of economic utilisation is mentioned, but not alone by representatives of businesses, but also nature conservation agents.
Resources						Local and regional government authorities enable various funding programmes for nature conservation and preservation measures (KULAP, VNP). To a lesser extent, this also holds for associations, that are keener on knowledge transfer and the provisioning of labour, property and network capacities. Land users remain somewhat reserved in the evaluation by the other stakeholders, however, their opinion could not be included, unfortunately.
Rules of the game	Nature conservation relies on informal cooperation on the one hand, but even the non-official nature conservation follows its stated rules strictly (<i>"Satzungsgemäß"</i>). Anything that has to be proven responsible to the public, e.g., certification of organic produce, has to obey the written form and contracts.					

3.6 Orchard Meadows in the Zone Albanais Haute-Savoie

Contextualisation of the governance in place

The *Massif des Bauges Regional Nature Park* is located in the French region of Auvergne-Rhône-Alpes, in the departments of Haute-Savoie and Savoie. Established in 1995 it also became a UNESCO Global Geopark in 2011. It includes 67 municipalities, 46 of which are in Savoie and 21 in Haute-Savoie, plus 6 gateway towns. In total, the park has 70,400 inhabitants and a surface area of 85,700 hectares. The Albanais is a small Savoyard region situated between Lake Annecy and Lac du Bourget, at the entrance to the *Parc naturel régional du Massif des Bauges*. The landscape presents hills bordered to the west by the Rhone valley and to the east by the mountains Semnoz. The landscape is made up of an alternation of forests, agriculture crops, orchard meadows and small villages. This territory is under the attraction of two urban areas: Annecy and Rumilly. The region has a long tradition of fruit farming, traditionally for cider production.

Since 1970, due to the intensive farming, orchards have been largely disappeared with the exception of surrounding Rumilly, where pears are cultivated on a relatively large scale. Since mid-2000, a new interest on the benefits from traditional fruit trees has emerged among the inhabitants, particularly for the fruits transformation and juice production. Therefore, since 2007, the Massif des Bauges nature park was involved in different projects on raising awareness and educational activities focusing on orchards meadows' benefits, preservation of traditional fruit trees, trainings and educational activities on pruning fruit trees and valorisation of fruits. Actually, the parks work closely with the local authority Grand Annecy inter-municipality on the programme: "*Contrat Espaces naturels Sensibles*" 2020-2025, in which orchards meadow related activities are supported.

According to our in-depth analysis the local experts have indicated a very strong decline of the orchard. While in the plains orchards have often been transformed to intense fruit farming management, orchards are still remaining in hillside locations. Because of the site conditions, management is more difficult in those areas. As a consequence, the remaining stands are often in bad maintenance condition. Although, processing and marketing structures in the region have improved slightly, inefficiency is still a major problem for the farmers. Further obstacles are the procurement of regional planting material and the competition between the fruit growing associations. Still, the region has been considered as an innovative good practice example offering pathways for solutions that other regions can learn about.

The most quoted inhibiting factors in this region were the economic viability, the knowledge gaps and the conflict of interest. By contrast, the least mentioned inhibiting factors were the lack of care without reason and poor planning.

Characterisation of the network and governance approach

According to SNA, governmental actors, and economic oriented actors, such as producer co-operatives are important network partners (Figure 12). These groups seem to be well connected to all other groups of actors within the region, whereas various stakeholders frequently mentioned the land users as cooperation partners, but they only have connections to individual groups of actors, mainly businesses and associations. It becomes obvious that the network partners perceive cooperation between partners representing nature conservation and within the different networks differently. Research partners seem to play a minor role within the network.

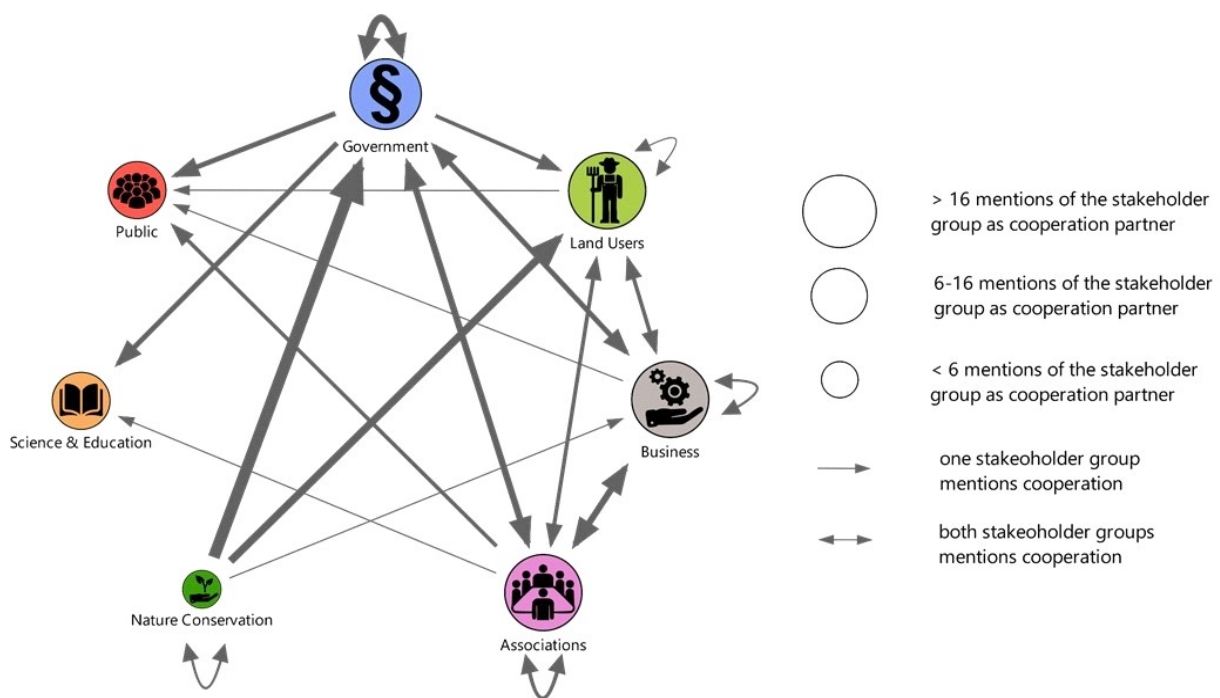





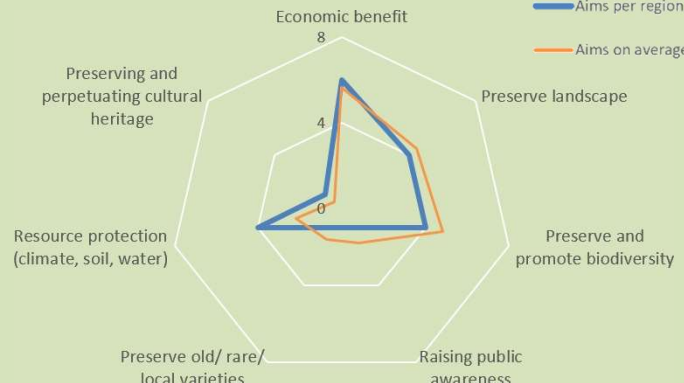
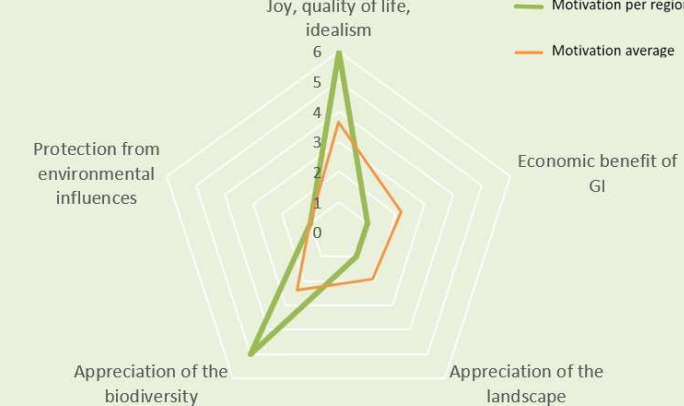
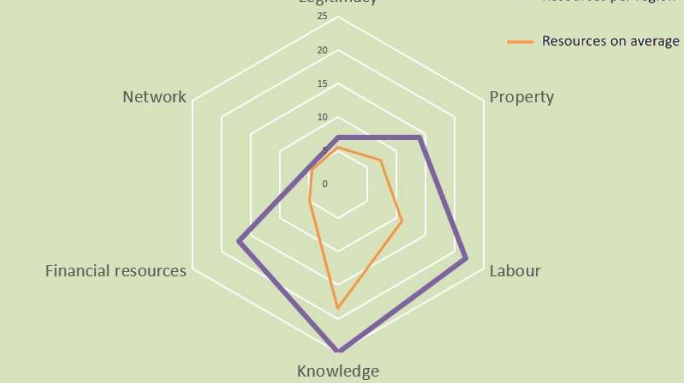


Figure 12: Sociogram of stakeholder groups in the Zone Albanais Haute-Savoie.

The governance approach appears to be mainly driven by producers i.e. their representing producers' co-operations. They are actively initiating a number of new projects, such as fruit festivals or the organisation of a mobile juice processing facilities. However, these activities are also depending on cooperation with several other groups of actors in the region, including governmental actors. As such processes of interaction are depending on many different actors and form of cooperation that are often work independently and on a very flexible base. Accordingly, the approach can be assigned to rather open co-governance.

Table 9: Overview of policy arrangements in the Zone Albanais Haute-Savoie.

Zone Albanais Haute-Savoie							
Stakeholder	<div><div></div><div>Government</div></div> <div><div></div><div>Business</div></div> <div><div></div><div>Nature conservation</div></div> <div><div></div><div>Land user</div></div> <div><div></div><div>Association</div></div> <div><div></div><div>Science & Education</div></div> <div><div></div><div>Public</div></div>						Associations are the primary cooperation partners (e.g. <i>Association Croësons et Carmani-ules</i> ; <i>Association Les Croqueurs de pomme</i>), business partners too, besides local public authority (municipalities).
Discourses	<div><div></div></div>						Here, a significant high reliance of economic targets appear that shape the discourses. Furthermore, the relevance of abiotic and biotic natural is quite equally shared. Furthermore, the preservation of landscape values and cultural heritage is adding to the discussion. In addition awareness building has been mentioned by one stakeholder as another objective
	<div><div></div></div>						Two main aspects catch the attention in the Zone Albanais Haute-Savoie. Joy, quality of life and idealism is mentioned by business partners, Secondly, the appreciation of biodiversity motivates associations, businesses and nature conservation. Others receive an arbitrary notion
Resources	<div><div></div></div>						Government, but also businesses and associations are mentioning funding opportunities. Clearly the associations are more in charge of providing knowledge and labour. A strong role in the Zone Albanais Haute-Savoie has the business sector in all resource categories.
Rules of the game	In general, very formalised and some bureaucratic processes, e.g. the government sends out letters to the land users annually. Whenever financial resources, funding etc. is in place, contracts with signatures are required. Also associations and nature conservation agents rely on formal ways of cooperation. However, the short ways of informal communication, e.g. between land users and the public or businesses by phone are crucial.						<div><div><div>formal & written</div><div>68%</div></div><div><div>32%</div><div>informal & verbal</div></div></div>

3.7 Grassland and hedge landscapes in Vercors and Belledonne mountain massifs, Grenoble

Contextualisation of the governance in place

Vercors and Belledonne and two of three Alpine mountain ranges that surround is an inter-communal organisation comprised of 49 municipalities, centred on the City of Grenoble – awarded as European Green Capital in 2022 – in the Auvergne-Rhône-Alpes Region, Eastern France. The Metropolitan Region of Grenoble is the second largest urban area of the Auvergne Rhône-Alpes Region with about 450,000 citizens. The surrounding mountain massifs contribute to the metropolitan appeal and life quality and offer a rich and diverse natural heritage with large accessible natural areas linked to the city.

Traditional forms of agricultural land use were abandoned on the dry hillsides of the Grenoble area. However, agricultural dynamic is essential to maintain these open environments and the dry grasslands ecosystems with hedges and pollard trees and its rich biological diversity. The preservation of these open environments is a major ecological and landscape issue for the region. The implementation of the local Green and Blue Contracts (*Contrat Vert et Bleu* – CVB) in the region is coordinated by *Grenoble Alpes Métropole* (GAM) and supported with funds by the Auvergne-Rhône-Alpes Region. Many different actors are involved in the implementation of the actions.

This region identifies the lack of/not-good cooperation and the economic viability as the most significant inhibiting factors to the development of the GI. The lack of resources, funding deficits and the gap in the value chain were regarded as not relevant inhibiting factors.

Characterisation of the network and governance approach

The analysis of the network structure in the Vercors and Belledonne mountain massifs of Grenoble revealed rather few mentions of GI-stakeholders compared to the other regions analysed. Somewhat more intense seems the presence of government and nature conservation agents, together with land users and associations. Business cooperation were not detectable from the interviews, but also the involvement of the public or research and education were underrepresented. The stakeholders from nature conservation primarily mention their own peer, the same holds the government. The sheer number of interactions between the different stakeholder groups seems somewhat limited. The integration of the general public from the SNA do not provide evidence for a strong citizen involvement in the management of GI.

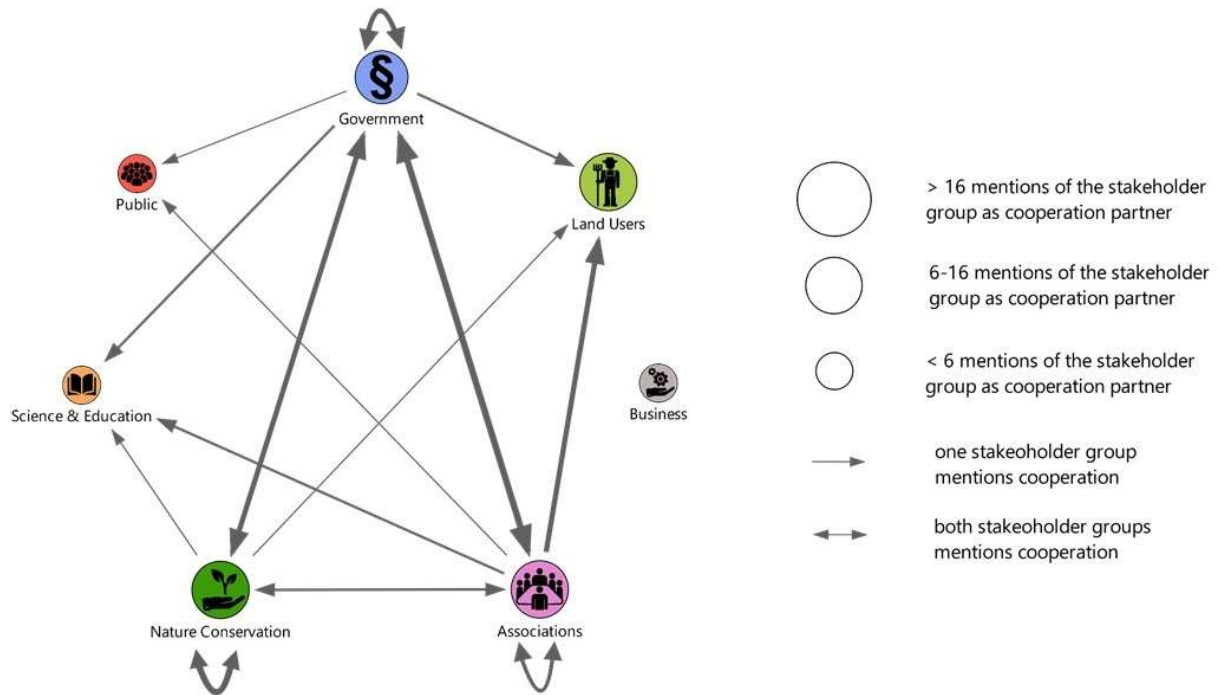









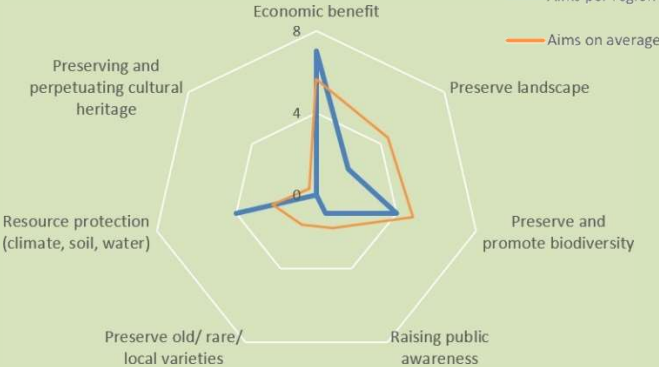


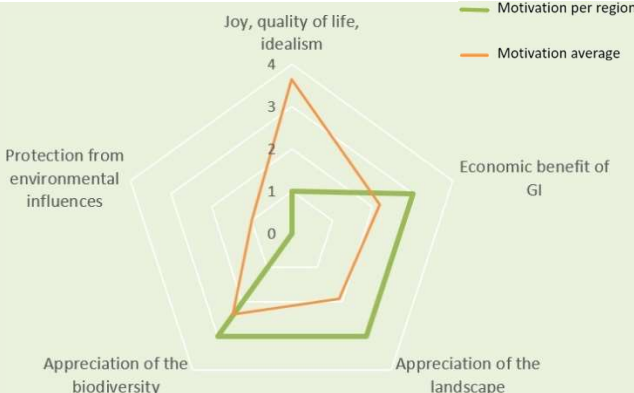


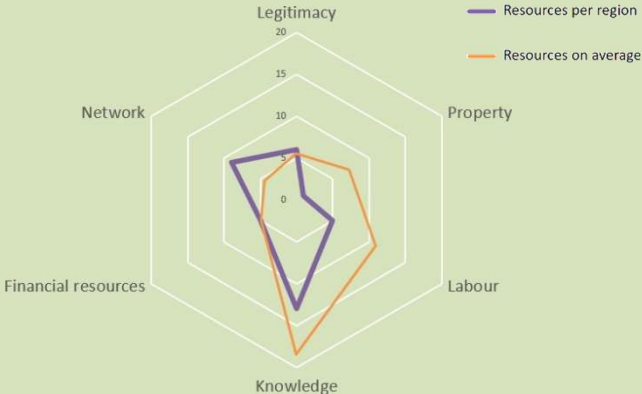
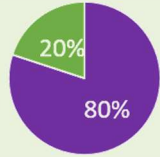


Figure 13: Sociogram of stakeholder groups in the Vercors and Belledonne mountain massifs, Grenoble.

Due to a concentration of resources (knowledge, legitimacy, networking resources) the governance approach could be characterized as government led. Some public participation in the establishment of GI takes place on the level of communities, e.g. when a farmer or landowner takes the initiative. Nature conservation has some experience with active participation, e.g. by undertaking workshops and organize volunteer' actions. Therefore, GI-governance seems to follow a government led approach, where the municipalities play as regional governmental actor, plays a greater role.

Table 10: Overview of policy arrangements in Vercors and Belledonne mountain massifs.

Vercors and Belledonne mountain massifs							
Stakeholder	<div><div></div><div>Government</div></div> <div><div></div><div>Business</div></div> <div><div></div><div>Nature conservation</div></div> <div><div></div><div>Land user</div></div> <div><div></div><div>Association</div></div> <div><div></div><div>Science & Education</div></div> <div><div></div><div>Public</div></div>						<p>Grenoble Alpes Métropole involves many different actors, e.g. the Chamber of Agriculture, hunting associations, nature protection NGOs, various public services and of course the landowners and users.</p>
Discourses	<div><div> Aims per region</div><div> Aims on average</div></div>						<p>Three main targets have been identified that shape the discourses within the region, which interrelation to each other are a particular focus as mentioned by the interviewees. The economic efficiency is of high relevance to maintain landscape with its marginal land, abiotic and biotic resources that provide different functions.</p>
	<div><div> Motivation per region</div><div> Motivation average</div></div>						<p>A strong emphasis on the appreciation of the landscape, mentioned e.g. by the associations. This goes in hand with the maintenance of open dry grassland habitats as natural heritage for biological diversity and offer nature recreation. Economic benefits of GI are more in the discourse by government agents, in parts also relevant for the associations. Hedgerows should be treated as part of the productive area, co-producing e.g. wood energy and food in modern agroforestry system.</p>
Resources	<div><div> Resources per region</div><div> Resources on average</div></div>						<p>The government has a strong legitimacy trough the provision and management <i>Contrat Vert et Bleu</i> – CVB, for which they have a brokerage role, also run information workshops. Therefore, knowledge is provided e.g. trough extension service and experts, but also from Science & Education, Nature Conservation and Associations. Networking is also a viable resource by Government actors, e.g. with FNE ISÈRE, or in-situ meetings with farmers. Property and finances are scarce.</p>
Rules of the game	<p>Very few formal contracts / conventions in place, e.g. a 25-year-contract for hedgerow maintenance by an association. Informal agreements work for nature conservation and associations, however there is a lack of long-term commitment. Cooperation is not well formalised by state actors, exception is for example a “blue-green contract” with e.g. hunting associations.</p>						<div><div></div><div><div>formal & written</div><div>20%</div><div>informal & verbal</div><div>80%</div></div></div>

3.8 Orchard Meadows and HNV farmland in Malles / Vinschgau Valley

Contextualisation of the governance in place

South Tyrol, also known as the Province of Bolzano (*Bozen*), is situated in the central area of the Alpine Space Region, in Northern Italy. Most of the territory is mountainous and 37% of the territory is on elevation above 2,000 m. The Vinschgau Valley is the upper part of the Adige or Etsch river valley, where the majority of the population lives in settlements and cities in the valley bottom. Besides the large areas in high Alpine elevations with rocks, glaciers and unmanaged land, accompanied by semi-natural high mountain and Alpine pastures, the landscape is characterised by forests in the slopes and agricultural land use primary in the valley. Agricultural production is largely dominated by intensively used grasslands, apple plantation and vineyards. However, in South Tyrol the tourism industry is a more relevant economic factor in comparison to agricultural production. Orchard meadows as traditional low-intensity fruit tree plantations are characteristic landscape elements for the region of high landscape aesthetic value. They are composed of high-stem fruit trees (apples, pears, chestnuts) and a species rich grassland, used as pasture or as a hay meadow. Besides its values as habitat for plant and animal species they provide high agro-ecological value due to the diversity of local fruit varieties.

Due to intensification and replacement by more profitable intensive fruit plantations and vineyards as well as maize fields intensive meadows just very little low-intensity traditional land use including orchards remain. In the past decades there has been a rapid increase in conversion of extensive agriculture into intensive apple plantations, given the high price of the land and the competitiveness of the market. Now, negative externalities of intensive agriculture are becoming apparent, and some citizens have started an initiative to ban pesticides in intensive apple orchards and promote organic and low-intensity farming.

As such, this case study is one of the few ones which does not provide good practice examples but rather seeks to find solutions to address the current challenges, such as by awareness raising for positive effects of low-intensity agricultural practices for the environment and health as well as potentials for uniqueness of high quality products, such as the Pala pear, ancient grain varieties etc.

The most frequently mentioned inhibiting factors to the region were the economic viability proceeded by lack of/not good cooperation and knowledge gaps. By contrast, the least referred inhibiting factors were poor planning, lack of resources (money/time) and the conflict of interest. In this region, the inhibiting factor conflict of interest was less relevant.

Characterisation of the network and governance approach

Outstanding in the SNA of GI-Stakeholders in the Malles / Vinschgau valley, South Tyrol, was a strong presence of associations, that frequently relate to partners from the sciences and education.

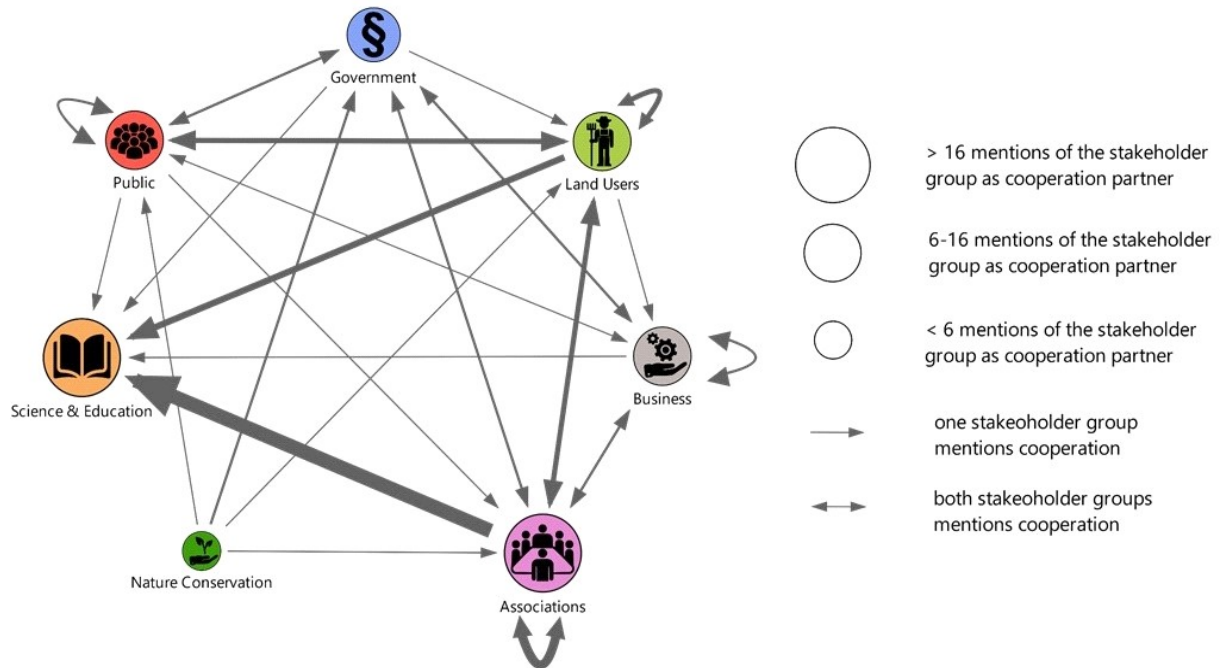







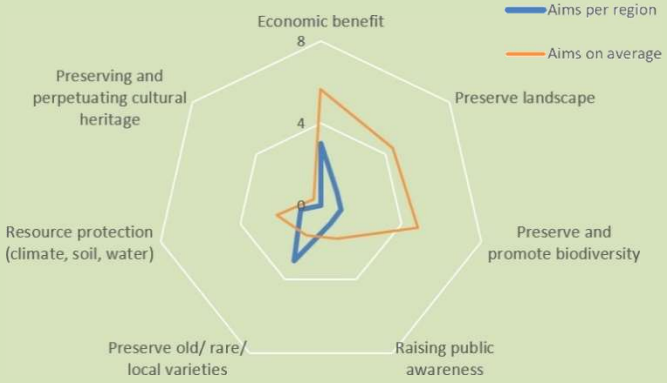
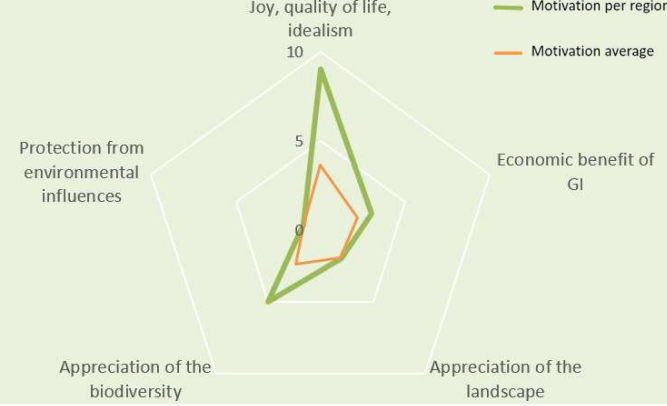
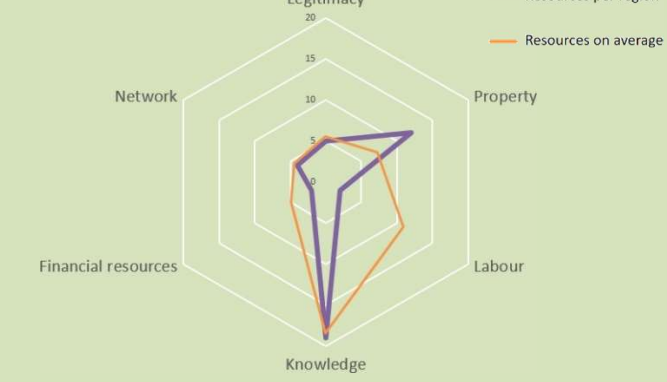
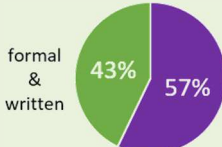


Figure 14: Sociogram of stakeholder groups in the Malles / Vinschgau valley, South Tyrol.

Due to the active involvement of the associations and the public, one can consider the governance arrangement in the Malles / Vinschgau valley, South Tyrol as determined by grass-roots initiatives.

Table 11: Overview of policy arrangements in Malles / Vinschgau Valley, South Tyrol.

Malles / Vinschgau Valley, South Tyrol		
Stakeholder	 Government  Business  Nature conservation  Land user  Association  Science & Education  Public	Associations and science & education are the most frequently mentioned stakeholder groups. The government agents plays a minor role.
Discourses		The discourses of the initiatives subject of in-depth analysis of this case study are primary shaped by the objective to promote businesses that maintain agrobiodiversity, protect biotic and abiotic natural resources and aesthetic landscape values.
		Joy, quality of life, idealism really is a crowd puller in Malles / Vinschgau Valley, South Tyrol. Associations, the public at the forefront. The appreciation of the biodiversity also serves as a motivation in the discourse across stakeholder groups. All of the categories are mentioned at least once.
Resources		Knowledge is the outstanding resource for GI-management in the Malles / Vinschgau Valley, South Tyrol. It is provided by the regional associations, but also by science & education. Property is the second main resource more often mentioned than on average across all 11 regions. However, as the land users provide land, it is not automatically supporting GI development, especially as labour and financial resources are scarce.
Rules of the game	<p>In Malles / Vinschgau Valley, South Tyrol, informal and verbal agreements are quite frequently in place within the GI-governance framework. However, the cooperation relies on strong and fundamental written agreements. The same is also about cooperation crossing administrative levels, e.g. municipality to the canton.</p> <div>  <p>formal & written 43% informal & verbal 57%</p> </div>	

3.9 Riverine Landscape and Wetlands of Ivrea Morainic Amphitheatre

Contextualisation of the governance in place

The Metropolitan City of Turin is located in the northwest part of Italy being part of the Piedmont Region. The west sector of the Alpine chain constitutes the border with southeast France. Morphogenetic processes and climatic-biological changes have shaped over the millennia a highly diversified territory, characterized by ridges, karst landscapes, valley bottom lines, terrace edges, contributing to the formation of three distinct geomorphological characteristics and macro systems: mountains, hills, and plains. The Ivrea Morainic Amphitheatre can be considered as one highlight in this region, which also attracts visitors from the surrounding urban areas. The landscape of the Ivrea Morainic Amphitheatre can be characterised by slopes rounded by ridges, covered by forest surround a wide intra-morenic agricultural plain crossed by the Dora Baltea River. The historical settlement system of the area gravitates on the city of Ivrea, along the Dora River. The settlement system can be distinguished in a series of traditional and new villages along the historical road network. The original landscape structure has been largely modified by consistent phenomena of industrialization and infrastructure. The entire flat area preserves traces of a complex agricultural production system, linked to a network of irrigation canals while areas placed in a higher position, along the Serra morainic hill, have been cultivated for centuries to orchards and vineyards, giving the Ivrea Morainic Amphitheatre a unique landscape character.

The cooperation of municipalities and local stakeholders (associations, citizens, etc.) in a participatory planning activity led to the identification and implementation of the local ecological network in order to save the connection between existing core areas: Dora Baltea River and sites of the Natura 2000 network. Despite several critical issues such as high fragmentation of the flat territory as well as highly intensified agricultural activities leading to environmental problems and soil degradation, there are a number of innovative good practice examples in the management of semi-natural and natural ecosystems.

In the Ivrea Morainic Amphitheatre, the inhibiting factors are especially a lack of or not so good cooperation and the lack of awareness and the political and social changes. The least cited inhibiting factors were the lack of care without reason followed by bureaucracy, gap in the value chain, funding deficit, conflict of interest and economic viability. Furthermore, in this region the economic viability had a minor relevance as an inhibiting factor.

Characterisation of the network and governance approach

According to SNA, the government and business representative build the most relevant cooperation partners within this network Ivrea Morainic Amphitheatre (Figure 15). With respect to the governance model, this area would best fit into a government led approach.

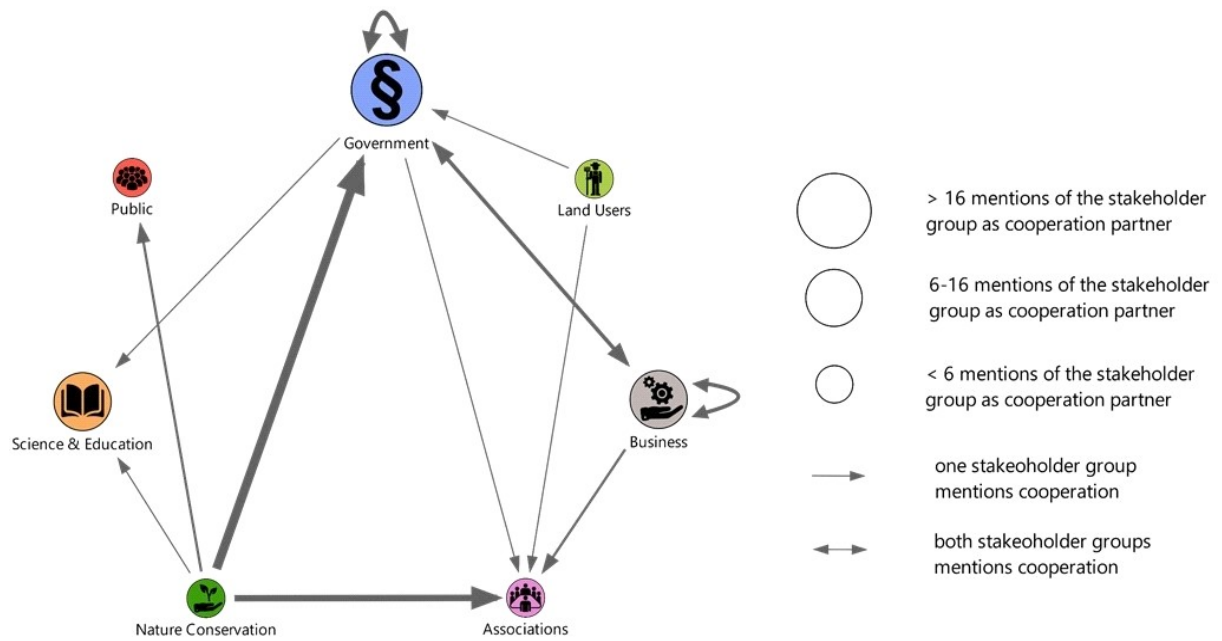







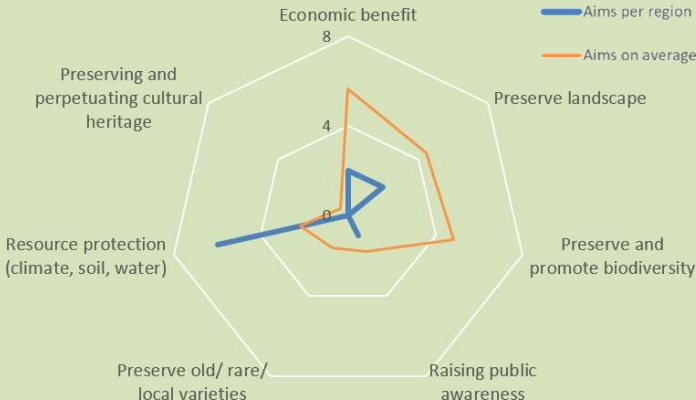
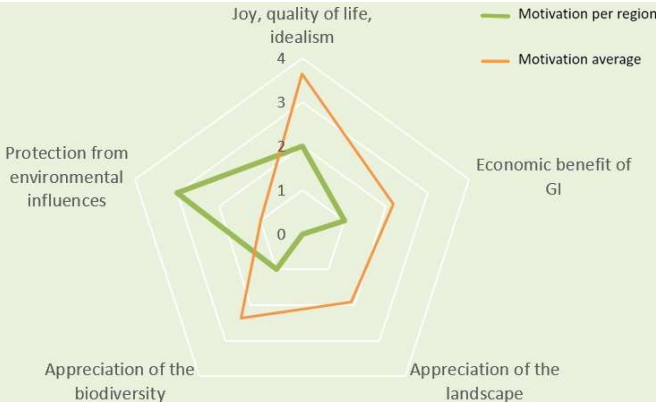
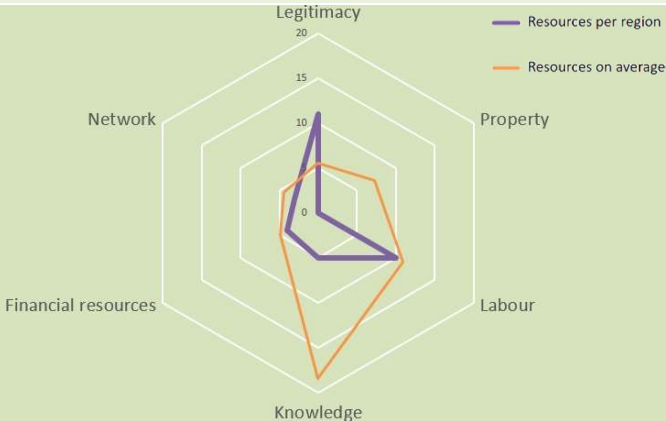


Figure 15: Sociogram of stakeholder groups in Ivrea Morainic Amphitheatre.

Table 12: Overview of policy arrangements in the Ivrea Morainic Amphitheatre.

Stakeholder	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>Government</div><div>Business</div><div>Nature conservation</div><div>Land user</div><div>Association</div><div>Science & Education</div><div>Public</div></div>	<p>Clearly, the government agents stand above the GI-scene, all other stakeholder playing a minor role in GI-management..</p>
Discourses	<div></div>	<p>Due to the regional characteristics In this case study the maintenance of water resources (lakes and rivers) appear to dominate and drive the discourses, in particular sustainable water management as well as aesthetic landscape values of the seascape. Furthermore, economic aims contribute to them.</p>
Resources	<div></div>	<p>The protection from environmental hazards serves as primary motivator in the governance discourse amongst the stakeholders in the Ivrea Morainic Amphitheatre area. A mere appreciation of the landscape is not enough to motivate, but also economic benefits are less in the focus.</p>
Rules of the game	<div></div>	<p>Legitimacy and labour are the main resources being mentioned in the Ivrea Morainic Amphitheatre. Both are concentrated among the government, land users, business and associations. NGO actors from the field of Nature conservation and science & education, as well as the public seem to remain at the side-line. Knowledge seems to be rather scarce compared to the average.</p>
Rules of the game	<p>No informal agreements with regards to the management of GI are mentioned in the Ivrea Morainic Amphitheatre. This is in line with the strong involvement of government agents, attracting bureaucracy.</p>	<div><div><div>formal & written</div><div>informal & verbal</div></div><div><div>0%</div><div>100%</div></div></div>

3.10 Diverse agricultural landscape in the Rural Park South Milan

Contextualisation of the governance in place

The Rural Park South Milan (*Parco Agricolo Sud Milano*) is a 470 km² large protected park and green belt comprising about 60 municipalities in the Metropolitan City of Milan, situated in Lombardy, Italy. Established in 1990 it is recognized both as a regional agricultural park and as a regional metropolitan belt park part of a wider ecological network, the Regional Ecological Network (*Rete Ecologica Regionale* – RER) for the Lombardy region. It is geographically representing the natural ecological east-west corridor between the Ticino and Adda catchment areas. Its landscape is characterised by dominating agricultural production on arable land, besides traditional grassland systems and a variety of different cultivation methods, such as fruit trees and vine. Furthermore, rivers axis, water meadows, springs, wetlands, wooded, historical complexes or floodplains adds to its diversity. An almost thousand-year-old traditional wetland meadows cultivation technique, is still maintained by farmers. Interfering with the fragmentation of agricultural areas these different elements build an ecological network suitable to maintain biodiversity. Hence, the park management aims to maintain this rural landscape character while promoting agricultural activities. The Park Brand's certified products and services support agricultural businesses and to combine modernity with tradition, provide local products and services for rural tourism. As such the park can be considered as an outstanding example linking rural and metropolitan areas.

In the Rural Park South Milan, the identified inhibiting factors were a lack of awareness and appreciation and a lack of/not good cooperation. Apart from the gap in the value chain, which had a minor acknowledgement as an inhibiting factor, the rest of the mentioned inhibiting factors are considered to have similar but low effects as inhibiting factors.

Characterisation of the network and governance approach

The interviewed expert in the region of Rural Park South Milan mostly referred to government representatives. Altogether, the network structure of experts around GI management is less developed compared to other regions analysed. There seems to be room for a better integration and cooperation amongst stakeholder groups.

The Rural Park South Milan shows some characteristics and mechanisms of marked oriented approaches but also government led approaches.

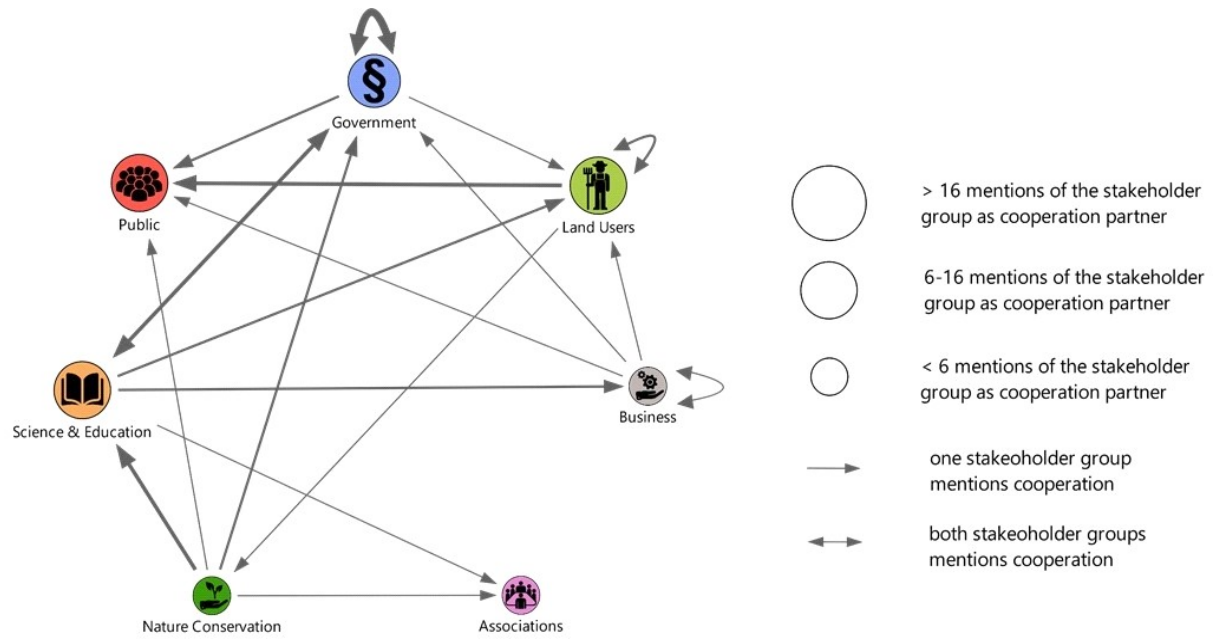







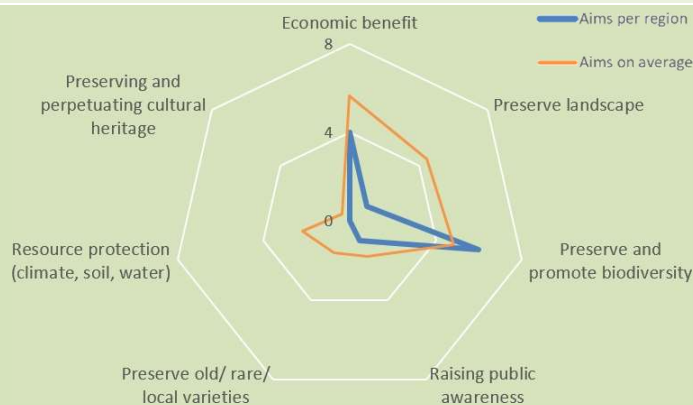
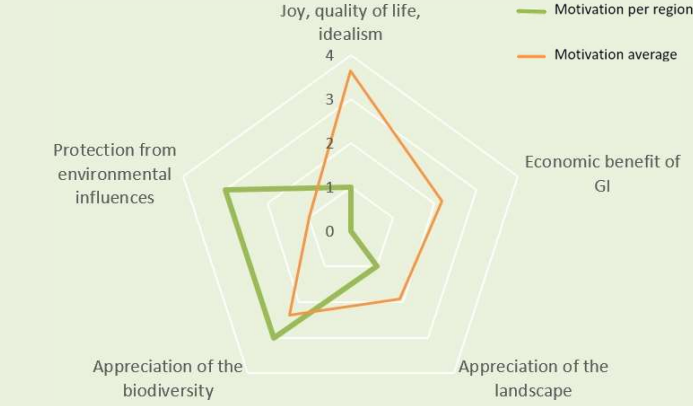
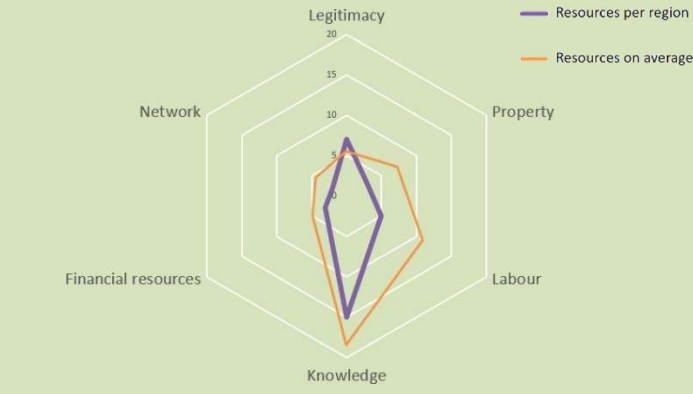


Figure 16: Sociogram of stakeholder groups in the Rural Park South Milan.

Table 13: Overview of policy arrangements in the Rural Park South Milan.

Rural Park South Milan							
Stakeholder	<div><div></div><div>Government</div></div> <div><div></div><div>Business</div></div> <div><div></div><div>Nature conservation</div></div> <div><div></div><div>Land user</div></div> <div><div></div><div>Association</div></div> <div><div></div><div>Science & Education</div></div> <div><div></div><div>Public</div></div>						Governance framework is primarily built up by MCM, Rural South Park Milan, associations (e.g. Association for the South Park Milan), land users and science & education.
Discourses							In this case study the reconciliation of agricultural businesses with biodiversity is primary driving the discourses. Besides landscape values and public awareness issues add to narratives build.
							Clearly, idealism or joy and quality of life do not suit to motivate stakeholders in the Rural Park South Milan. Biodiversity protection and the protection from environmental hazards are much more suitable in order to maintain rural landscape as green belt. The government agent is keen on economic arguments, e.g. to promote local products and services for rural recreation and tourism.
Resources							Knowledge is a main resource in the Rural Park South Milan, coming from government, science & education and the land users themselves. Associations seem primarily in charge of financial resources, even more than the government responsible. Although this may be an artefact of the interview partner choice. However, legitimacy in the region is clearly with the government.
Rules of the game	No informal agreements mentioned in the Rural Park South Milan. In line with a strong role of government.						<div><div>formal & written</div><div><div>0%</div><div>100%</div></div><div>informal & verbal</div></div>

3.11 Orchard meadows in the Goriška-Idrija-Cerkno Region

Contextualisation of the governance in place

The Goriška region extends over the western part of Slovenia with the territory of 2,325 km² and 117,616 inhabitants, with its diverse Alpine landscape character, ranging from Alpine, pre-Alpine across Karst-Dinaric to sub-Mediterranean. The region is composed of 13 municipalities, which are organised in four sub-regions: the Upper Soča Valley (*Posočje*), the territory of Idrijsko and Cerkljansko, the sub-region of Nova Goriška and the Upper Vipava Valley.

The Goriška region comprises the high mountains and hills of the Soča River Basin. In the north are the Julian Alps around the deeply incised upper Soča Valley. The middle part comprises the rugged Idrija Mountains in the Idrijca River Basin (the highest peak is Porezen, 1,630 m) extending southwards into the forested Trnovski gozd karst plateau at an altitude of 1,000-1,300 m and into the slightly lower Banjšice plateau. On their southern side, the plateaus fall away, in an escarpment over 1,000 m in height, into the fertile Vipava Valley along the Vipava River, the Goriška Plain along the Soča and the Goriška Brda hills along the Italian border.

Orchard meadows are one of the most widespread traditional land uses in Slovenia that gives a unique mark to our landscape. Besides fruit production, orchard meadows provide many other forms of services and are becoming an indispensable part of modern agricultural landscape. One of the most important measures for maintaining orchard meadows are grazing by livestock and mowing. Today, land use changes and lack of interest for their maintenance are two main reasons threatening the existence of orchard meadows.

In Idrija-Cerkno region, because of rugged terrain and unfavourable soil composition, agriculture can hardly develop, therefore the main activity on farms is livestock, and fruit growing represents only a supplementary activity. Due to the Mediterranean influence and quite favourable soil characteristics and economic conditions, fruit growing could represent a higher proportion of agricultural production.

Regarding this region, the most cited inhibiting factors are the economic viability, the lack of/not-good cooperation and the knowledge gaps. On another side, the social/political change, poor planning and the lack of care without reason are the mentioned inhibiting factors with less negative impact.

According to the in-depth analysis of conflicts, the situation of orchard meadows has deteriorated considerably, due to the decrease of population and abandonment of management. The situation of the land users has considerably deteriorated in the last ten years. Motivated pensioners often maintain the remaining management. Nevertheless, the situation of processors and marketers has improved slightly, such as new juice pressing facilities. However, the lack of local marketing opportunities is an obstacle. Furthermore, it is difficult to acquire local va-

rieties for replanting. For most stakeholders, the lack of governmental support and a strategic, systematic approach to the conservation of orchards are the most important obstacles. In addition, there is a very high pressure for intensification and cultivation of orchards. Due to the severe challenges, the region cannot be considered as good practice example but rather as a case study that expects to develop solutions to overcome those challenges. Still, there are single project, such as the Kozjanska Park that has proven future perspective in successfully maintain orchard meadows.

Characterisation of the network and governance approach

According to SNA, governmental actors are considered as most important network partners in the Goriška-Idrija-Cerkno Region and seems to be well connected with almost all groups of actors (Figure 17). Furthermore, economic partners, such as land users, companies and associations are relevant network partners in GI management. In addition, the public is frequently perceived as being important. In total, governmental and business representative build the most relevant cooperation partners within this network.

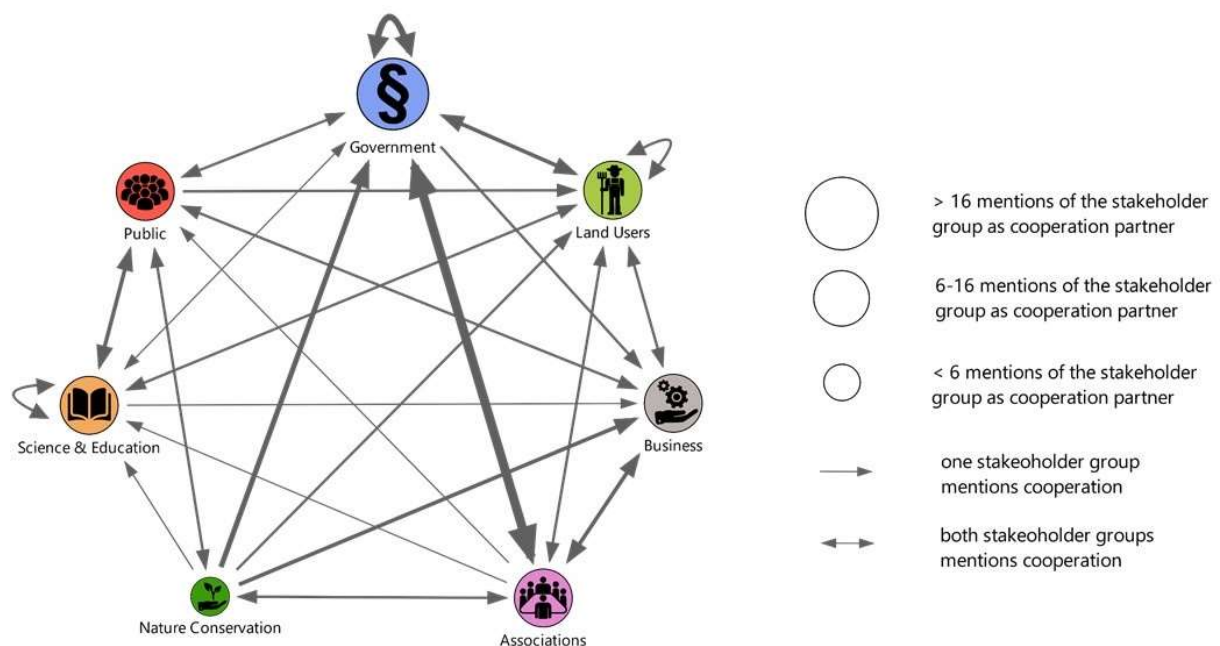







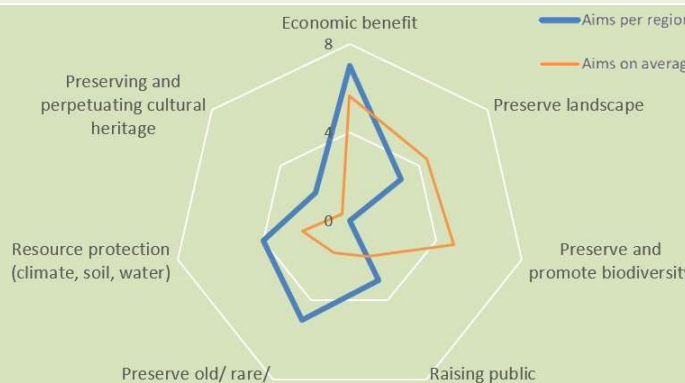
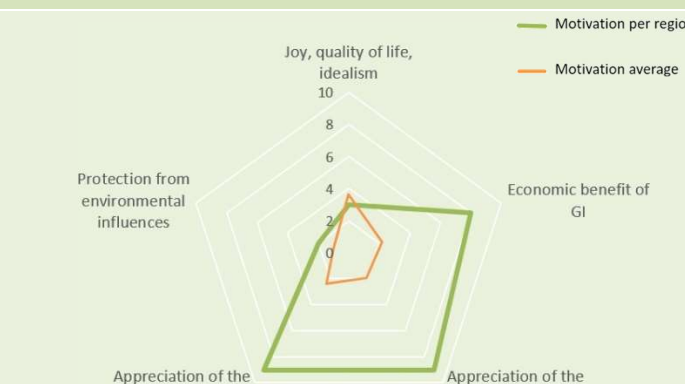
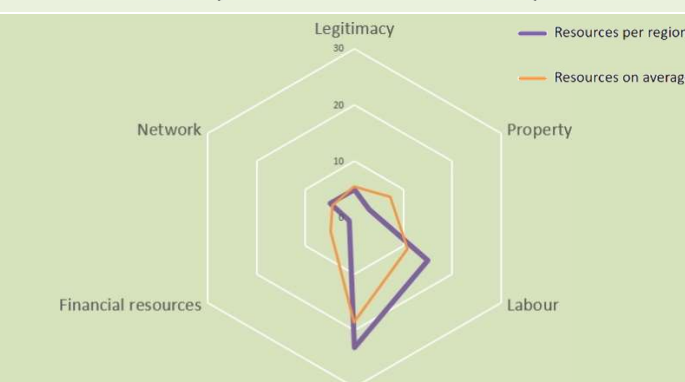


Figure 17: Sociogram of stakeholder groups in the Goriška-Idrija-Cerkno Region.

In its long tradition of orcharding the governmental actors have played a major role and still does. This steers many processes and interactions among the actors. Accordingly, the approach can be assigned to a government led approach.

Table 14: Overview of policy arrangements in the Goriška-Idrija-Cerkno Region.

Goriška-Idrija-Cerkno Region							
Stakeholder	<div><div></div><div>Government</div></div> <div><div></div><div>Business</div></div> <div><div></div><div>Nature conservation</div></div> <div><div></div><div>Land user</div></div> <div><div></div><div>Association</div></div> <div><div></div><div>Science & Education</div></div> <div><div></div><div>Public</div></div>						Local public authority (municipalities), national authorities (ministries and institutes), cooperatives (e.g. Cerkno Idrija Fruit Growers Association) and the wider public (land owners).
Discourses	<div><div></div><div><div>Aims per region</div><div>Aims on average</div></div></div>						In this case study a very complex picture of multiple values seems to drive the discussion whereas none of the objective appears to dominate the discourses. Economic objectives are targeting to develop sustainable market shares and products based on land use management that preserve landscapes, contribute to natural resource management as well and agrobiodiversity particularly. Also public awareness building and capacity building appears as another relevant objective.
	<div><div></div><div><div>Motivation per region</div><div>Motivation average</div></div></div>						Appreciation of the landscape together with biodiversity serves as strong motivator in the Goriška-Idrija-Cerkno Region. Economic benefits of GI are similarly often mentioned across all stakeholder groups. Science & education rather follows the economic trail in the discourse but in good company with the associations.
Resources	<div><div></div><div><div>Resources per region</div><div>Resources on average</div></div></div>						Labour is a valuable resource in the Goriška-Idrija-Cerkno Region, often absent in the other LUIGI pilot regions, mentioned by the government and land users. Government also distributes funding opportunities (e.g. National Rural Development Programmes – NRDP, European Regional Development Fund – ERDF). All other partners contribute with knowledge and skills, especially the sciences. Surprisingly, legitimacy is largely with business partners. Associations play a minor role in the debate over resources.
Rules of the game	Whereas businesses, associations and the public work frequently with informal agreements and verbal deals, may it be because of a lack of formal structures or of choice, however the government agents are struggling, but will eventually allow for it, e.g. concerning practical implementations in the field.						<div><div><div>formal & written</div><div>64%</div><div>informal & verbal</div><div>36%</div></div></div>

4 Results – Cross-case analysis of governance dimensions

4.1 Introduction

Together, the eleven case studies conducted present an array of governance arrangements, with numerous actors and aims, motivations, resources and rules of the game. Chapter 4 gives a brief overview of the most important findings from the analysis of the different dimensions across cases. The descriptions of common factors across all cases cover the following aspects:

- Relevance of different actors and coalitions;
- Discourses, motivations and narratives;
- Resources and power, and role of actors;
- Constraining and enabling rules of the game;

4.2 Relevance of different actors and coalitions

The relevance of different stakeholder across cases

The different actors that were perceived as network partners in the case study areas involve a range of representatives and different stakeholder groups from various backgrounds that play many different and sometimes multiple roles (Figure 18).

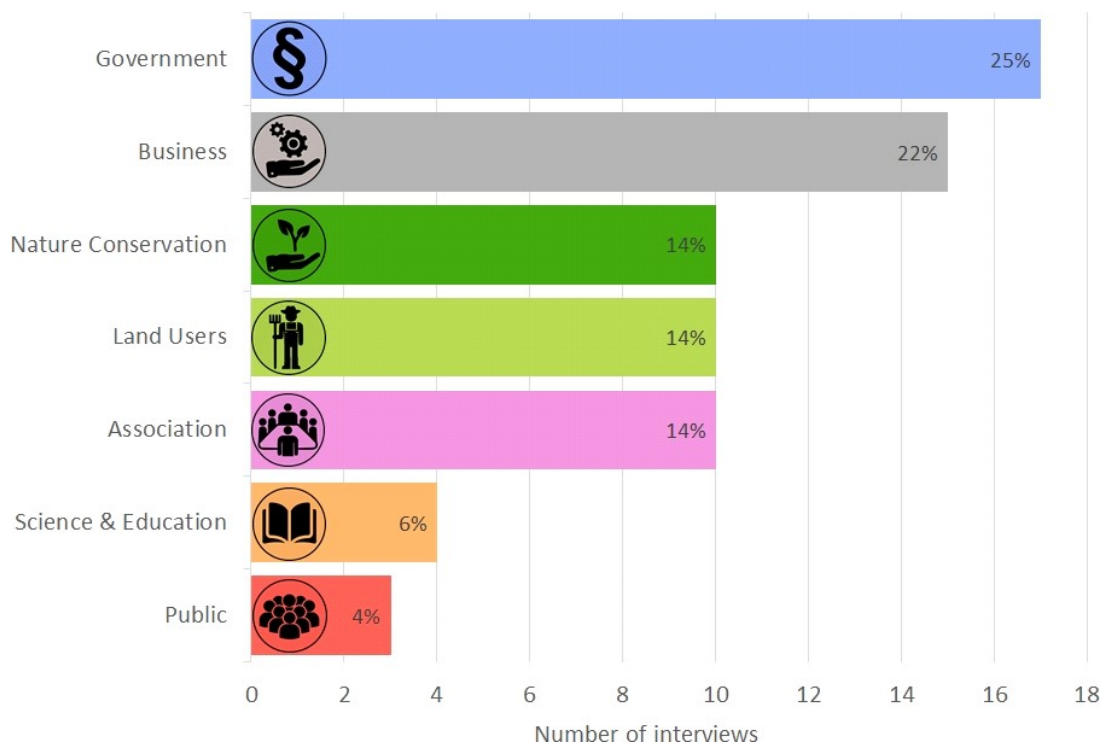


Figure 18: Number of participants involved in the in-depth analysis (n=69)

It becomes apparent, that the number of the different stakeholder groups involved in the network do not necessarily reflect their relevance across cases (Figure 19). While several stakeholder groups' relevance reflects their representation within the networks, some others do not. While the relevance of research and education is partly reflecting their share of presence in the sample, it becomes evident that the relevance of public partners is considered as comparably high in contrast to their presence within the existing networks.

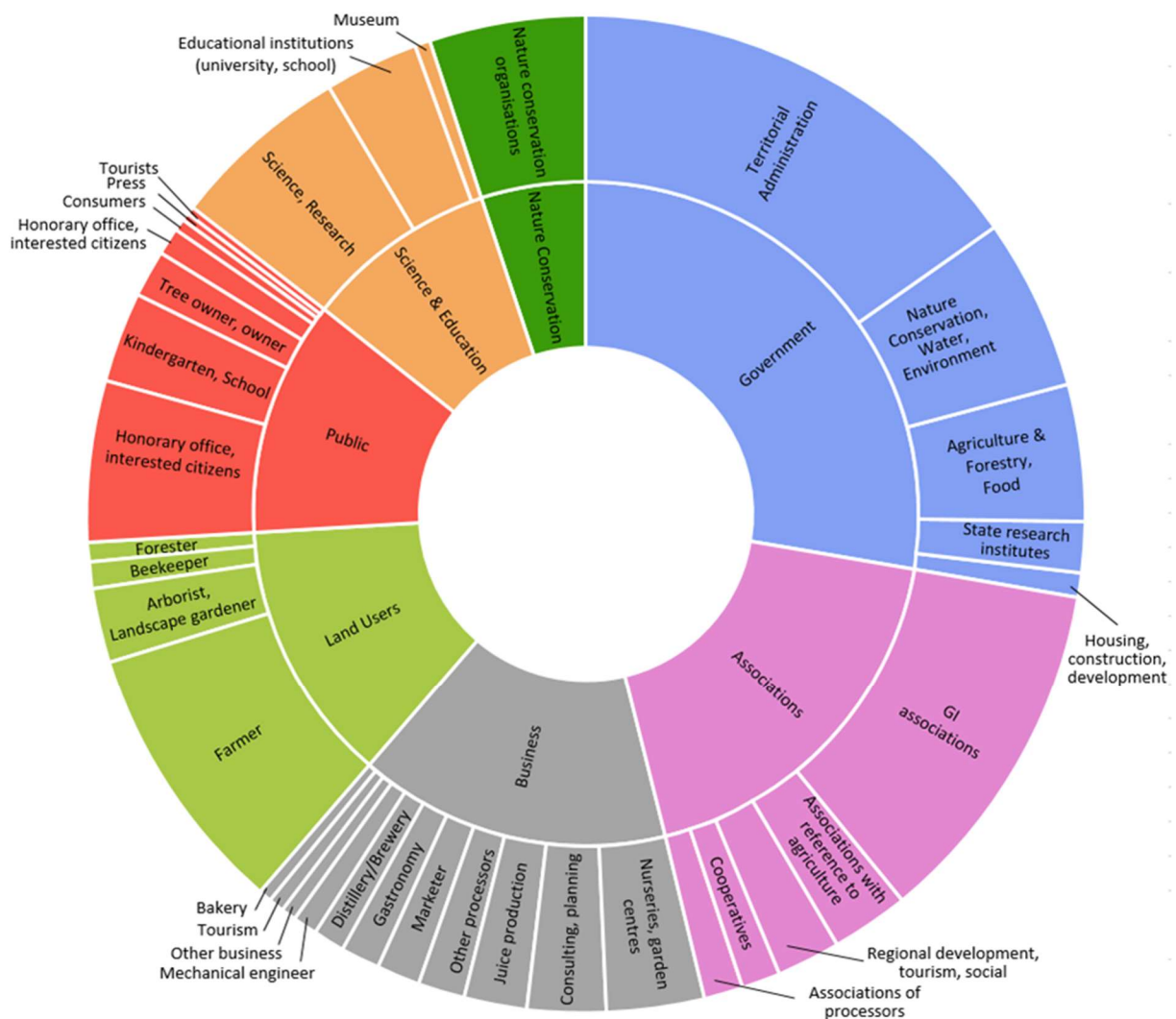


Figure 19: Overview of the groups of actors across cases and their relevance for cooperation in all case studies.

Overall, governmental actors were considered most important within more than half of the networks (Figure 19), whereas they represented different levels and administrative units – ranging from territorial administrations from municipalities or districts across sectors, such as nature and environmental resource administrations, agriculture and forestry besides others.

Second, different kind of organisations and association play an important role. Here it is important to acknowledge that these ones had a clear focus towards the GI management of concern within the case studies, often representing land users, like land care associations or orchard initiatives. Nevertheless, they also comprise producer and consumer oriented associations, linked to products that emerge from GI management, such as local marketing initiatives. In contrast, organisation that are very broadly focused on nature conservation only, without any direct linkages obviously play a minor role within most of the networks, except a few, such as in AT_NP or IT_ST.

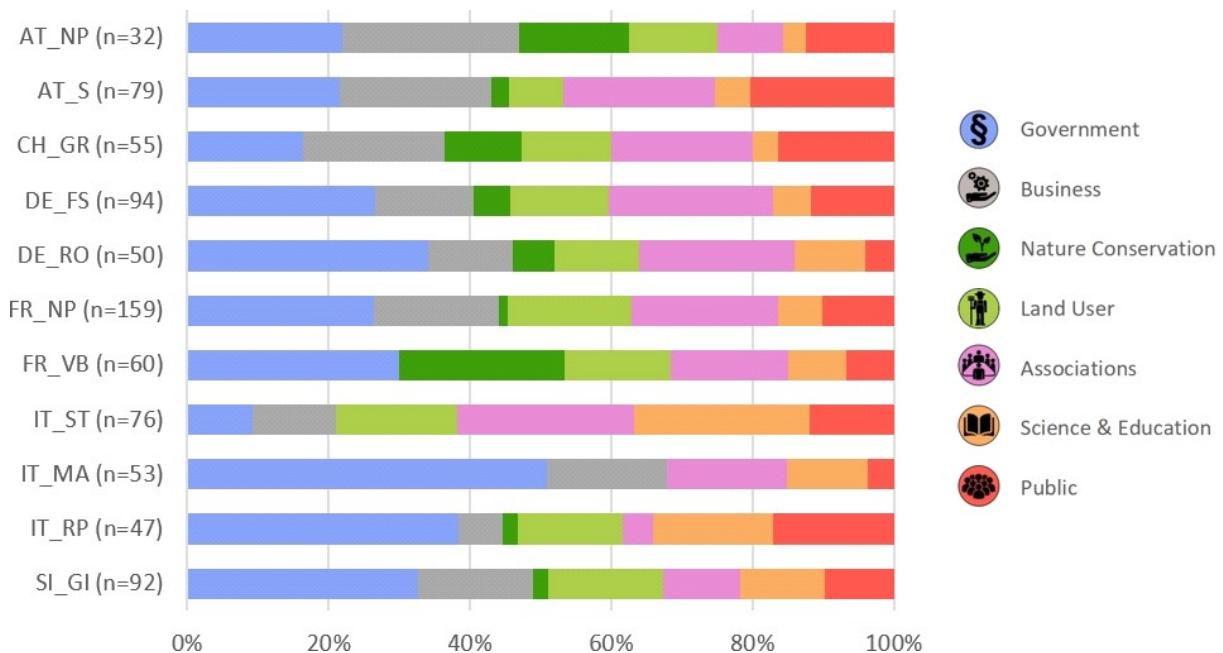


Figure 20: Overview of actors and their relevance within the different case studies for GI-development.

Next, business stakeholders also play a significant role and represent the breadth of different partners along the value chain, ranging from producers, to processing businesses to trade and marketing, as well as representatives from tourism sector or landscape marketing initiatives, although the relevance of the two latter ones there were considerably less. According to the type of GI in focus of the different case studies, it is less surprisingly that individual land managers, in particular, farmers are very important network partners in almost all regions, to maintain and manage GI.

Cooperation between stakeholder groups

To look beyond the involvement of different actors and stakeholder another concern is that of the coalitions as reflected by the individual sociograms in chapter 3.

While reflecting across cases it becomes obvious that governmental actors are by far the most important cooperation partners (Figure 21). While looking at organisations and associations as second most relevant cooperation partners, it is important to acknowledge that these need to have a clear focus towards GI management. Therefore, nature conservation organisation with very general focus do just play a minor role for network coalitions. Again, in contrast to their low presence as active network members the public is considered as being quite important for building coalitions. Ones again, this is striking, as the public was generally less involved in the networks. However, they are almost equal as land users. In general, it becomes clear that organisations, initiatives and further stakeholder that are related to the management and valorisation in terms of production values and marketing i.e. businesses, are generally perceived as important for coalition building.

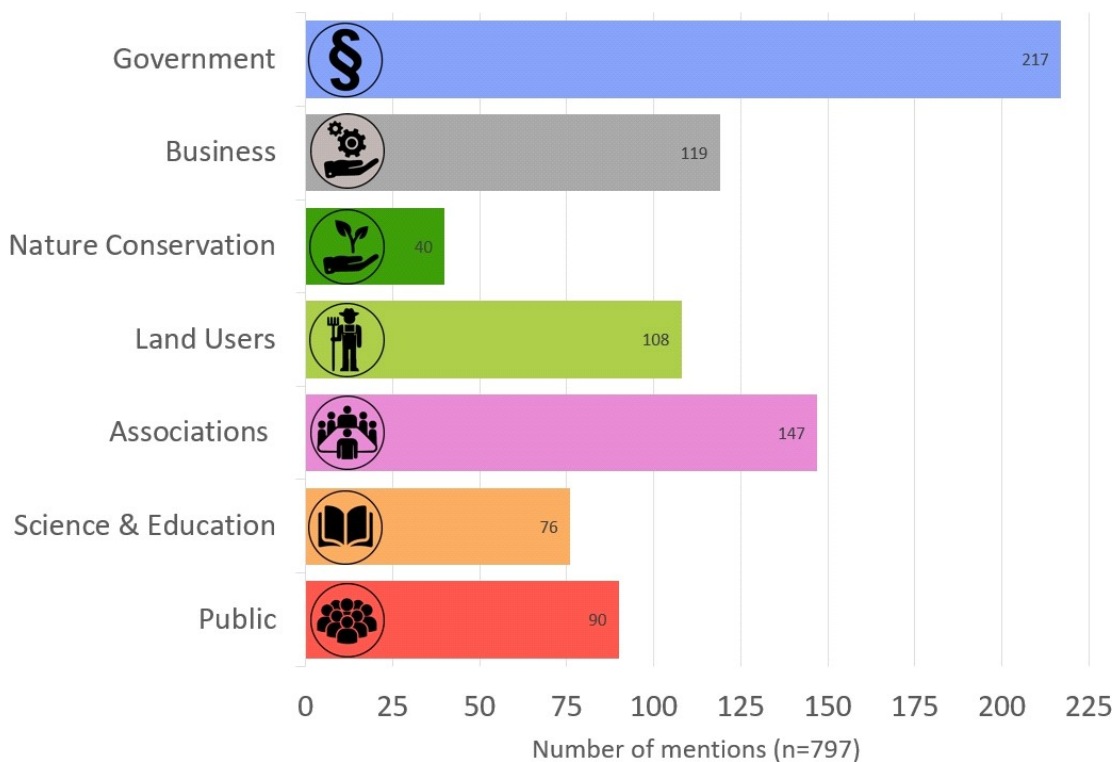


Figure 21: Number of mentions of stakeholder groups as cooperation partners.

4.3 Discourses, motivations and narratives

Aims of the different stakeholders

The goals to be achieved by the commitment of the different network partners can be broadly categorized in the three dimensions of ecological values (preservation of natural resources, including biological diversity, agricultural biodiversity), social/cultural landscape values and objectives, such like identity, education, recreation and aesthetics (Figure 22).

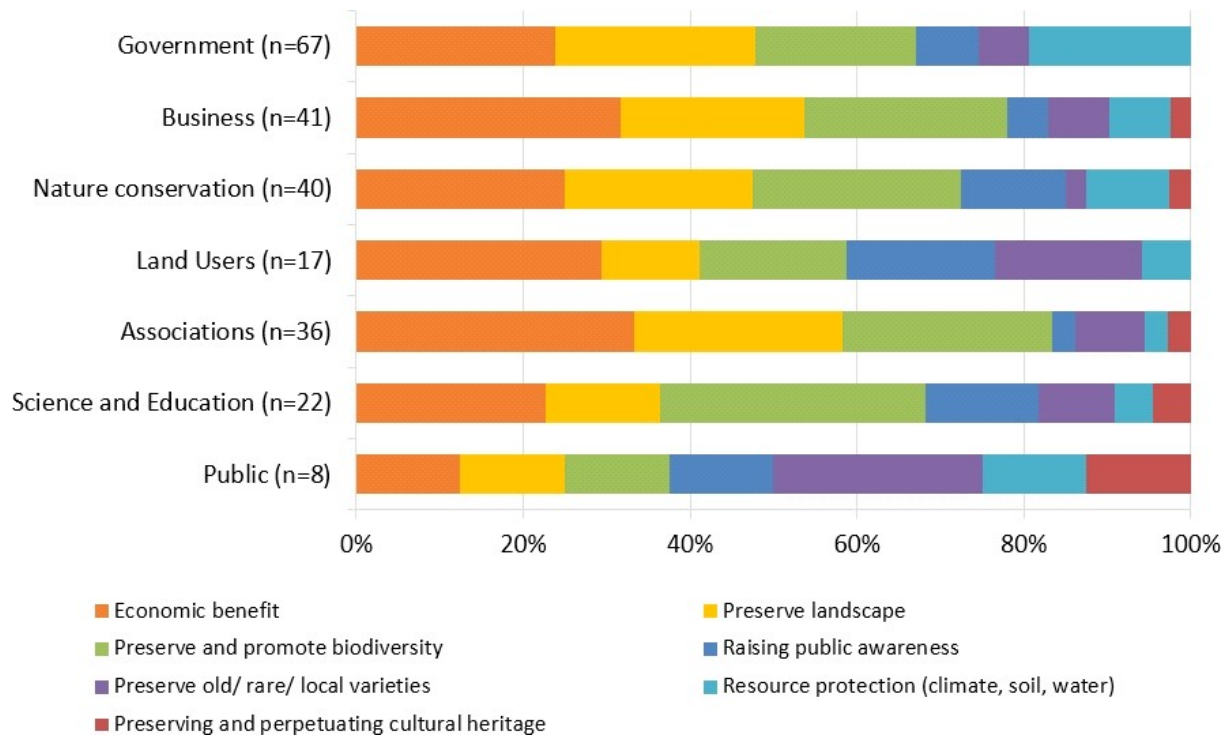


Figure 22: Objectives of stakeholder groups to achieve with their engagement for GI.

It seems that all stakeholder groups commit to the different ecological, economic and social aims in general, although their accentuations and prioritizations are different. For example, a higher relevance of economic values by business stakeholders. Consequently, the networks and coalitions are driven by common achievements that are shared by the different stakeholders. While comparing the different cases it seemed even more obvious that the different aims are not equally balanced and defined by the stakeholder (Figure 23). Still, it is obvious that prioritisations and imbalance of either ecological or social/cultural targets vary much stronger, while the relevance of economic aims appears to be addressed always in a significant amount.

Regarding ecological values, it is striking that in half of the cases the ecological oriented aims were primary focusing on the promotion of biodiversity but not further regulating functions of further natural resources, such as soil, water or the climate. Although a number of different actors and stakeholders mentioned challenges of climate change, the work of the networks addressing these challenges is barely mentioned. Accordingly, potentials of regulating functions with relevance of climate change adaption were just significantly mentioned in some cases, outstanding her was Ivrea Morainic Amphitheatre (IT_MA). Hence, potentials in this regard are not to be fully taken into account by most of the networks.

Overall, it can be stated, that the GI-strategies are considered as multifunctional aims. The definition of multiple aims were found in all cases and build narratives, guiding the networks. These are sometimes manifested in visions such as “protect and use” or the development “ecological and healthy products”.

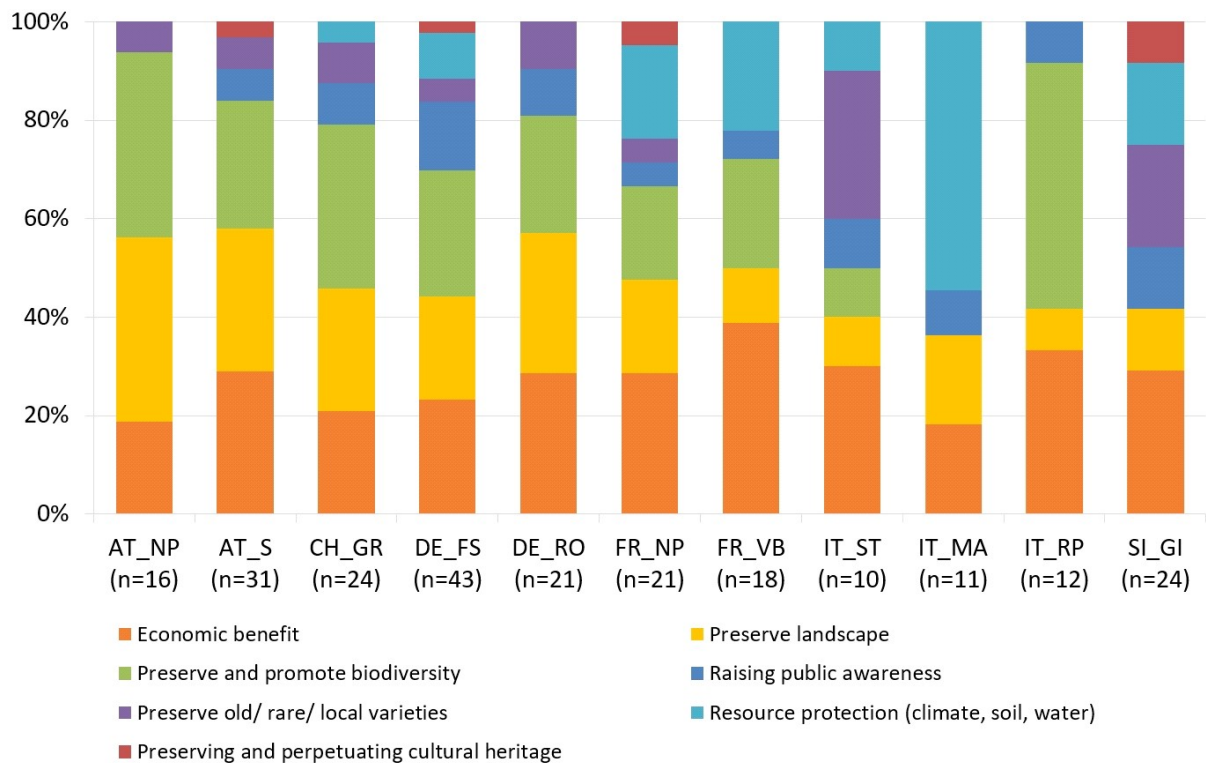


Figure 23: Objectives of stakeholders to achieve with their engagement for GI per region.

Stakeholders' motivation

Similar to the aims and objectives, the motivations of the stakeholders involved, are manifold and have been categorised in seven different classes (Figure 24). Different stakeholders are driven by a variety of motivations. Evidence suggest that overall, rather intrinsic oriented motivations such as joy, quality of life and idealism, play a major role in combination with rather extrinsic oriented, economic interest and motivation.

With regard to risk reduction motivation of actors – such as to avoid soil erosion, flooding or heat stress – are similar to aims as mentioned before. Just very little stakeholder groups and just in a few case studies actors are also motivated with regard to these ones.

It becomes apparent that even network partners that appear to be more economically linked to land use and management as well as the emerging products, are no necessarily more economically motivated than many of the other stakeholder (Figure 24). In fact, the motivation of land users is very strong motivated by intrinsic values showing highest rate of 48% across all cases.

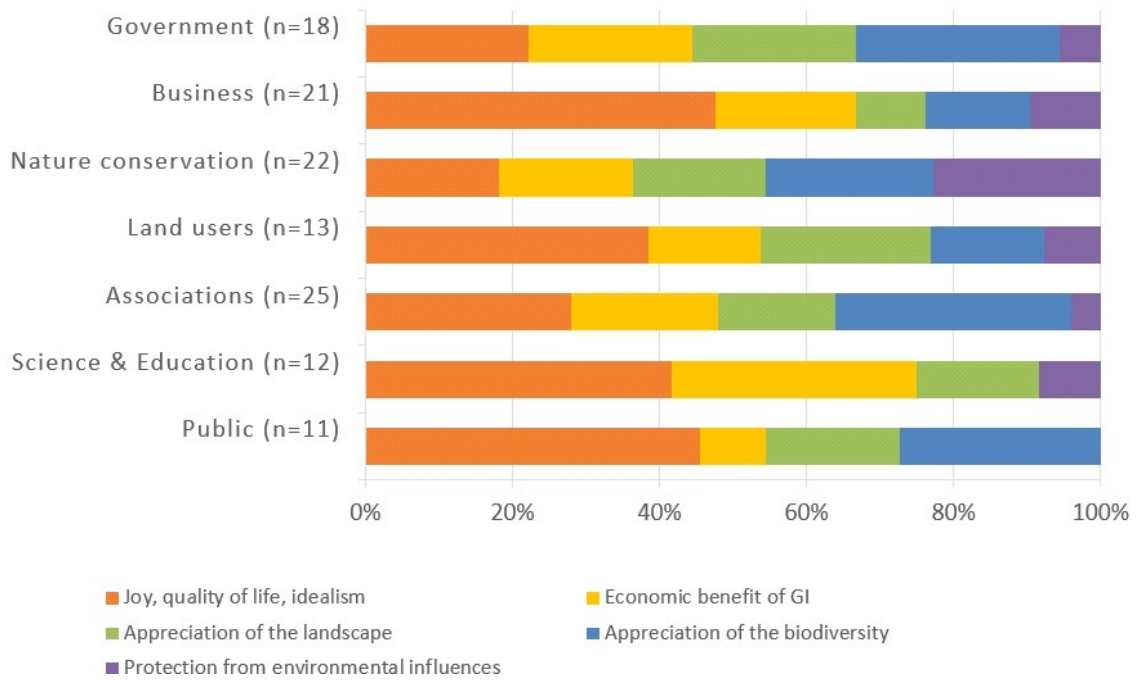


Figure 24: Motivations of the different stakeholder groups.

Finally, another striking aspect is that differences in accentuations can be clearly related to the countries. While the case studies in Austria, Germany and Switzerland are rather driven by few different motivations, the stakeholders' motivation in France and Italy appear to be more diverse (Figure 25).

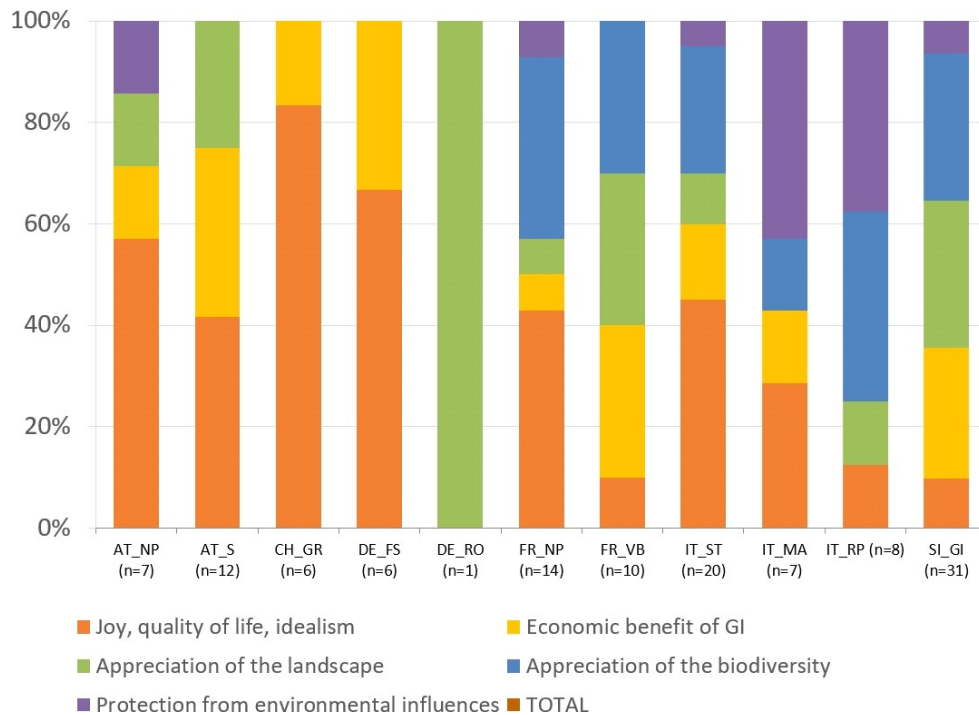


Figure 25: Motivation in the regions, according to the number mentions.

4.4 Resources and power, and role of actors

A number of different resources were contributed and used by the different actors. These have been categorized in financial resources, knowledge (skills and expertise), time and labour, legitimacy, access to land as well as social and professional networks.

The governmental actors were considered as the most important stakeholder group to unlock financial resources for the network. Although remarkably less, associations and nature conservation organisations are also able to financially contribute to the networks, often based on funding and membership fees. Furthermore, the public is considered as contributor, due to purchase and sales of products and services (Figure 26).

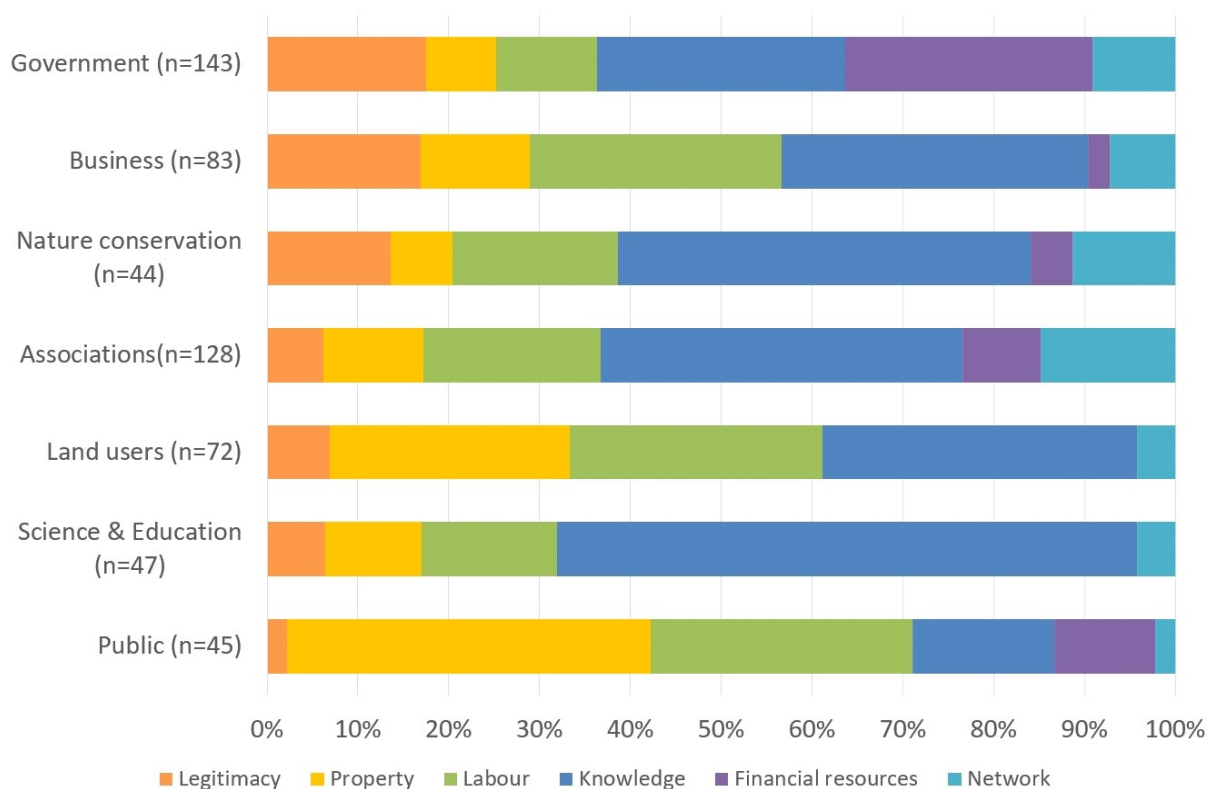


Figure 26: Resources by stakeholder group.

Another crucial resource in most of the initiatives is knowledge in terms of skills and expertise. Here every stakeholder is considered to significantly contribute to the network, except the open public. It has been acknowledged across cases that expertise is very different. Governmental actors are in particular knowledgeable about legal regulations or funding opportunities, while land users contribute with their skills to management and maintenance. Business partners contribute with expertise to marketing strategies, while the stakeholder groups contributions of associations can be very diverse, adding specific knowledge and skills to the network.

Next, stakeholders' time and labour was seen as a vital resource in most of the initiatives (Figure 26). Although all stakeholder groups contribute with time and labour in particular three ones are outstanding, the land users and business partners helping to maintain GI and to create market values. The third group, the public also plays an important role contributing with labour, this is clearly owed to the fact that across cases citizens are considered the most relevant network partner as private landowners contributing to the land availability to maintain and develop GI.

When it comes to land availability, it comes to the ownership structure. While land ownership and labour contribution are clearly reflecting interdependencies of these resources it needs to be noted that these actors are representing the network partner that is often missing skills and equipment needed for appropriate GI management. Stakeholder groups representing the land user on the other side are not just more knowledgeable but usually well equipped for appropriate management and maintenance. In some cases, also associations are significant land owner. Furthermore, the public is contributing to land being provided, often by municipalities or other administrative levels, like from federal state level. It needs to be acknowledged that land provided by the research stakeholder group is in most cases public land, a fact that may not be fully perceived by most of the other network partners. In addition, businesses often contribute with land that may not provide primary GI but land that provides necessary processing opportunities.

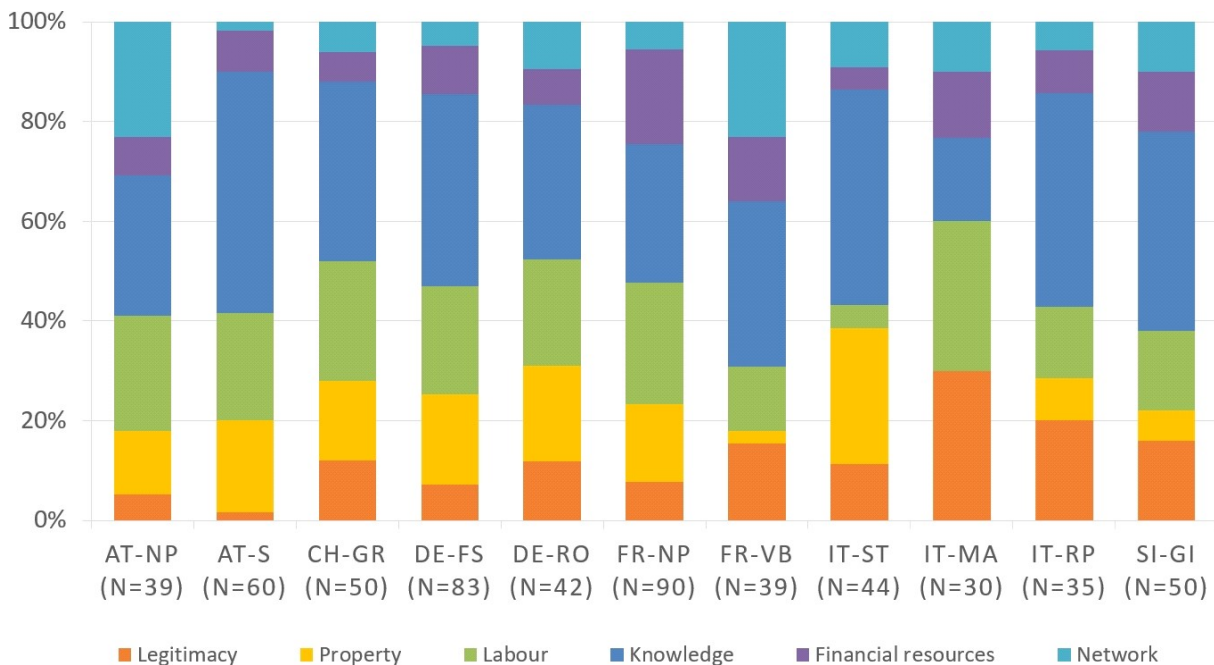


Figure 27: Resources by stakeholder group contributing from the case studies.

Another relevant resource mentioned refers to the access to social and professional networks. Not surprisingly most important network partner in this regard are the associations. In addition, the governmental actors are of relevance. All other stakeholder groups are considered

as contributing to the access to network, although considerably less in comparison to the ones mentioned.

Next, legitimacy was identified as ones' resource, in the means of acceptance and appreciation of an actor by other actors. Most important in this regards are governmental as well as business representatives. Furthermore, associations and NGOs including nature conservation partners play an important role, which may be the case because these represent a number of members, i.e. individuals and the society.

4.5 Constraining and enabling rules of the game

As the fourth dimension of governance approaches, the in-depth-analysis gave some insights in the rules for cooperation i.e. the different types of agreements that coordinate activities and interaction between the network partners. In this regard a distinction was made between formal procedures of decision making implementations, often in form of written contracts and on the other hand, rather informal rules and routines, often verbal agreements, that interaction is based on (Figure 28).

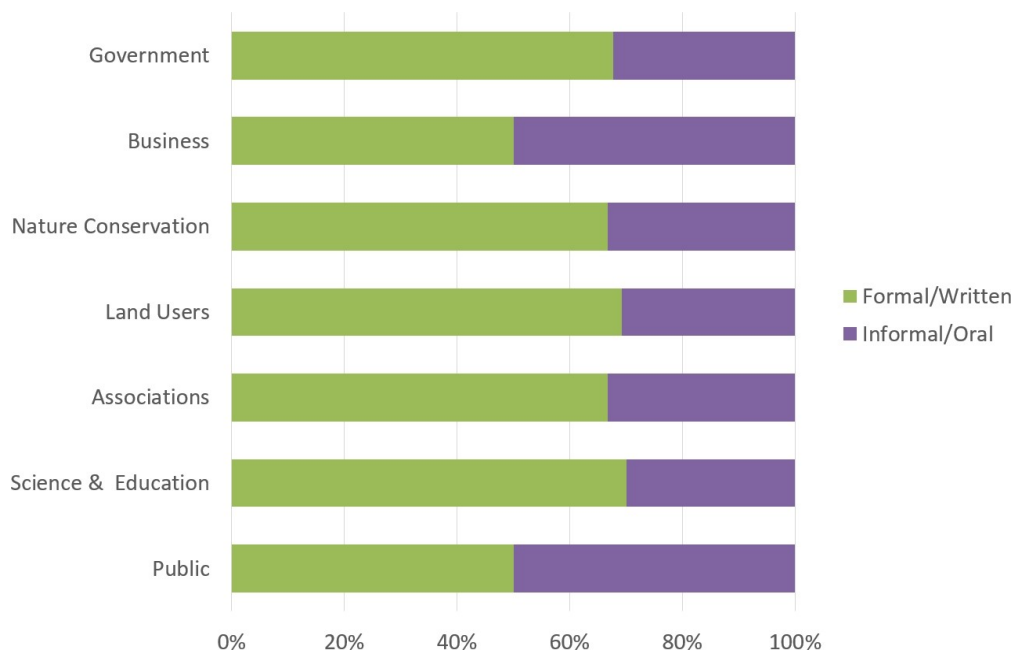


Figure 28: Relevance of formal and informal rules for the different stakeholders.

All stakeholder groups seem to rely more on formal or written forms of cooperation, with around 70% with the exemption of Business and the Public groups, where informal / oral forms of cooperation seem to play a bigger role. Among them, the share is about fifty-fifty (Figure 28). Looking across the regions in Figure 29, it becomes evident that formal rules play a major role across cases, with two exceptions in the Ivrea Morainic Amphitheatre (IT_MA) and the Rural Park South Milan (IT_RP), where all mentioned cooperation had a formal nature. These formal rules can be contracts between partners addressing financing, compliance of

regulations and rules or formalisation of management standards. These are often between government institutions and land users. In addition, formal standards concern associations and organisations with regard to statutes and/or membership rules. Furthermore, agreements can be instruments to coordinate processes between different partners and even sectors i.e. to organise processing along the value chain with regards to supply and demand between land users and marketing businesses, or to harmonize certain product standards.

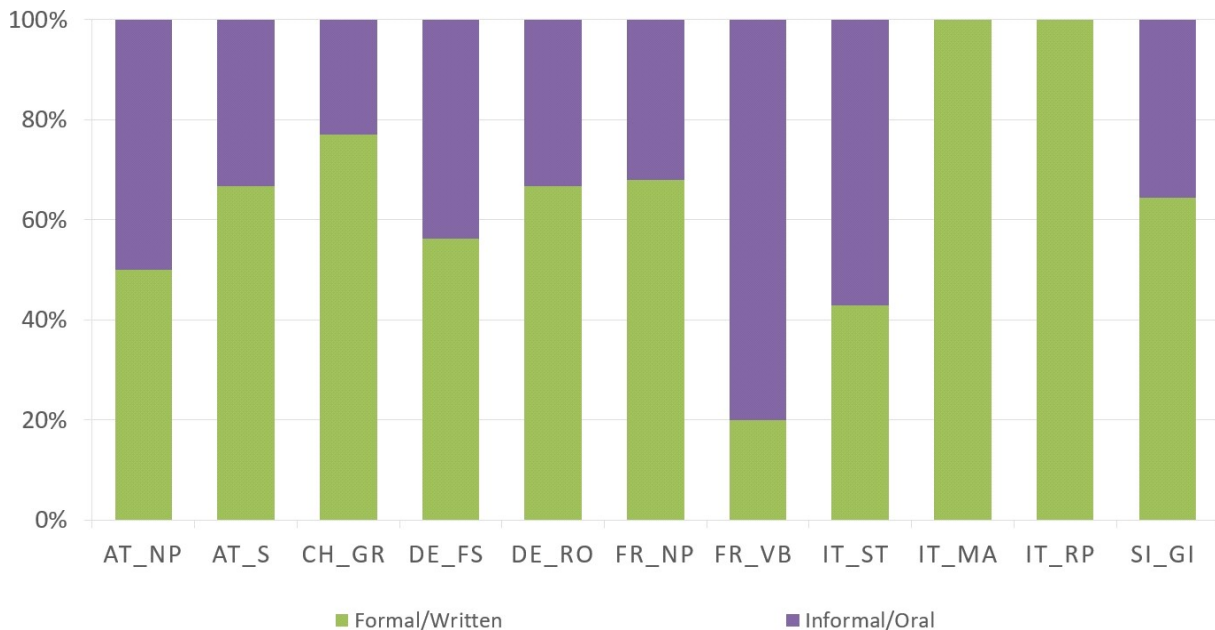


Figure 29: Type of engagement between the cooperation partners, according to the number of times they were mentioned in the interviews.

Formal instruments can work in two opposite directions in the network. While some are perceived as supporting the network others are rather considered hindering. Latter ones occurs in particular if instruments are connoted as excessively formalised, less flexible, which leads to reduced acceptance and even rejection. Others or rather considered as simulating, supporting stability and appreciation within the network. Legal binding agreements and contracts can give guarantees to the partners, in particular if they want to risk avoidance.

Besides the formal instruments also informal rules are substantial in most of the cases, especially in the Vercors and Belledonne mountain massifs (FR_VB), where they make up 80% of all mentions. Hence, their relevance should not be underestimated. In particular, verbal agreements play an important role and have often be mentioned by network partners. They indicate trust among partners, mutual appreciation. In most cases, the cooperation partners do not see the necessity to formalise a cooperation that has informally existed for a long time. Furthermore, informal instruments are intentionally used as strategy to overcome barriers to create trust and mutual respect in particular to find and confidence new network partners. But they may also emerge in form of new, spontaneous and flexible cooperation between partners.

5 Synthesis

5.1 Stakeholder groups' roles and functions

According to this in-depth analysis, it is evident that governmental actors play an important role within the governance approaches and build an important supporting pillar. In all case studies, they were if not initiator, usually have an important supporting role. In all eleven cases the state administration at all levels and across all areas of responsibility, like the authorities, territorial administration in the form of municipalities, counties, regions, districts (DE), departments (FR), cantons (CH), countries or the EU play an important role for GI-management as initiators or co-initiators. While hard to describe the interest of the “state”, implementation and control of compliance with laws is certain, but this also somehow limits the room for manoeuvres due to legal mandate, mostly reactive and less proactive in their action (Table 15).

The land users' group as the persons or organisations that maintain or cultivate GI have a management or caretaker role. They can not only be seen as the producers of raw materials, barter products or otherwise utilize GI, but are a main pillar, for example when it comes to the agricultural management, such as orchard meadows, they are the most important group of actors in the maintenance of GI. However, land users seem to become increasingly less relevant, as other groups of actors, like associations or the public, more often start to take over more and more responsibility.

Businesses do not directly manage GI but are as very important part of the whole value chain by processing and marketing goods and services that are GI-based. They have a role as producers, processors, marketers, consultant or initiators. Consequently, they are an essential partner to maintain and promote GI management.

All non-governmental organisations and associations that are primarily active for the interest of nature conservation can sometimes have the role as initiators. Also as supporters of other groups of actors through resources (money, knowledge). In almost all LUIGI pilot regions the nature conservation groups play rather a secondary role, because they are primary focusing on species protection activities and habitat maintenance. Still, can be often considered as supporting.

The group of non-governmental organisations and associations as defined are, in comparison to the ones mentioned before characterised as being explicitly active in the field of GI of concern within the region, such as land care association. Furthermore, are representing producers' and consumers' cooperatives, in case they are active, they mostly have a supporting role, if not active rather a secondary role. Their room for manoeuvre is not particularly limited and they are frequently pro-active.

Table 15: Synthesis of stakeholder groups' roles and functions.

Stakeholder group	Role	Specified function
Government 	<ul style="list-style-type: none"> (Co) Initiator Support through own resources like money, knowledge, property, network 	<ul style="list-style-type: none"> Important supporting pillar in all study areas: if not initiator, usually have an important supporting role Limited room for manoeuvres due to legal mandate, mostly reactive and less proactive action
Land Users 	<ul style="list-style-type: none"> Manager/ caretaker / producers 	<ul style="list-style-type: none"> Main pillar, most important group of actors in the maintenance of GI. Actors group is slowly losing importance, as other stakeholder groups, e.g. associations, public take on more responsibility.
Business 	<ul style="list-style-type: none"> Producers / processors/ marketers/ consultant Initiators 	<ul style="list-style-type: none"> Supporting pillar: forming the value chain, marketing platform, advertisement, etc.
Nature Conservation 	<ul style="list-style-type: none"> Initiator Supporters through money, knowledge 	<ul style="list-style-type: none"> Actor group plays secondary role in almost all regions Mostly supporting activity
Associations 	<ul style="list-style-type: none"> Initiator Supporters through knowledge, manpower, network, property, money 	<ul style="list-style-type: none"> If active: mostly supporting pillar if not active: secondary role Room for manoeuvre not limited, mostly acting proactively
Science & Education 	<ul style="list-style-type: none"> Initiator Supporting through knowledge 	<ul style="list-style-type: none"> Actor group plays secondary role in almost all regions Mostly supporting activity
Public 	<ul style="list-style-type: none"> Initiator Support through property, labour, money in the form of donations or consumption 	<ul style="list-style-type: none"> Independent projects on own land Secondary role as supporter Potentially supporting pillar, so far too few and only interested citizens involved Group of actors is currently gaining more and more importance

Science & Education also can take on the role of an initiator, but this has not been witnesses in many regions, thus rather being seldom. Usually they are supporting other groups of stakeholders contributing with knowledge resources. Form research and distributed through teaching and offering courses (Table 15).

Finally yet importantly, the public can support other groups through e.g. property, labour, money in the form of donations or consumption. The can become a stronger supporting pillar in the future, so far too few and only interested citizens involved. However, in many areas, the public is currently gaining more and more importance.

5.2 Perception of the current situation of maintenance, recent developments and outlook

While assessing the evolvement of GI in recent years to evaluate effectiveness and successes, the opinions of the experts sometimes differ widely, even within the areas. Over the last ten years, according to the participants of the online questionnaire, the situation of GI has improved in and the Central Area of Salzburg (AT_S), some stakeholder report that it has worsened slightly. Also in the District of Freising (DE_FS) positive voices are equal to or even outweigh the negative ones. Also in the Rural Park South Milan (IT_RP) is substantial evidence of improvement (Figure 30).

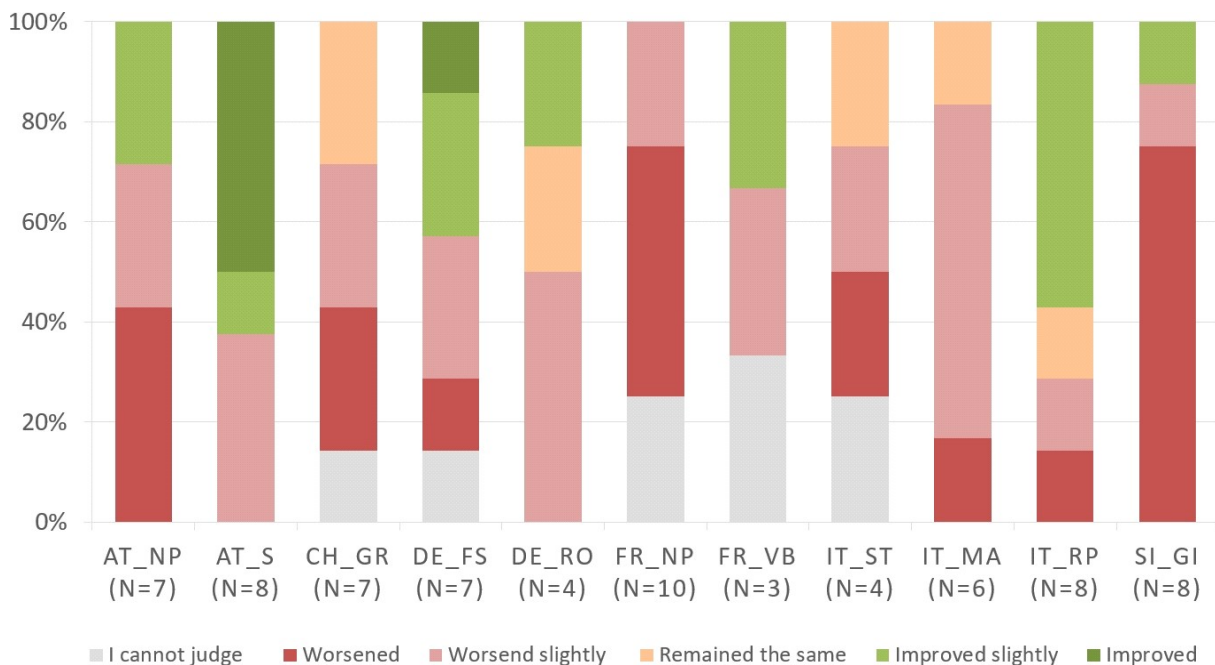


Figure 30: Change of the general situation of GI over the past 10 years across regions.

However, generally a rather negative trend or a somewhat pessimistic view with regards to the development during the last 10 years are assumed in the Zone Albanais Haute-Savoie (FR_NP), the Trin / Domleschg region of the Canton of Grisons (CH_GR) and the Raab-Örség-

Goričko Nature Park (AT_NP). A very pessimistic opinion predominates the Goriška – Idrija-Cerkno region (SI_GI), as it seems that 75% of the persons participating in the online questionnaire share the opinion, that the general situation as worsened (Figure 30).

The decline of orchard stands in the German pilot regions can partly be explained by the change of protection of orchard meadows in Bavaria. Owners of orchard meadows were afraid of nature conservation regulations, which prevent them from deciding freely about their property, and cut down the fruit trees. Other reasons for the decline in numbers are, in many places, the replacement of orchard meadows by more productive cropping systems or felling as part of infrastructure construction activities. Concerning orchard meadows, the main reason for the decline in stock is the lack of maintenance. Therefore, the online questionnaire further elaborated on this. It was therefore asked, how stakeholders see the current management activities of GI with respect to its sufficiency to maintain them in the long term.

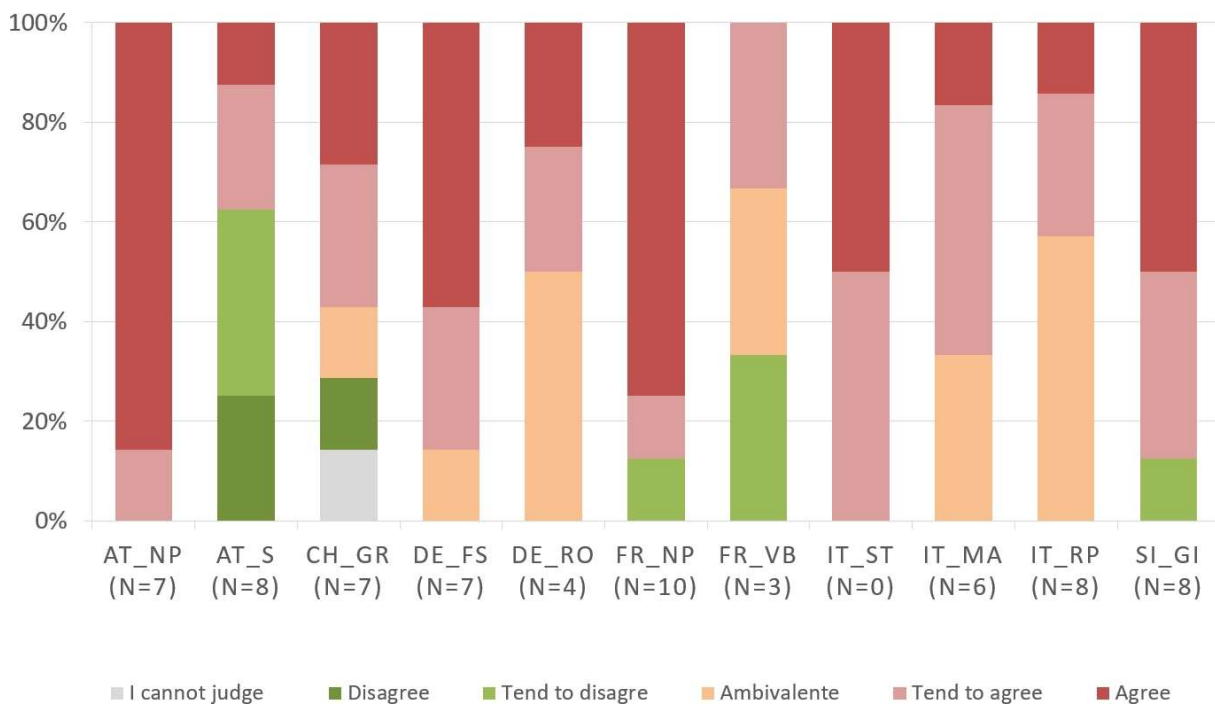


Figure 31: Experts' assessment regarding the question whether the current maintenance or management sufficiently safeguards GI.

Here for instance in the Raab-Örség-Goričko Nature Park (AT_NP), Zone Albanais Haute-Savoie (FR_NP), and Malles/ Vinschgau Valley (IT_ST) judge that the maintenance of GI is absolutely off track (Figure 31). However, substantial ambivalence was felt in District of Rosenheim (DE_RO) and Rural Park South Milan (IT_RP), showing, that some concepts are working while others still need improvement. In Central Area of Salzburg (AT_S) and partly in Trin / Domleschg region (CH_GR) some stakeholders are convinced that the current management will succeed to maintain the local GI.

5.3 Inhibiting factors

The inhibiting factors describe all factors that inhibit the preservation or development of GI, which can be changed through governance. The collection of these factors is mainly based on questions in the interviews (primarily questions 9, 11, 12, 13 and 16). From the answers, 14 categories were coded (Figure 32).



Figure 32: Inhibiting factors in the conservation and promotion of the GI overall.

The most prominent inhibiting factor for GI is economic viability (Figure 32). For the case of orchard meadows, this has also been pointed out by (Maier *et al.*, 2020; Schrapp *et al.*, 2020).

The second most frequent inhibiting factor identified was conflict of interest. Typical are competition for land, for most regions the greatest conflict of interest. The conflicts between the land users and the public (e.g. in form of consumers) another source for a conflict of interest. A fourth subject is the conflict of interest between agriculture, i.e. land user, on the one side and the nature conservation group on the other. This conflict has been described for example in the County of Rosenheim (DE_RO) and in the District of Freising (DE_FS). But for example in the Central Area of Salzburg (AT_S) land uses see no conflicting points with e.g. the public or nature conservation.

Another relevant inhibiting factor mentioned at the third position and relatively often in all regions and among all stakeholder groups is the general lack of knowledge. Less so, it seems to be the case in Raab-Örség-Goričko Nature Park (AT_NP), the County of Rosenheim (DE_RO), and Rural Park South Milan (IT_RP). However, in all regions studied, the problem is addressed that many people are not informed about the benefits green infrastructure in general. This results in only a low appreciation and a lack of interest in the creation or maintenance. This

mainly affects the public, agriculture and government and leads, among other things, to a lack of resources (finances/personnel) being made available by decision-makers and to the prioritisation of goals that partly conflict with the conservation and promotion of GI.

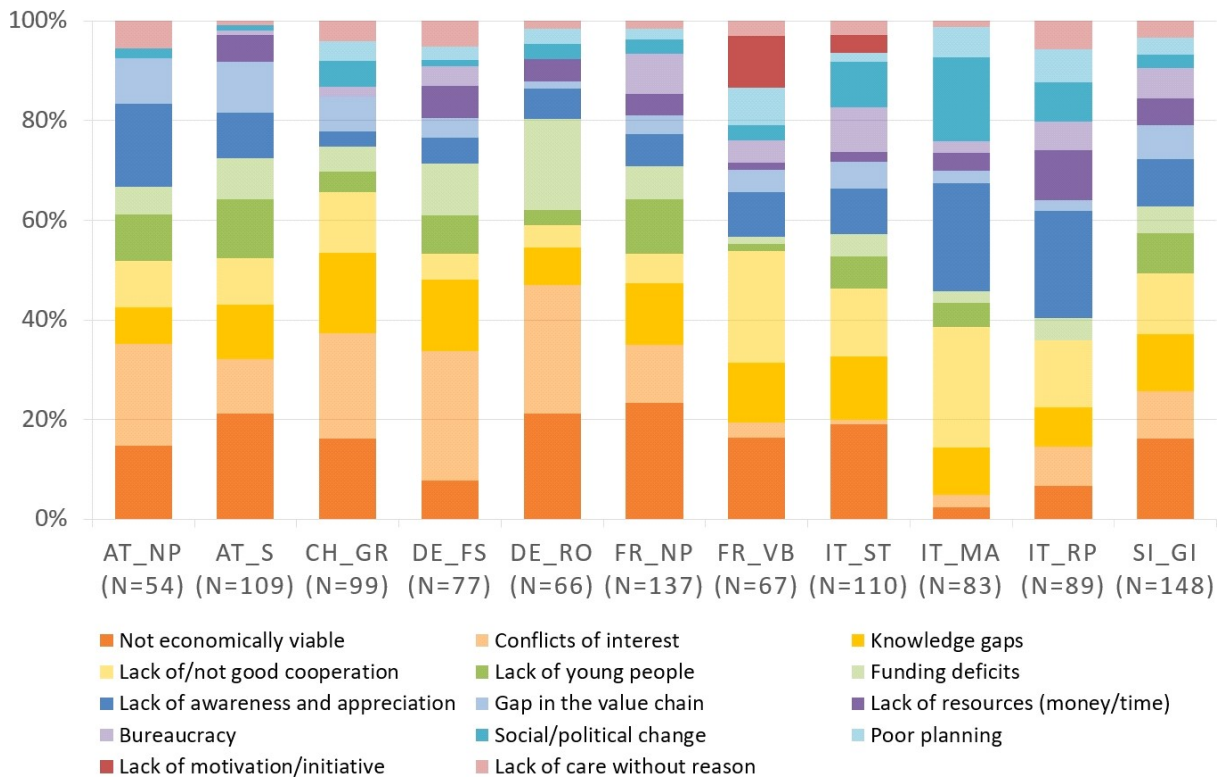


Figure 33: Inhibiting factors in the conservation and promotion of GI by region per region.

For the special GI in form of orchard meadows, the major gaps in knowledge are in the area of the establishment and maintenance of orchards and primarily affect the stakeholder groups public and land use. In this context, also a great deal of inexperience on the part of actual experts is mentioned. Particularly criticised is the insufficient thematisation of orchard topics in the teaching of landscape gardeners and farmers. As there is currently a trend towards more planting and maintenance of orchards by private individuals this comes along with inexperienced in the selection of varieties and locations as well as in pruning and often act according to the principle of “trial and error”. Lack of knowledge about possible fruit and nut varieties is also frequently mentioned.

The lack of /or poor cooperation was named as an obstacle by the experts in all regions, somewhat more often in the Canton of Graubünden (CH_GR) and in the Goriška – Idrija-Cerkno region (SI_GI). On the one hand, it was criticised that many actors tend to compete with each other, e.g. for project grants or subsidies, rather than strive for cooperation. Cooperation is easier to enter into with other sectors than with one's own. For example, in the Central Area of Salzburg, dealing with orchard meadows, there is no cooperative of producers or machinery ring for the joint purchase and use of machinery, such as fruit shakers or lifting platforms,

which would simplify the work of many farmers. The experts interviewed are of the opinion that in many places people are not open enough to new concepts; they first have to be convinced of the win-win situation of cooperation. However, even if cooperation already exists, this does not mean that all hurdles have been removed. New inhibiting factors can also arise because of cooperation. It was often mentioned that cooperation does not work well because of interpersonal issues.

All other categories visualized in the word cloud in Figure 32 also play a role and can be explored in more detail.

5.4 Types of governance arrangements and their main characteristics

Our case studies display a number of different governance arrangements. They can be assigned to six types, adapting Arnouts *et al.* (2012); Buizer *et al.* (2015); Buijs *et al.* (2016) and Ambrose-Oji *et al.* (2017): 1) Government led, 2) Market oriented, 3) Closed Co-Governance, 4) Open Co-governance, 5) Green hub, and 6) Grassroots initiatives (Figure 34).

The assignment to these types is based on the actors in the arrangement i.e. involvement and cooperation. Furthermore, the functions of actors involved are considered, in terms of resource provision and finally the aims of the network and how they are shared. These different types and their characteristics will be described in the following.

Government led approaches can be assigned to four of the eleven cases study regions in the LUIGI project area (Figure 34). In these regions, many processes and interactions among the actors are steered by governmental institutions. Furthermore, they act as main supporter of activities, for instance by providing resources (like funding, knowledge), or even initiate them. The levels of steering institutions often vary between the regional and municipal level expect one case, where even the national institutions also play important roles. Whereas some cases are based on long history of established structures or traditional planning policies, initiatives can be newly established. Although activities often underlie formal processes, individual actors are invited to become involved and can act quite flexibility within the network, even playing relevant roles by providing relevant resources etc.

Market oriented governance can be witnessed in two cases, The Central Region of Salzburg and the County of Rosenheim. A somewhat outstanding case is the Rural Park South Milan, where characteristics and mechanisms of market oriented approaches can be witnessed besides the government led approach. In all three cases primary market oriented partners along the value chain are involved and drive processes within the network to maintain and develop GI, including non-governmental associations representing producers' and consumers' initiatives. In these cases, a high motivation among different actors can be observed. Governmental actors are also active, for instance by setting framework conditions in which the market can

maintain and further evolve. The network furthermore characterises as being fertile in terms of the development of new products and services with economic, future oriented businesses, offering potentials reconciling economic, ecological and social/cultural interests.

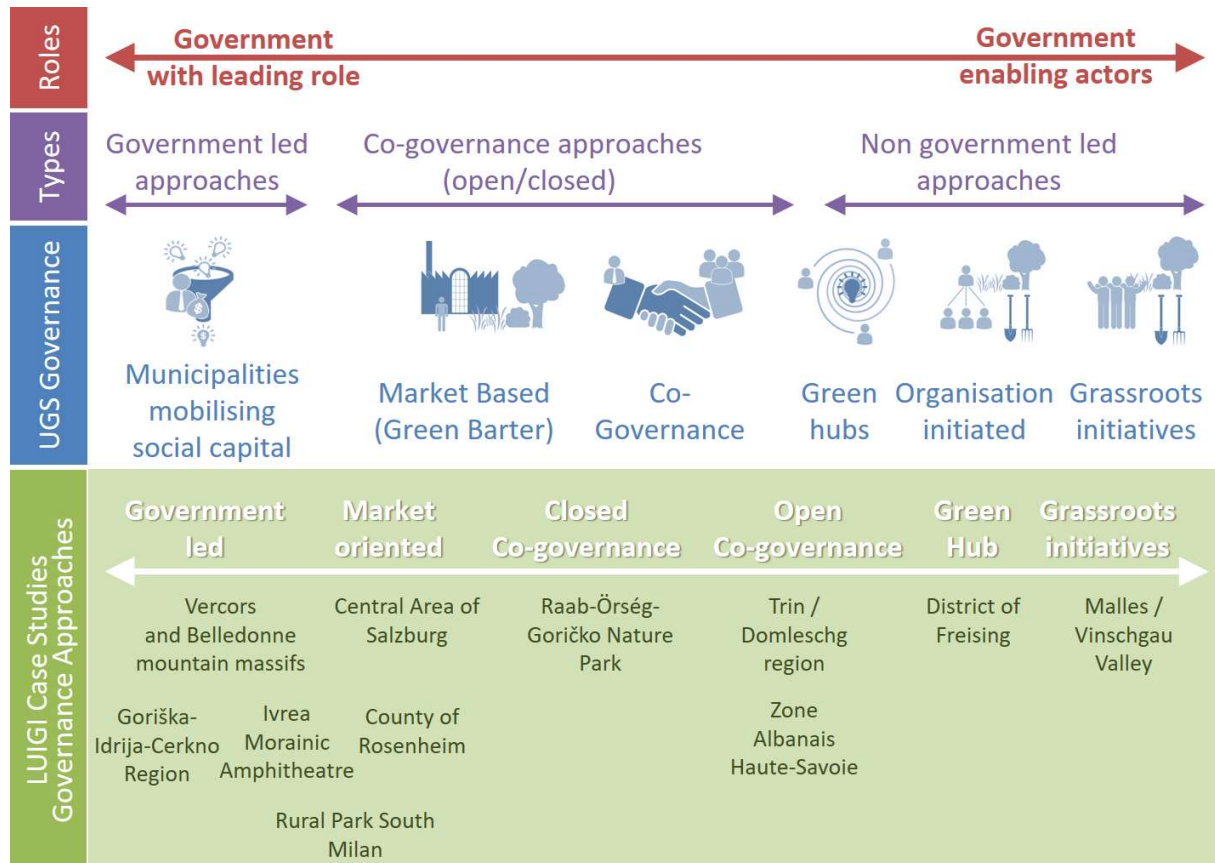


Figure 34: Governance Arrangements within the different LUIGI case study regions.

Source: based and extended according to (Arnouts *et al.*, 2012; Buizer *et al.*, 2015; Buijs *et al.*, 2016; Ambrose-Oji *et al.*, 2017).

As co-governance, we can distinguish between closed and open variants. The situation of the Raab-Örség-Goričko Nature Park demonstrates closed co-governance because cooperation depends on the initiation of the nature park as most important actor. While the governmental actor group sets the direction different stakeholders and local non-state actors become incorporated. The Parks administration provides a framework, coordinates and maintains the network, and is in charge of funds. Within this frame, different non-state actors and stakeholders act autonomously, supporting to reach a common vision. Next, open co-governance can be witnessed in two cases, the Trin / Domleschg region and the Zone Albanais Haute-Savoie. Here governance is characterised by an open network base on numerous actors that intensively interact with each other, many collaborations and cooperations among each other. Still, some stakeholder might be more active than others might, but these are non-governmental and activities are depending on strong cooperations between different actors and stakeholder

groups in the regions, including governmental actors. As such, processes of interaction are depending on many different actors and form of cooperation that are often work independently and on a very flexible base.

A form of green hub builds the situation in the District of Freising. Although different governmental institutions are involved, the Land Care Association as a non-governmental organisation takes a leading role and cooperation in maintaining orchards as GI within the region. New innovative approaches emerge with increasing number of new partners and coalitions and management approaches that increasingly enable involvement of citizens, helping to maintain GI. Particularly the situation of the Schafhof is perceived as a front-runner in the region, setting new innovations. The appearance of different research and education institutions appear to be supportive in this regard, but do not seem obligatory.

Finally, grassroots initiatives as another form can be witnessed in the situation of Malles / Vinschgau Valley. Here, non-governmental actors recently started to build new coalitions in order to transform current widely established high intensity farming methods and management practices due to negative externalities that go along with them. The aim is to transform these into less intensive production forms and farming systems, aiming to reconcile economic objectives with biodiversity including agrobiodiversity as well as social and cultural landscape values. Yet, non-governmental actors are predominant and taking a leading role, cooperate and build coalitions with each other. Although governmental actors are involved, they keep their distance. Informal instruments are of comparably high relevance.

5.5 Outlook

Finally, one may constipate that this LUIGI Deliverable D.3.2.1. created the necessity for a systematic consultation process between different GI-stakeholders such as public authorities, farmers, NGOs & associations, SMEs, nature conservation activists, education & research and at least partly, the public, thus enlarging the personal networks of those participated. Therefore, the benefit goes beyond normal research as a dialogue started within the case study regions and also between the LUIGI pilot areas involved.

For the next step in the LUIGI project, further investigations are undertaken to better link GI development with governance approaches and to identify success factors. Especially, it is of interest, which instruments and solution pathways are most successful in the respective governance arrangements in terms of linking urban and Inner-Alpine green infrastructure and multifunctional ecosystem services? To do so, the second part of the interviews, namely the solution strategies, will be evaluated in Deliverable 3.4.2 in order to derive co-creative recommendations for action.

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Annex

A1 Interview guide

Interview guide	Research interest
Introduction - General assessment of the situation	
1. Briefly state the reasons why GI should be preserved. a. Are these also the reasons why you support GI? i. <i>If Yes:</i> Go to question 2 ii. <i>If no:</i> Why do you support GI?	<ul style="list-style-type: none"> - General attitude of the actor - Perspective on GI - Motivation/goals of the actors (Guiding question 2)
2. Briefly name the most important factors or circumstances that contribute to the preservation of GI.	<ul style="list-style-type: none"> - Promoting factors - Possible solutions (Guiding question 11, 12)
3. How relevant are GI in your daily work? a. How do you deal with GI in your work?	<ul style="list-style-type: none"> - General attitude of the actor - Importance of GI (Important for the classification of all answers) (Guiding question 2)
Cooperation - Actors/Resources	
4. Who do you work with on the subject of GI? a. Where do you get your knowledge or current information on the subject of GI?	<ul style="list-style-type: none"> - Actors involved - Cooperations - Constellation of actors in the region - Resource knowledge (Guiding question 1, 3, 4)
5. What goals are you pursuing with the cooperation?	<ul style="list-style-type: none"> - Motivation/goals of the actors (Guiding question 2)
6. Which competences and resources do the different partners bring to the cooperation?	<ul style="list-style-type: none"> - Distribution of resources, roles and power within the cooperation - Driving force (Guiding question 3)
7. Are there oral or written agreements for the cooperation? a. <i>If yes:</i> What agreements are in place? i. <i>Ask question only for written agreements:</i> Are these agreements publicly available so that we can read them? ii. <i>Only ask this question if an association/project/network/initiative has been founded:</i> Please briefly describe the origin and structure of the association/project/network/initiative. b. <i>If No:</i> Go to question 8	<ul style="list-style-type: none"> - Rules of the game - (Details on the network: players, resources, rules of the game) (Guiding question 5)
8. Has the Society been involved in any form of GI in your region to date? a. <i>If yes:</i> i. How is she involved? 1. Which parts of society are involved? 2. In which matters is the company/specific parts of the company involved? ii. What do you think are the advantages of this participation? 1. Do you also see disadvantages in this participation? b. <i>If no:</i> i. Why isn't the company involved? ii. Are there any plans for future participation?	<ul style="list-style-type: none"> - Public participation - Actions - Promoting/inhibiting factors - Possible solutions (Guiding questions 5, 8, 10, 11, 12)

<p>1. If yes:</p> <ul style="list-style-type: none"> • What do you think participation should look like? • What contribution could society make to the preservation or development of [Variable]? <p>2. If No: Go to question 9</p>	
<p>9. Can you give us an example of how you and your partners work together in the field of GI?</p> <p>a. Is there also an example where cooperation in the field of GI did not work?</p>	<ul style="list-style-type: none"> - Actions - Impact - Details on cooperation: actors, resources, rules of the game - Promoting / inhibiting factors (Guiding questions 1, 3, 4, 5, 8, 9, 10, 11, 12)
<p>10. We would like to focus a little more on cooperation. What contributes to a good cooperation between you and your partners?</p>	<ul style="list-style-type: none"> - Enabling factors (Guiding Question 11)
<p>11. Where does the cooperation between you and your partners reach its limits?</p> <p>a. Do you feel that cooperation is hindered by some actors?</p>	<ul style="list-style-type: none"> - Inhibiting factors (Guiding Question 10)
Challenges and possible solutions for the preservation and development of orchard meadows	
<p>12. What have been the most important successes in your region with regard to the preservation of GI in recent years?</p> <p>a. What has contributed to this success?</p> <p>b. Have there also been failures with regard to the preservation of GI in recent years?</p> <p>i. What led to this failure?</p> <p>c. Where do you see obstacles in the preservation of GI?</p> <p>i. Where do you reach your limits with your work?</p>	<ul style="list-style-type: none"> - Impact - Promoting factors - Inhibiting factors (Guiding questions 9, 10, 11)
<p>13. In your opinion, what would have to change in order to better preserve or develop GI?</p> <p>a. Why do you think the solutions you mentioned are suitable?</p> <p>b. Where do you see knowledge gaps that need to be addressed to improve the situation?</p> <p>i. How to close them?</p>	<ul style="list-style-type: none"> - Approaches - Promoting factors - Inhibiting factors (Guiding Questions 10, 11, 12)
<p>14. Please tell us about a concrete problem in the field of GI in your region and how you were able to solve it, how you were not able to solve it or how you plan to solve it.</p>	<ul style="list-style-type: none"> - Inhibiting factors - Possible solutions (Guiding questions 10, 12)
<p>15. Do you see new challenges in the field of GI in your region in the near future?</p> <p>a. If so, how do you intend to meet these new challenges?</p> <p>b. If No: Go to question 16</p>	<ul style="list-style-type: none"> - Inhibiting factors - Possible solutions (Guiding questions 10, 12)
<p>16. To what extent are GI in your region affected by the consequences of climate change?</p> <p>a. If affected: What are the strategies for dealing with these challenges?</p> <p>b. If not affected: Go to question 17</p>	<ul style="list-style-type: none"> - Inhibiting factors - Possible solutions (Guiding questions 10, 12)

Summary	
17. In your opinion, what are the strengths and potentials of your region with regard to the preservation and development of GI?	<ul style="list-style-type: none"> - Promoting factors - Possible solutions (Guiding Question 11, 12)
18. What can other regions learn from your region? a. What is particularly innovative in your region/project/approach and could help other regions?	<ul style="list-style-type: none"> - Recommendations for other stakeholders - Approaches - Enabling factors (Guiding question 11, 12)
19. In your opinion, are there any other important aspects of the topic of GI that have not yet been addressed in the interview? a. If you have any further ideas, please feel free to let us know at a later date. You have our contact details through our previous e-mail correspondence. b. Is there anything else you would like to share with us?	<ul style="list-style-type: none"> - Checking whether important aspects have been overlooked - freedom of expression
20. Who else do you think should be consulted on this subject?	<ul style="list-style-type: none"> - Checking whether relevant actors have been overlooked

A2 Online questionnaire

[Variable] = Key-Green Infrastructure of regions e.g. orchard meadows, hedgerows, wetlands etc.

Accompanying questionnaire

to the interview "Challenges and possible solutions in maintaining and improving [variable]"

Please read the preliminary remarks carefully before you start answering the questions.

We would like to ask you a few questions about [variable] and the associated challenges and approaches to maintaining and improving [variable] in your region. Based on the findings of our preliminary analysis, this questionnaire was developed to accompany the previous interview. Please provide **your personal assessment related to your region** in response to the questions.

Please go through the questionnaire to the end and – very important – click "Submit" at the end. Otherwise, your answers will not be saved and will be lost.

Part I – Background information

To get started, please give us some information about you are (this will be anonymized, of course).

- 1) In which city do you work?
- 2) Contact (first name, last name and e-mail).
- 3) In which company or institution (+ department) do you work?
- 4) What position do you hold in this company/institution?

Part II – Development of [variable] in your region

For each question, please provide only one answer by placing a check mark next to the applicable answer.

- 5) How has the situation of [variable] changed over the last 10 years in general?
Deteriorated / somewhat deteriorated / remained the same / somewhat improved / improved / I cannot assess
- 6) How has the area of [variable] changed over the last 10 years?
Decreased / somewhat decreased / remained the same / somewhat increased / increased / I cannot assess
- 7) How has the quality of the [variable] changed over the last 10 years?
Deteriorated / somewhat deteriorated / remained the same / somewhat improved / improved / I cannot assess
- 8) How has the general situation of stakeholders responsible for the maintenance or cultivation of [variable] changed over the last 10 years?
Deteriorated / somewhat deteriorated / remained the same / somewhat improved / improved / I cannot assess
- 9) How has the general situation of the processing industry or producers within [variable] changed in the last 10 years?
Deteriorated / somewhat deteriorated / remained the same / somewhat improved / improved / I cannot assess
- 10) How has the general situation within the marketing sector for products from [variable], changed over the last 10 years?
Deteriorated / somewhat deteriorated / remained the same / somewhat improved / improved / I cannot assess
- 11) How has the general situation of the marketing sector for intangible services from [variable], changed over the last 10 years?
Deteriorated / somewhat deteriorated / remained the same / somewhat improved / improved / I cannot assess

Part III – Challenges related to [variable]

How much do you agree with the following statements? Please provide only one response by placing a check mark next to the applicable response.

- 12) The current level of maintenance or cultivation of [Variable] is not sufficient to sustain it in the long-term.
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 13) Knowledge about [variable] is available amongst the public in my region.
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 14) Knowledge about [variable] is available in my region amongst the experts.

Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess

- 15) The knowledge available about [variable] is readily accessible to all that are interested.
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 16) There is high pressure to intensify the cultivation of [Variable].
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 17) There is high pressure for infrastructure development on [Variable].
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 18) What else would you like to tell us about challenges related to [Variable]?

You are already more than halfway there. Thank you for your support!

Part IV – Funding for [variable]

How much do you agree with the following statements? Please provide only one response by placing a check mark next to the applicable response.

- 19) With the current funding instruments, [variable] can be maintained in the long term.
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 20) The payments provided by the Common Agricultural Policy at EU are sufficiently utilized in my region.
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 21) In the current funding instruments, there is a conflict between the implementation according to the management guidelines and the economic efficiency of the implementation.
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 22) Please complete the following sentence: To maintain and improve [variable], the funding contribution would need to...
... remain unchanged. / ... be increased by 10%. / ... be increased by 25%. / ... be increased by 50%. / I cannot assess

Please give us your assessment in comprehensible bullet points or complete sentences.

- 23) Which measures should be emphasized within funding instruments [variable]?
- 24) What requirements should be attached to funding instruments [variable]?
- 25) What criteria should be applied to determine the amount of funding?
- 26) Who should be in charge of monitoring the implementation or compliance with the conditions of funding?
- 27) To what extent should the implementation or compliance with the funding conditions be monitored?
- 28) What else would you like to tell us about funding of [variable]?




Part IV – Possible solutions to the challenges related to [variable]

How much do you agree with the following statements? Please provide only one response by placing a check mark next to the applicable response.

- 29) Building awareness of the value of [variable] is an important factor in maintaining and improving it.
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 30) In which societal groups should awareness building on the value of [variable] take place? Please name them.
- 31) Cooperation among stakeholders in my region contributes to the maintenance and improvement of [variable]?
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 32) The development of new product or innovative services based on the use of [variable] fosters its preservation or development.
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- 33) The development of a regional green infrastructure planning concept focusing on [variable] would be useful in my region to promote the maintenance and improvement of [variable].
Disagree / somewhat disagree / partially disagree and partially agree / somewhat agree / agree / I cannot assess
- a. Who should be involved in the development of such a concept? Please name these stakeholders.
 - b. Who should lead the development of such a concept? Please name this stakeholder/these stakeholder.
- 34) What else would you like to share with us about possible solutions to the challenges related to [variable]?

You are done. Thank you for your time and participation!

A3 Tips for using the Interview guidelines and conducting the interviews



European Regional Development Fund

Tips for using the interview guideline and conducting interviews

Goal of expert interviews





- Allow your interview partner to talk about their experience as openly and freely as possible
- Follow an interview guideline to gain accurate answers to the research questions, as the content would not emerge from a free conversation
- Record the interview not to miss out on any details and allow for full documentation


General tips

- Create and maintain a positive atmosphere between the interviewer and the interviewee (already when contacting them, etc.)
 - only then will you get high quality answers
- Keep a neutral attitude in the interview: do not make any judgmental comments or other stimuli during the interview
- Ideally, no more than 1 interview per day
- If possible: two interviewers
 - Interviewer 1: concentrates on the interview
 - Interviewer 2: monitors recording(s); checks responses for completeness and important references to other sources of information
 - If one interviewer, this interviewer is responsible for all tasks
- Place recording equipment as inconspicuously as possible and prepare it at the beginning so that no changes have to be made during the interview (e.g., do not change batteries, connect cell phone directly to power)
 - this would distract the interviewee or even disrupt the flow of the interview

Procedure of the interview

- Start with a short greeting, thanks for participating
- Introduce yourself and your role (name, employer)
- Begin with the interview and start with the text attached to the interview guidelines:
 - Provide info on the context and objective of the research
 - Explain the necessity of recording of the interview
 - Guarantee the confidential and anonymous handling of the data with reference to the privacy disclaimer
 - Offer the possibility, if one feels uncomfortable answering a specific question, to skip the answer and continue with the next question



- 
- During the interview
 - The interview guide is very structured so that all interviews are comparable, go through the guideline question by question, do not mix or do not leave anything out
 - Always ask only one question, wait for the answer, and then ask the next question (otherwise answers can no longer be assigned)
 - Interviewer must decide for each question whether it has been answered sufficiently. Based on the follow-up questions, you can judge what we want to know for our re-search -> in order to do this, you must know the interview guidelines well
 - End with the interview based on the text at the end of the guidelines
 - Room for questions from the interviewee
 - Information about the supplementary online questionnaire that will be sent to the interviewee afterwards

A4 Recording the Interviews



Recording the interviews

The choice of software for recording and transcribing the interviews is up to the project partners - here are a few well-suited suggestions.

General recommendations

- Before the first interview, **test the recording devices** to make sure that speech is recorded and that the audio quality is correct.
- Always run **parallel recordings** in case one system fails.
- Minimize the **background noise** for a good audio quality: switch off all other devices that make noise (e.g. ventilation).
- It is best to **do a test run** with the recording of a test conversation before the first interview and check if the audio quality fits the chosen method of transcribing.

Recording video calls

Details Recording technology	Operating system	Notes	Access/Tutorial
Zoom, GoToMeeting, Jitsimeet, various video conferencing software	Windows, Linux, Mac	Zoom : recording function only available with full version; GoToMeeting : recording function only available with Pro or Plus level account; Jitsimeet : no registration required, recording also possible in browser version; Dropbox account required, as data is stored there (free account is sufficient)	Zoom-Download: https://zoom.us/ GoToMeeting-Download: https://global.gotomeeting.com/install Jitsimeet: no download or registration required: https://meet.jit.si/
Windows internal recording mode	Windows	Only available since Windows Update May 2019. Switch on microphone (top right); individual screen windows can be selected for recording, creates videos (Mp4)	To open: press Windows-key + G Tutorial: https://www.youtube.com/watch?v=CffFDIABao
OBS (Open Broadcaster Software) recording software	Windows, Linux, Mac	A bit complex at first glance, because it can record much more than interviews	Download: https://obsproject.com/ Tutorial (how to record a Meeting with OBS): https://www.youtube.com/watch?v=s0AlPACw3mQ
Recording / dictation app smartphone	Android, iOS	Audio quality very variable; a lot of background noise; remove cover for better recording quality	Preinstalled by default (should be called dictation device on Android and voice memos on iOS)

Recording phone calls

<i>Details</i> Recording technology	Operating system	Notes	Access/Tutorial
Recording / dictation app smartphone	Android, iOS	You need 2 phones: with one you speak (via speakerphone) - with the other you record; audio quality very variable; a lot of background noise; remove cover for better recording quality; recording device should be as close as possible to the speaker and the mouth of the speaking person (approx. 10 cm)	Preinstalled by default (should be called dictation device on Android and voice memos on iOS)
Call Recorder - Cube ACR	Android	-	Download: https://play.google.com/store/apps/details?id=com.catalinagroup.callrecorder
Call Recorder - TapeACall Pro	iOS	a virtual third party is added to the call that records	Download: https://www.tapeacall.com/

Recording interviews in presence

<i>Details</i> Recording technology	Operating system	Notes	Access/Tutorial
Recording / dictation app smartphone	Android, iOS	Audio quality very variable; a lot of background noise; remove cover for better recording quality; recording device should be as close as possible to the speaker and the mouth of the speaking person (approx. 10cm)	Preinstalled by default (should be called dictation device on Android and voice memos on iOS) Recommended for iPhone is "Dictaphone" you can monitor sound quality
Other external microphones/ dictating or recording devices	-	as you please; we made good experience with Philipps Voice Tracer that will produce mp3	-

A5 Transcription of interviews

			SONIX (https://sonix.ai/) <ul style="list-style-type: none"> ▪ Online application similar to Hap-pyscribe ▪ available languages: FR/DE/SL/IT ▪ Price: 10€ per audio/video hour
--	--	--	--

Transcription rules

- Tip: Use the Word document of the interview guide as a template and transcribe the answers to the respective questions - Important: Transcribe the answer to the question asked, do not assign it to the question to which it would fit in terms of content.
- We need a complete transcript (not summarized): repeated or broken words and sentences are noted as well.
- Focus on the content: do not include stuttering, filler words (uh, eh, hm), pauses or stresses.
- Agreeing or confirming sounds of the interviewer (mhm, aha etc.) are not transcribed.
- Translate dialect into "official" language, but keep sentence structure and word order, as well as dialect words that have a special colour and may be difficult to translate.
- Not understood or difficult to understand expressions are marked with three question marks (???) - these should be clarified by checking with the interviewee when you send them the transcript.
- Layout:
 - **Include a header:** date, location, names of the interview participants and their function with abbreviations
 - Abbreviations are used at the beginning of the sentence to indicate a change of speaker.
 - The interviewer is abbreviated with **I**; if there are several interviewers, they are numbered I1, I2:
 - The interviewee is abbreviated with **R**: (for respondent)
 - Each speaker change is made clear by pressing the Enter key twice (the resulting blank line increases readability)
 - Time marks are not necessary for the evaluation – if it makes the transcription easier for you, you are welcome to put them in

Examples

I: Then I said that (...) R: (...) My grandmother always (...) I: (...) I find it quite impossible. R: (...) told me how they did it back then.	Interruption and overlapping of speaking contributions
(???)	Word or expression incomprehensible, therefore omitted

(Hinterhopfingen?)	Word or expression not understood beyond doubt, presumed wording
They have swung (on the bikes?), and	
[reference to work package 5]	Commentary or explanation by the interviewer/transcriber inserted into the transcript

Sample transcript

19.04.2020, Freising - Maren Buschhaus (Interviewer; I), Tanja Majer (Respondent; R)

I: Okay. Then we'll start. Please state briefly the reasons for which orchards should be maintained.

R: Oh, that's a very good question. Well, for one thing, of course, there would be ...