



# Solution strategies for GI maintenance and development in the Alpine Space

## Stakeholder specific recommendations



<b>Project Acronym</b>	LUIGI
<b>Project Title</b>	Linking Urban and Inner-Alpine Green Infrastructure-Multifunctional ecosystem services for more liveable territories
<b>Project Number</b>	ASP863
<b>Work Package</b>	WP3 – Participatory and governance approaches for spatial development of GI in the pilot regions of LUIGI
<b>Activity</b>	A.3.4. Framework for transferring approaches to GI governance between the Alpine countries
<b>Deliverable</b>	D.3.4.2 Guideline for successful participative approaches including policy mechanisms and landscape develop/planning instruments
<b>Status</b>	Freising, 24 <sup>th</sup> of June 2022
<b>Authors</b>	Rico Hübner, Maren Buschhaus, Werner Rolf, Sara Salgado (Technical University of Munich), Linda Schrapp, Peter Blum, Anika Sebastian (University of Applied Sciences Weihenstephan-Triesdorf)
<b>Contributors</b>	Egarter Vigil Lukas, Heidi Simion, Valentina Giombini (EURAC), Ellen Dankowski (alp Bayern), Yann Kohler (GAM), Michele Coletti, Federic Bally (GEM), Thomas Böhm (RMB), Manuela Brückler, Philipp Vesely (SIR), Angelika Abderhalden (PTE), Jože Hladnik, Irena Bertoncej, Klara Rekič (AIS), Diana Golob-Mrak (ICRA Silvia Lo Monaco, Daniele Zucchelli (MCM), Simonetta Alberico (MCTo) Verena Rohringer (title photo)
<b>Preferred citation</b>	Hübner, R., Buschhaus, M., Rolf, W., Salgado, S., Schrapp, L., Blum, P., Sebastian, A. (2022) Solution strategies for GI maintenance and development in the Alpine Space – Stakeholder specific recommendations D.3.4.2 of the Interreg Alpine Space project “LUIGI”.



## Content

List of Figures .....	3
List of Tables .....	3
Abbreviations .....	4
<b>1 Introduction and methodology .....</b>	<b>5</b>
1.1 Target of the project LUIGI .....	5
1.2 WP3 – participatory and governance approaches.....	5
1.3 Analysis of success factors .....	6
1.4 Development of stakeholder specific recommendations.....	7
1.5 Pilot regions .....	8
<b>2 Solutions and strategies by region .....</b>	<b>8</b>
2.1 Perspectives by region .....	8
2.2 Prominent actions by region.....	9
2.3 Impact by region .....	11
2.4 Inhibiting factors by region .....	12
2.5 Promoting factors by region .....	13
<b>3 Overview on stakeholder group specific attitudes.....</b>	<b>14</b>
3.1 Stakeholder groups, their roles, functions and relevance for the management of GI.....	14
<b>4 Groups specific recommendations .....</b>	<b>18</b>
4.1 Government.....	18
4.2 Businesses .....	19
4.3 Nature Conservation.....	20
4.4 Land Users.....	21
4.5 Associations .....	23
4.6 Science and Education .....	24
4.7 The Public.....	25
<b>5 Conclusion and outlook .....</b>	<b>26</b>
References .....	30
Acknowledgement .....	32
Photo sources & copyright.....	32
Appendix .....	33

## List of Figures

Figure 1:	In a deductive process 10 pilot regions – marked in blue – in the Alpine Space were selected for study key Alpine GI elements. ....	8
Figure 2:	Perspective over the GI development by region. ....	9
Figure 3:	Mentions of actions undertaken by region. ....	10
Figure 4:	Impact by region according to the three dimensions of sustainability. ....	11
Figure 5:	Mentioned inhibiting factors for the G.I development by region. ....	12
Figure 6:	Mentioned promoting factors of GI by region.....	13
Figure 7:	Various stakeholder types were defined and approached to participate in the LUIGI in-depth analysis .....	14
Figure 8:	Number of interviews per stockholder group. ....	15
Figure 9:	Impact promoted by stakeholders .....	17
Figure 10:	Impressions from various activities for and with the public – LUIGI local knowledge exchange workshops with the public in five pilot regions (Schrapp et al. 2022) .....	26
Figure 11:	Mentioned promoting factors of GI by stakeholder group. ....	28
Figure 12:	Mentioned possible solutions by region.....	28
Figure 13:	Mentioned possible solutions by stakeholder group .....	29
Figure 14:	Mentioned inhibiting factors for GI development by stakeholder group. ....	33
Figure 15:	Mentions of action taken by stakeholder group. ....	33

## List of Tables

Table 1:	Categorisation of stakeholder groups, their roles, functions and relevance .....	16
----------	--	----

## Abbreviations

AT_NP	Raab-Örség-Goričko Nature Park (South-Burgenland)
AT_S	Central Area of Salzburg
CH_GR	Trin / Domleschg region (Canton of Grisons)
DE_FS	District of Freising (Metropolitan Region of Munich)
DE_RO	County Rosenheim (Metropolitan Region of Munich)
EMM	Metropolitan Region of Munich
ESS	Ecosystem Services
EUSALP	EU Strategy for the Alpine Region
EUSALP AG7	Action Group 7 to develop ecological connectivity in the whole EUSALP territory
FIBL	Research Institute of Organic Agriculture
CAP	Common Agricultural Policy
FR_NP	Zone Albanais Haute-Savoie (Parc Naturel Régional du Massif des Bauges)
FR_VB	Vercors and Belledonne mountain massifs (Metropolitan Region of Grenoble)
GAM	Metropolitan Region of Grenoble
GEM	Grenoble Ecole de Management
GI	Green Infrastructure
HSWT	University of Applied Sciences Weihenstephan-Triesdorf (Hochschule Weihenstephan Triesdorf)
IT_MA	Ivrea Morainic Amphitheatre (Metropolitan City of Turin)
IT_RP	Rural Park South Milan (Metropolitan City of Milan)
IT_ST	Malles/ Vinschgau Valley (South-Tyrol)
LUIGI	Project title “Linking Urban and Inner-Alpine Green Infrastructure”
MOOC	Massive Open Online Courses
MCM	Metropolitan City of Milan
MCTo	Metropolitan City of Turin
PTE	Foundation Pro Terra Engadine
RMB	Regional Management Burgenland
SIR	Salzburg Institute for Regional Planning and Housing
SME	Small and Medium Enterprise
WP	Work Package

# 1 Introduction and methodology

## 1.1 Target of the project LUIGI

The main target of the LUIGI project can be summarized to preserve, develop and connect significant and characteristic Green Infrastructure (GI) in the Alpine Space in a way that supports the maintenance of the ecosystem services (ESS) it provides between rural and urban subspaces (Schrapp et al., 2020). Detailed sub-targets are:

- a) Raise awareness among policy-makers about alpine ecosystems, GIs and the services they provide to urban areas;
- b) Identify and assess the economic, environmental and social benefits of alpine ESSL through GIs for urban centres and agglomerations;
- c) Developing business models to exploit the market potential for maintaining and enhancing rural ÖSL / GIs and mobilising financial resources (e.g. through public-private partnerships) to support them;
- d) Exchange knowledge at transnational level on alpine / rural ecosystems / GIs and effective techniques for their conservation and enhancement;
- e) Provision of tools to match supply and demand of alpine ESSL in local, regional and urban markets.

## 1.2 WP3 – participatory and governance approaches

As part of the LUIGI project, the working 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.

In the 2<sup>nd</sup> Report by Hübner *et al.* (2021), the so called in-depth Analysis, the main research questions addressed were:

- How do the four governance dimensions according to Arts *et al.* (2006); Liefferink (2006) – resources/power, actors/coalitions, discourses and rules of the game – shape the governance processes in the pilot region?
- What are the different governance arrangements for green infrastructure planning and management in the LUIGI case studies?
- What are the most promising solutions to address the main challenges to safeguard green infrastructure?

The current Deliverable 3.4.2 “Solution strategies for GI maintenance and development in the Alpine Space – Stakeholder specific recommendations” is the third report from WP3 and builds upon and completes the previous reports by Schrapp *et al.* (2020) and Hübner *et al.* (2021) and has two main foci:

- Different factors of success in relation to challenges and implementation strategies are derived from the collaborative mapping approach of selected case studies (Chapter 2 and 3).
- Stakeholder specific recommendations are developed to outline promising implementation strategies (Chapter 4).

Accordingly, solution strategies, are evaluated in order to derive co-creative recommendations for action.

### 1.3 Analysis of success factors

The analysis of success factors are derived from the data that was primarily elaborated during the in-depth analysis. For details regarding the case study selection criteria, selection of the interview partners, data acquisition and processing as well as data analysis we refer to report A.3.2 “In-depth analysis of different GI elements in the selected case studies” by Hübner *et al.* (2021). Based on the developed database in this step we conducted cross-case analysis comparing and contrasting outcomes with regard to the success factors of the analysis of each case, and to reflect the different strategies and approaches (Kohlbacher, 2005; Schneider and Wagemann, 2010).

Similar to the in-depth analysis Hübner *et al.* (2021) it needs to be noted that due to the differences between cases, and the bias regarding interviewees and data availability, not all factors could be systematically analysed. Hence, we used 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) future perspectives, b) prominent actions, c) impact of actions, d) inhibiting factors, e) promoting factors and f) potential solution strategies. In addition, we addressed stakeholder specific attitudes, while looking at a) inhibiting factors, b)

their actions, c) promoting factors and finally d) the perceived impact for each stakeholder group.

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.

## 1.4 Development of stakeholder specific recommendations

The development of stakeholder specific recommendations, is based on the AEIOU framework (Nawroth, 2017). The AEIOU framework looks at the five elements: Activity, Environment, Interaction, Objects and Users, whereby the individual categories relate to each other. AEIOU is suitable to support design thinking, with the aim to obtain an overview of a specific situation and providing an organisational framework for participant observation.

- Activities are goal-oriented actions that represent certain behaviours of the actors. How do they act? Which paths are taken to achieve the goals? With which approach do the participants work and in which specific activities and processes?
- The Environment includes the whole space in which the activities take place. What is the character and function of the whole environment in which individual activities of the actors take place?
- Networking describes Interactions between persons or between persons and objects. How does the routine or occasional interaction proceed? Are sender-receivers located in the immediate environment or does interaction take place over distances?
- Tools are Objects and key elements of the environment that are sometimes used for complex or unintended purposes (changing their function, meaning and context). What tools do people use in their environment and how does this relate to their activities?
- Individual categories are understood as Profiteers, the people whose behaviour, preferences and needs are observed. Who is there? What are their roles and relationships? What are their values and prejudices?

For the stakeholder specific recommendations in this report, the seven most central target groups from the in-depth analysis are revisited.

## 1.5 Pilot regions

Based on the case study selection criteria (Schrapp *et al.*, 2020; Hübner *et al.*, 2021), 10 pilot regions are pre-selected by the projects consortium' partners: two in Austria, one in Switzerland, one in Germany, two in France, three in Italy, and one in Slovenia. In total, 10 Pilot Areas are delineated on the overview map of the Alpine-Space area (Figure 1).



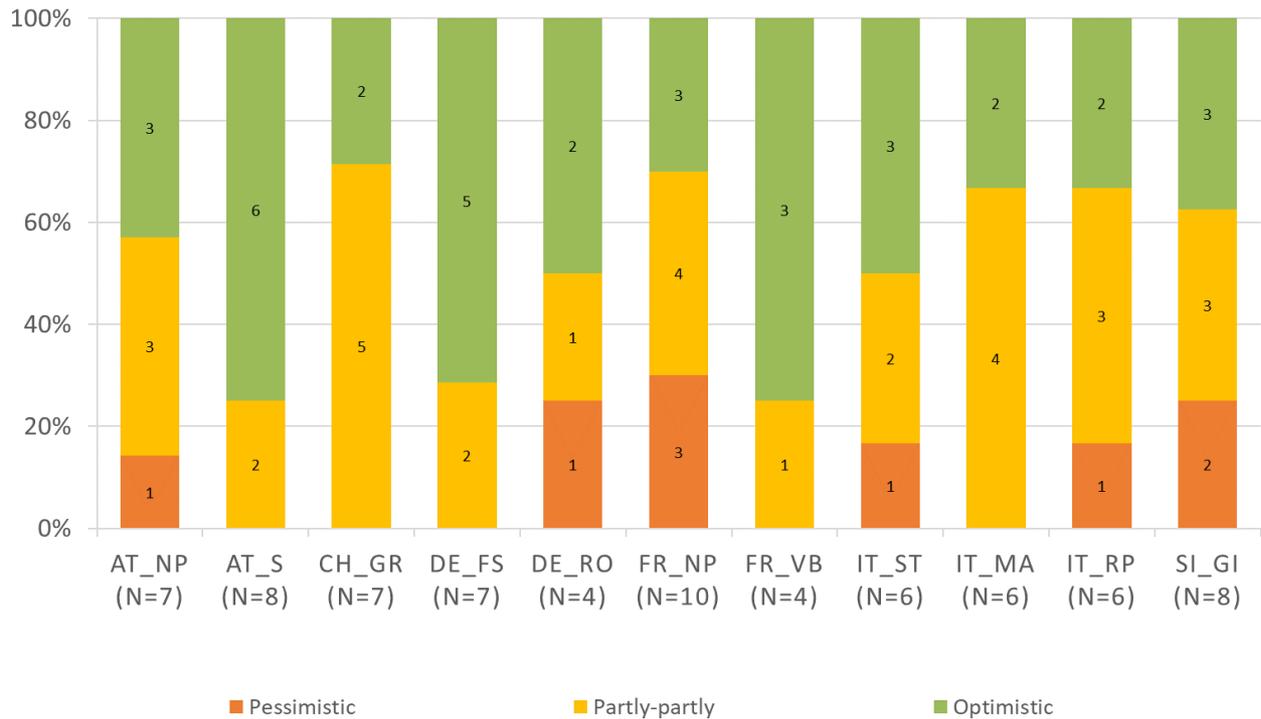
**Figure 1:** In a deductive process 10 pilot regions – marked in blue – in the Alpine Space were selected for study key Alpine GI elements.

## 2 Solutions and strategies by region

### 2.1 Perspectives by region

From the response of the expert interviews in the 13 Case study a total of 74 responses and 923 pages of text could be evaluated. The opinions cover a wide range of stakeholders, such as public authorities, farmers, NGOs, associations, SMEs, nature conservation, education/research and the public.

The interviewees' answers were classified overall on the perspective over the development of GI in their region in a "pessimist", "optimistic" or undetermined perspective (Figure 2).



**Figure 2: Perspective over the GI development by region.**

In five regions no one rated the situation pessimistic. Some region like Raab-Örség-Goričko Nature Park (AT\_NP), the Vercors and Belledonne mountain massifs (FR\_VB) and District of Freising (DE\_FS) were overall very optimistic. In Canton of Graubünden (CH\_GR) and Ivrea Morainic Amphitheatre (IT\_MA) the respondents rated the situation in partly optimistic and partly pessimistic. In total, about 40 of the respondents were optimistic, which is clearly more persons than the 12% with a rather pessimistic perspective on the development of GI in their region.

## 2.2 Prominent actions by region

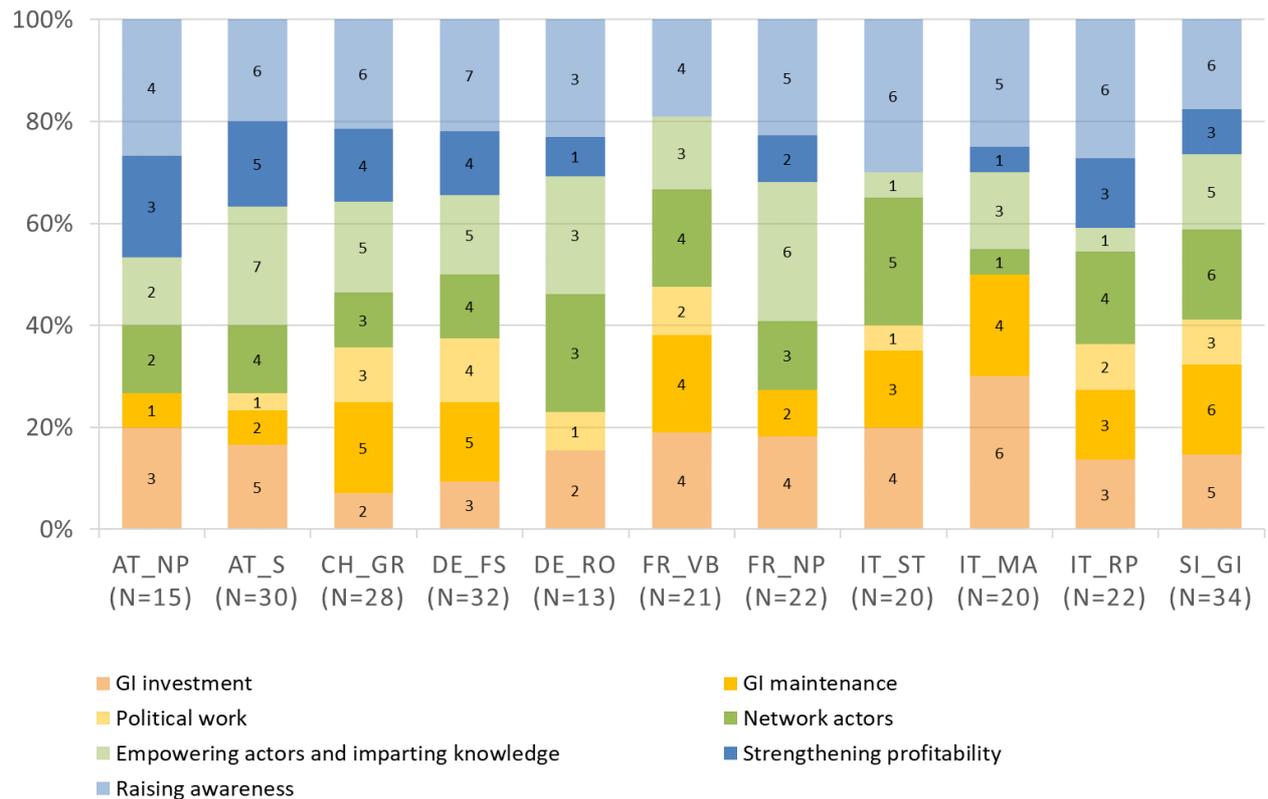
The actions undertaken by the interview partners in the respective regions cover a wide range of possibilities.

If one compares the actions in the regions studied with each other, it is noticeable that a particularly large number of activities were carried out in the area of raising awareness in all regions, at the forefront mentioned by stakeholders from Malles/ Vinschgau Valley (IT\_ST), Rural Park South Milan (IT\_RP), and Raab-Örség-Goričko Nature Park (AT\_NP).

Another major area in which actions are carried out is the empowerment of actors through the transfer of knowledge to those who are not yet involved. These efforts should attract new actors and encourage those already active in their actions, especially so in the Central Area of

Salzburg (AT\_S) and Zone Albanais Haute-Savoie (FR\_NP), less so in Malles/ Vinschgau Valley (IT\_ST) and Rural Park South Milan (IT\_RP).

The investment in the development of GI was mentioned frequently by participants from Ivrea Morainic Amphitheatre (IT\_MA), least in the Canton of Graubünden (CH\_GR) and District of Freising (DE\_FS) and the strengthening of profitability seems especially of concern in Austria (Figure 3).



**Figure 3: Mentions of actions undertaken by region.**

Networking between the actors is also a topic that is already addressed in most regions. This action was mentioned particularly often in the interviews with the Slovenian experts. However, the importance of a political network, like a coalition amongst politicians and decision makers seems less relevant overall and was not mentioned at all in some regions.

In contrary, setting up a network of actors was mentioned frequently as a prominent action in the regions. In several regions this action was amongst the most frequently addressed, so in County of Rosenheim (DE\_RO), the Vercors and Belledonne mountain massifs (FR\_VB), Malles/ Vinschgau Valley (IT\_ST), Rural Park South Milan (IT\_RP) and Goriška – Idrija-Cerkno region (SI\_GI). The GI maintenance was relatively more prominent especially amongst those regions that did not emphasize on strengthening profitability the Vercors and Belledonne mountain massifs (FR\_VB), Ivrea Morainic Amphitheatre (IT\_MA), but also in Canton of Graubünden

(CH\_GR), County Rosenheim (DE\_RO) and Goriška – Idrija-Cerkno region (SI\_GI) of greater relevancy.

Overall, it is noticeable that comparatively few actions were addressed in the interviews of the Raab-Örség-Goričko Nature Park (AT\_NP) and the County of Rosenheim (DE\_RO) district. In contrast, a comparatively large number of actions were mentioned in the Central Area of Salzburg (AT\_S), the District of Freising (DE\_FS) and the Slovenian Region Goriška – Idrija-Cerkno (SI\_GI).

All but one of the activities mentioned were rated as successful by the experts. These assessments of the experts are adopted in this work. The only measure that severely caused predominantly negative consequences was the legal protection of orchard meadows as biotopes in Bavaria (DE\_RO, DE\_FS).

### 2.3 Impact by region

The triangle of sustainability, covers the areas ecology, social and the economy (Barbier, 1987). The ecologic impact seems to be seen the greatest benefit from GI in most regions. In two regions, Canton of Graubünden (CH\_GR) and Goriška – Idrija-Cerkno region (SI\_GI), the economic benefit is not really present or perceived. In other regions that is mainly seen by 10 to 20% with the exemption of two regions.

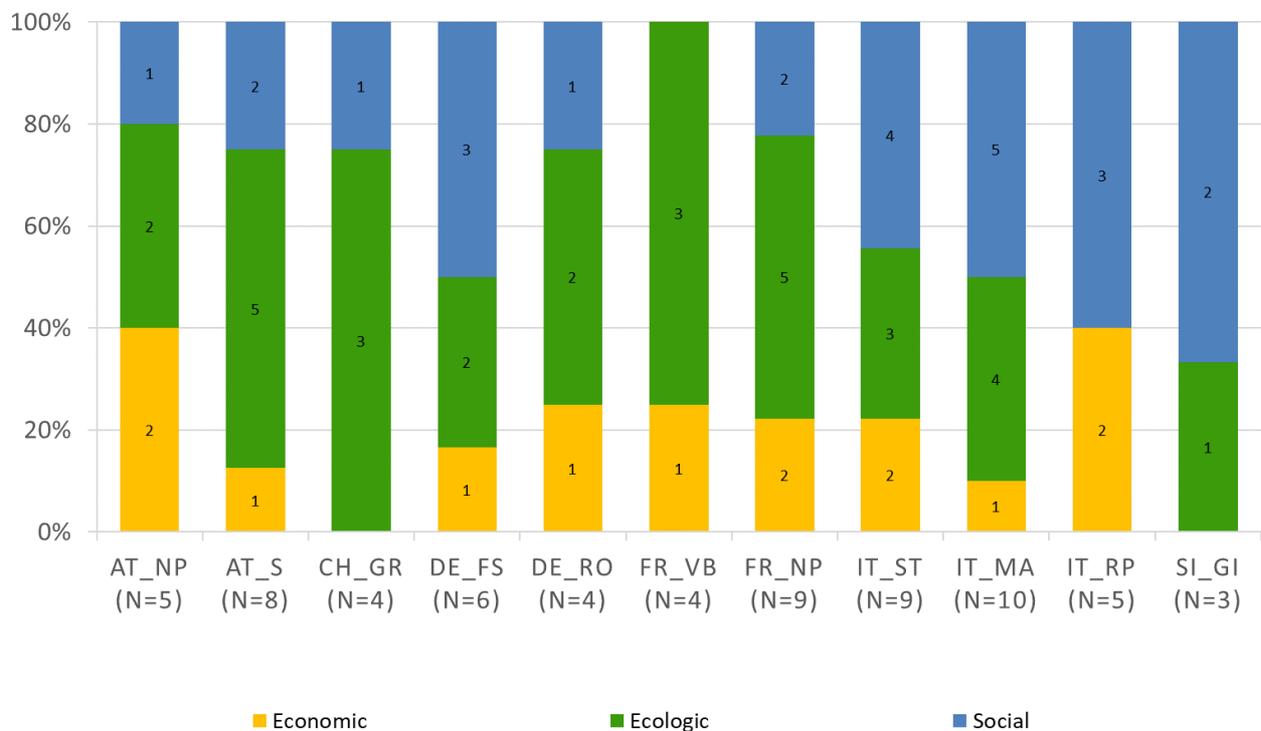


Figure 4: Impact by region according to the three dimensions of sustainability.

In Raab-Örség-Goričko Nature Park (AT\_NP) and Rural Park South Milan (IT\_RP) the economic benefit dominates. The social benefit is expected heterogeneously; in the District of Freising (DE\_FS), in all Italian regions and Goriška – Idrija-Cerkno region (SI\_GI) in Slovenia, the social aspect accounts for 45 to 65% of the mentions.

## 2.4 Inhibiting factors by region

The picture about inhibiting factors for GI is complex. Several factors are to found in all regions, in decreasing order of mentioning, these are “not economically viable”, “knowledge gaps”, “conflict of interests”, similarly “lack of / not good cooperation”, “gaps in the value chain”, “lack of young talents” (not in Ivrea Morainic Amphitheatre – IT\_MA), “funding deficits”, “lack of awareness and appreciation”, “lack of resources (money/time)” (not in Raab-Örség-Goričko Nature Park – AT\_NP, Canton of Graubünden – CH\_GR), “bureaucracy” (not in Raab-Örség-Goričko Nature Park – AT\_NP, County Rosenheim – DE\_RO).

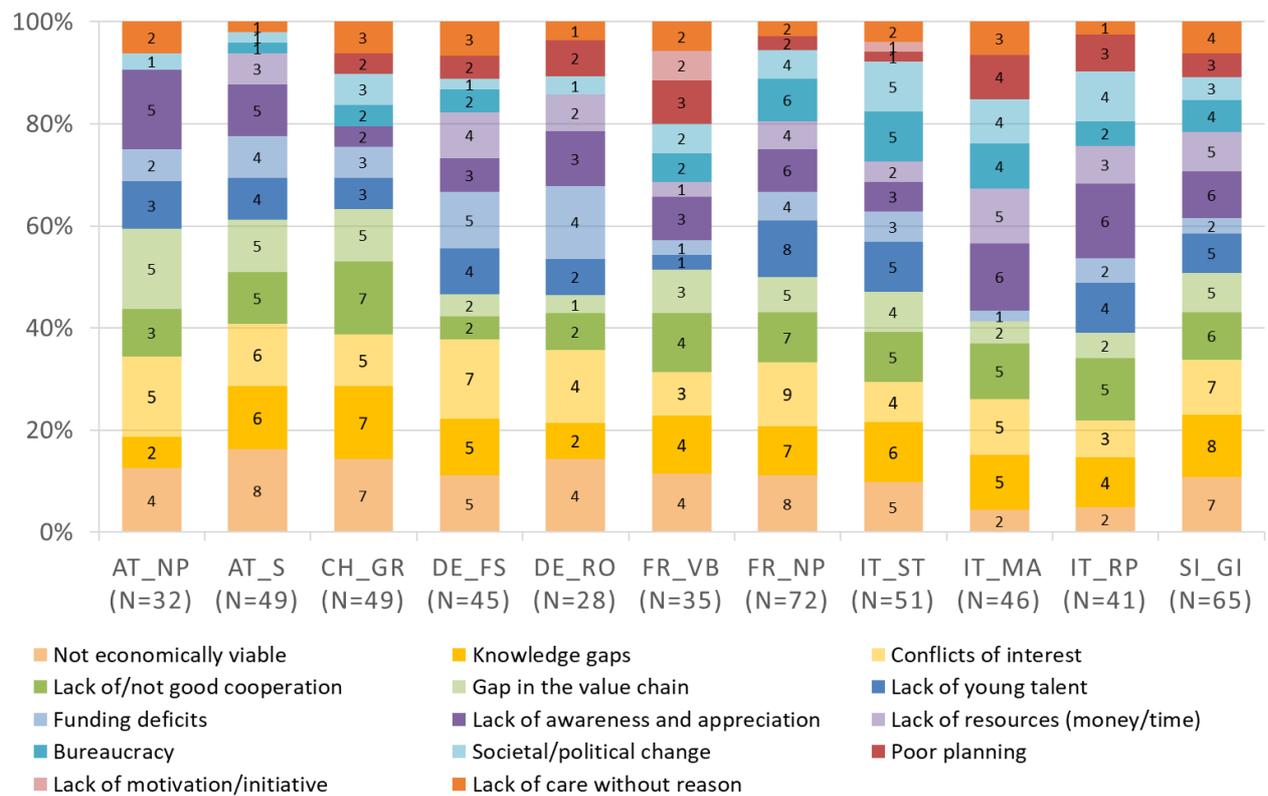


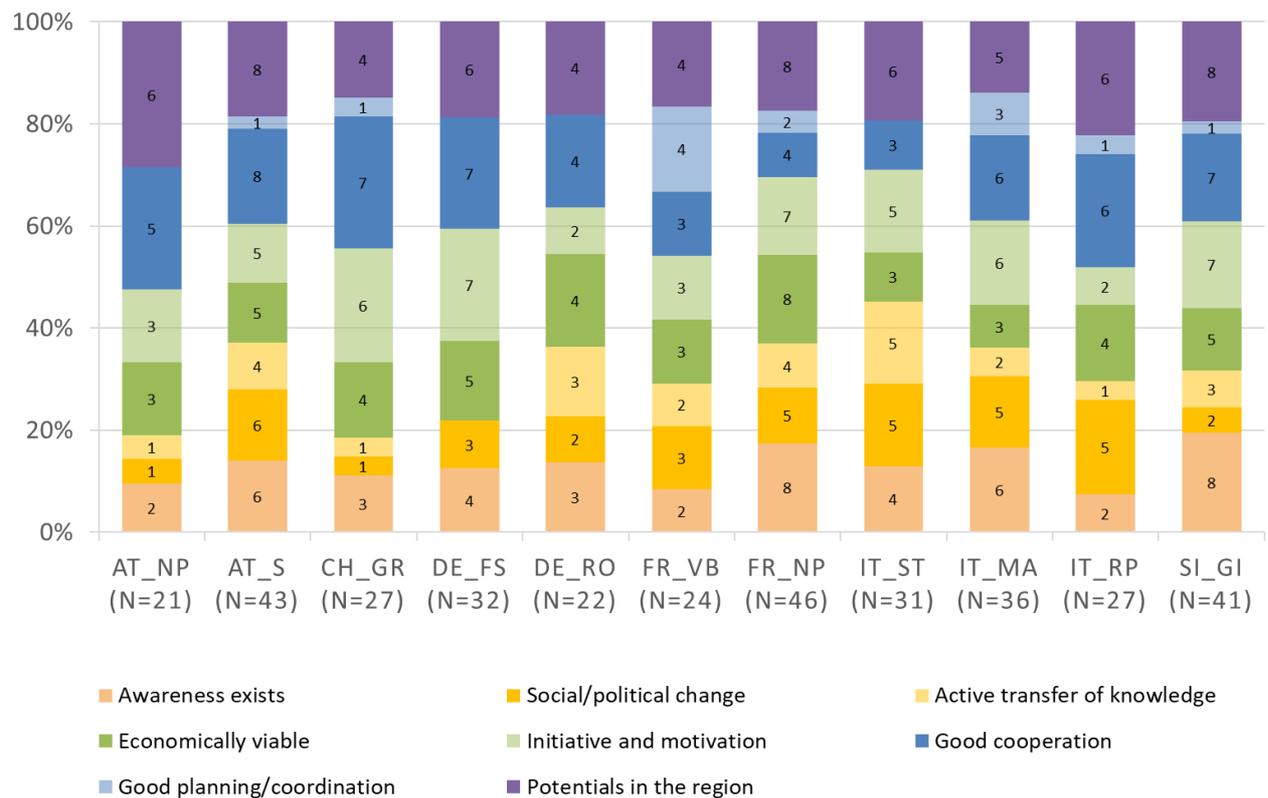
Figure 5: Mentioned inhibiting factors for the G.I development by region.

The bureaucracy was especially criticized by interviewees from Zone Albanais Haute-Savoie (FR\_NP), Italian regions and Goriška – Idrija-Cerkno region (SI\_GI). The latter coming along with the necessity for “Societal/political change”. While in Austria “poor planning” is not of an issue, it is criticised more so by representatives from Switzerland, Germany and two Italian regions as well as Slovenia. The “lack of motivation” was rarely an issue, seemingly only in one

region in France, the Vercors and Belledonne mountain massifs (FR\_VB) and one region in Italy: Malles/ Vinschgau Valley (IT\_ST). The “lack of care without reason” could be found across all LUIGI case study regions (Figure 5).

## 2.5 Promoting factors by region

In contrary to the inhibiting factors, the promoting factors were assessed in all regions. This somehow represents a wish-list of factors expressed by the participants. Some of the promoting factors show a relatively even distribution along the case study regions and receive respectable frequent mentions. For example “economic viability”, while others, such as “good planning/coordination” differs enormously between regions, While the Vercors and Belledonne mountain massifs (FR\_VB) receives a relatively high score, both German regions did not mention this at all (Figure 6). In general, the score for this promoting factor is low, this considered not be of the ideal strategy.



**Figure 6: Mentioned promoting factors of GI by region.**

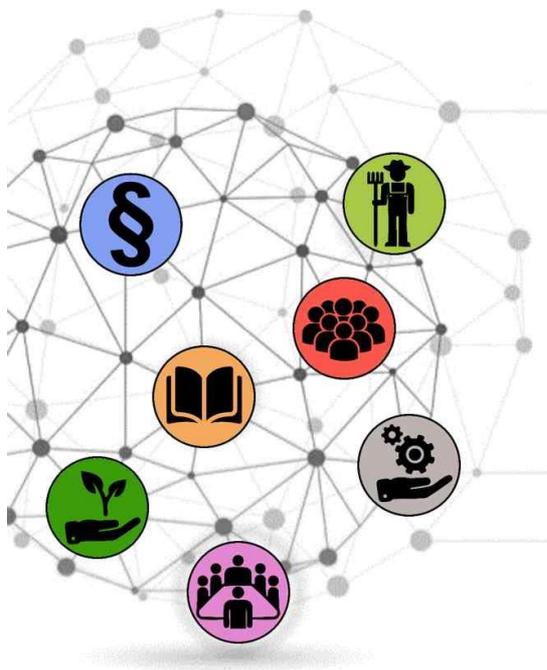
In Austria (Raab-Örség-Goričko Nature Park – AT\_NP), Switzerland (Canton Grisons – CH\_GR), in two Italian regions (IT\_MA, IT\_RP) as well as in Slovenia the “good cooperation” is highly appreciated.

Nevertheless, the interpretation should be taken with care, as the promoting factors are hard to distinguish from one another and often show the phenomenon, that each interview is inclined to rate the factors/strategies applied and used higher than possible alternatives.

### 3 Overview on stakeholder group specific attitudes

#### 3.1 Stakeholder groups, their roles, functions and relevance for the management of GI

Stakeholders, sometimes termed actors, are individuals and/or organizations involved (Buizer, 2008). As an outcome of the Status Analysis (Schrapf *et al.*, 2020), a broad number of relevant stakeholders have been identified, such as public authorities – at different levels from local to national - , e.g. non-governmental organisations & associations, community groups, business partners / SMEs, education and research groups, citizens (public, inhabitants, recreational visitors). These actors can be a part of a certain governance arrangement and can be more or less influential. They may act in coalitions to achieve (more or less) shared objectives (Buijs *et al.*, 2016).



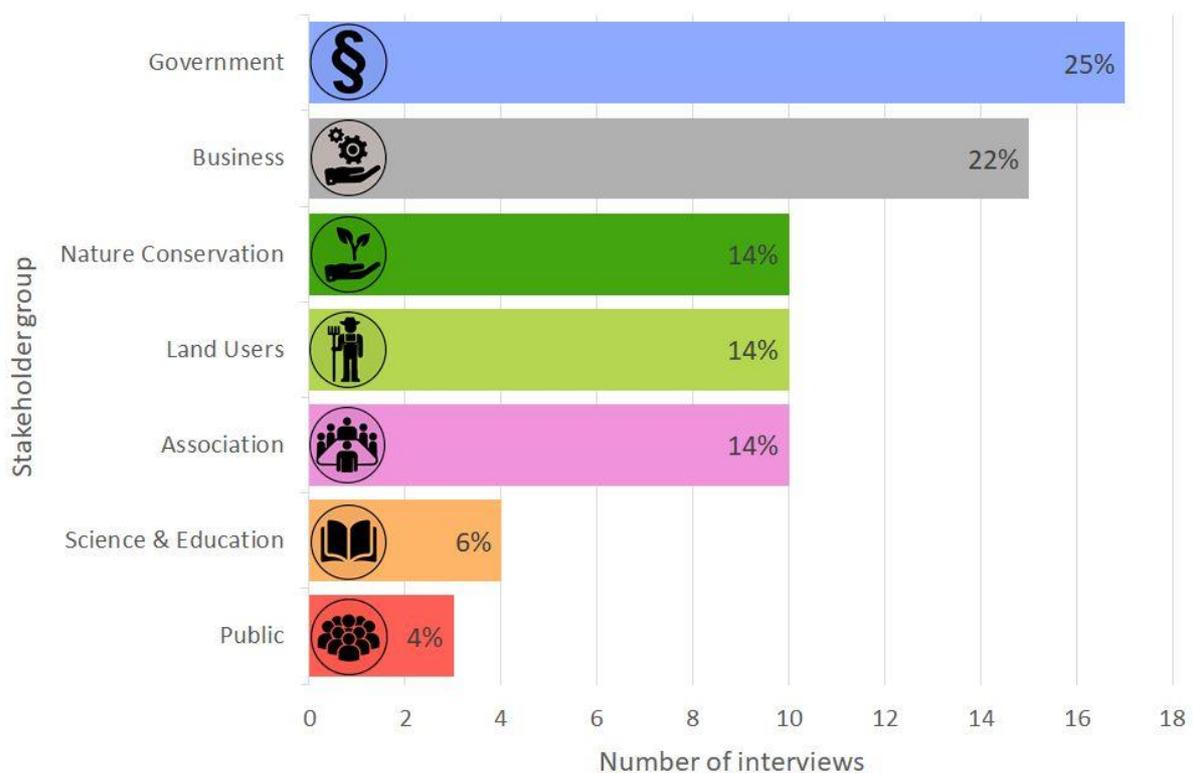
-  **Government** e.g. authorities, public administration, state research institutes
-  **Farmer** e.g. farmer, arborists, forester
-  **Business partners / SME** e.g. consulting and planning offices as well as processing and marketing companies
-  **NGOs / Associations** e.g. for GI, related to agriculture, of processors / cooperatives
-  **Nature conservation** organizations
-  **Education / Research** e.g. university, school, museum, research institutes
-  **Public** e.g. lay people, interested citizens, (tree/land) owner, consumers

**Figure 7: Various stakeholder types were defined and approached to participate in the LUIGI in-depth analysis**

To look beyond the involvement of different actors and stakeholders, coalitions are of another concern. Across the LUIGI case studies investigated, governmental actors are the most important cooperation partners. 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 organisations with very general focus do just play a minor role for network coalitions. Despite a comparable low representativity as active network members, the public is considered as being quite important for building coalitions. 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 stakeholders related to the management and valorisation, are generally perceived as important for coalition building.

Seven stakeholder groups were distinguished carrying an active role or share responsibilities in the field of GI, from which the majority of respondents were representatives from the group “Government”, followed by “Businesses”. The least representatives came from the group of “Science & Education” as well as the general „Public“(Figure 8).



**Figure 8: Number of interviews per stockholder group.**

According to the in-depth analysis, it became evident that governmental actors play an important role within the governance approaches and build a supporting pillar. The land users’ group as persons or organisations maintain or cultivate GI, have a management or caretaker role. Land users seem to become less relevant, since associations or the public start to take over more responsibility. Businesses do not directly manage GI but are an 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, consultants or initiators. Consequently, they are an essential partner to maintain and promote GI management (Table 1).

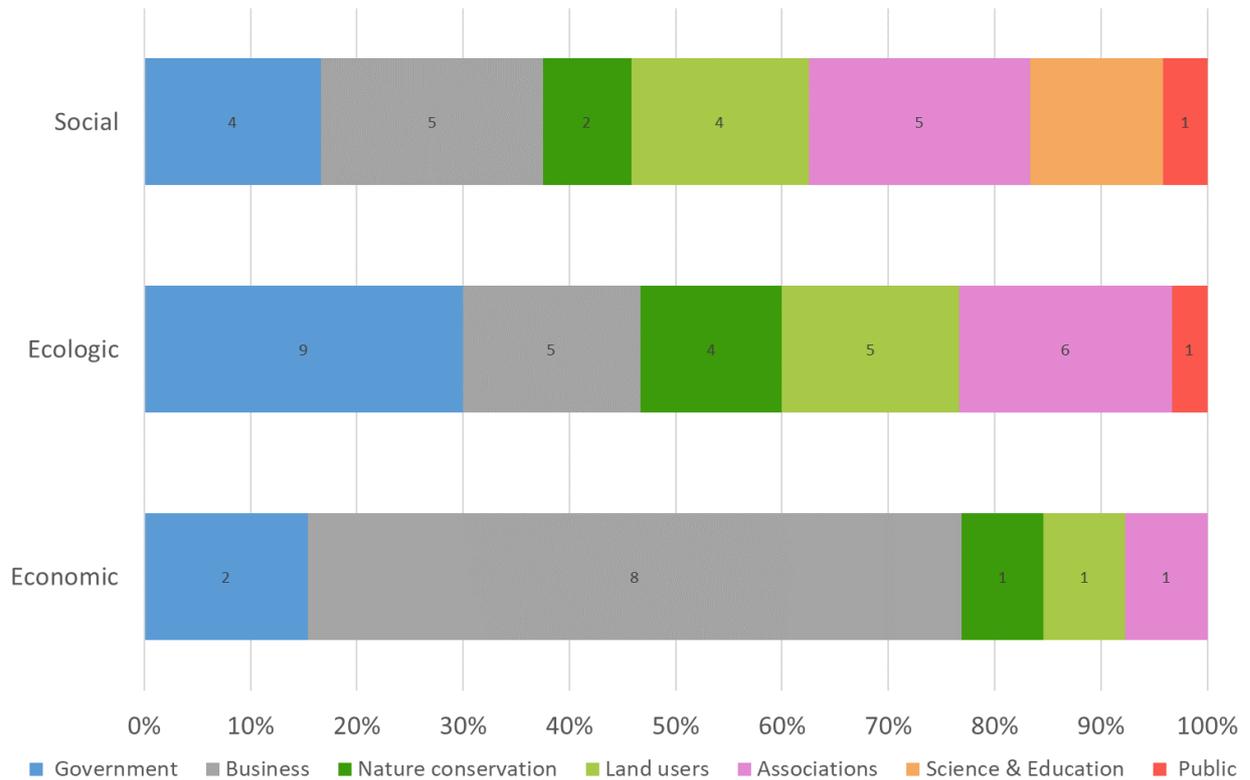
**Table 1: Categorisation of stakeholder groups, their roles, functions and relevance**

Stakeholder group	Description	Role	Function	Relevance
 <b>Government</b>	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.	<ul style="list-style-type: none"> <li>(Co) Initiator</li> <li>Support through own resources like money, knowledge, property, network</li> </ul>	Implementation of the state interest, implementation and control of compliance with laws.	<ul style="list-style-type: none"> <li>Important supporting pillar in all study areas: if not initiator, usually have an important supporting role</li> <li>Limited room for manoeuvres due to legal mandate, mostly reactive and less proactive action</li> </ul>
 <b>Land Users</b>	All persons or organisations that maintain or cultivate GI.	<ul style="list-style-type: none"> <li>Manager/ caretaker</li> </ul>	Production of raw materials, barter products or otherwise utilize GI.	<ul style="list-style-type: none"> <li>Main pillar, most important group of actors in GI maintenance</li> <li>Actors group is slowly losing importance, as associations, public take on more responsibility.</li> </ul>
 <b>Business</b>	All persons or organisations that do not directly cultivate orchards but process and market raw materials or products from them.	<ul style="list-style-type: none"> <li>Producers / Processors/ Marketers/ Consultant</li> <li>Initiators</li> </ul>	Production of planting material, processing of raw materials into products, marketing of products, consulting of stakeholders.	<ul style="list-style-type: none"> <li>Supporting pillar: forming the value chain, marketing platform, advertisement, etc.</li> </ul>
 <b>Nature Conservation</b>	All non-governmental organisations and associations with broad activities in nature conservation, without a specific focus on GI of concern within the case studies.	<ul style="list-style-type: none"> <li>Initiator</li> <li>Supporters through money, knowledge</li> </ul>	Representation of the interests of members: focus on the protection and maintenance of wildlife and habitat.	<ul style="list-style-type: none"> <li>Actor group plays secondary role in almost all regions</li> <li>Mostly supporting activity</li> </ul>
 <b>Associations</b>	All non-governmental organisations and associations with a specific focus in the GI, also producers' and consumers' cooperatives	<ul style="list-style-type: none"> <li>Initiator</li> <li>Supporters through knowledge, manpower, network, property, money</li> </ul>	Representation of the interests of the members: harmonize social and economic aims with ecological targets in the GI of concern.	<ul style="list-style-type: none"> <li>If active: mostly supporting pillar if not active: secondary role</li> <li>Room for manoeuvre not limited, mostly acting proactively</li> </ul>
 <b>Science &amp; Education</b>	Non-governmental institutions that conduct research or teach knowledge.	<ul style="list-style-type: none"> <li>Initiator</li> <li>Supporting through knowledge</li> </ul>	Development and transfer of knowledge.	<ul style="list-style-type: none"> <li>Actor group plays secondary role in almost all regions</li> <li>Mostly supporting activity</li> </ul>
 <b>Public</b>	All parts of the population who are not included in any other group of stakeholders.	<ul style="list-style-type: none"> <li>Initiator</li> <li>Support through property, labour, money in the form of donations or consumption</li> </ul>	Mostly laymen in the field of GI, but often involved as private landowner or urban dweller	<ul style="list-style-type: none"> <li>Independent projects on own land</li> <li>Secondary role as supporter</li> <li>Potentially supporting pillar currently gaining more importance</li> </ul>

All non-governmental organisations and associations that are primarily active for the interest of nature conservation can sometimes have the role as initiators. The group of non-governmental organisations and associations is characterised as being active towards concerns

within the region, such as land care associations. Furthermore, there 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 proactive.

The three sustainability dimensions, social, ecologic and economic are with respect to the perceived impact unevenly distributed among the stakeholder groups (Figure 9).



**Figure 9: Impact promoted by stakeholders**

Overall, the perceived importance of the GI is high, as has been stated by the vast majority of interviewed persons (84%). Only three interviewed stakeholder state that GI is of low importance. This somehow also shows a bias in the study. Since the selection of the interview partners came from the PPs themselves, all involved in the field of study of GI, most interviewees will have a rather strong connection to the planning, management or use of GI.

## 4 Groups specific recommendations

### 4.1 Government



#### **Activity**

Stakeholders from the government group include politicians and political parties as well as higher administrations and ministries. The legislature sets the framework conditions for land use in each EU Member State, with many of the impulses coming from the Common Agricultural Policy of the EU (CAP). Furthermore, government also included in the target group of lower level politics and administration are all local governments and lower authorities. These regularly participate in the planning and management of various forms of GI, as this is to some extent part of their daily business. There is also a clear regional context or responsibility. Many employees in public authorities also see these events as a form of exchange of expertise, further training or also as a platform to present their own issues and approaches. Government actors see potential solutions in all areas, however possible support from politics, is somewhat less favoured by the government itself, only 5 mentions compared to 10 to 15 for others solutions (Figure 13).

#### **Environment**

The issue of GI-management affects public authorities in different areas of responsibility. Nevertheless, the topic is only one among many for them, so that it is not guaranteed that this topic enjoys a special role in the administrative business. High level actors from politics and administration occasionally provide the opportunity to address GI directly or on a personal level. Nevertheless, there is currently a great demand for information and input on the subject of GI from the public towards the authorities, thus providing opportunities for exchange.

#### **Interaction**

Government representatives – from various administrative levels – represented the largest stakeholder group in the LUIGI in-depths analysis with 15% of the participants.

The ministries are networked with each other and with other ministries through committees, which meet annually or more frequently to decide on framework plans. Such working bodies are institutions for cooperation between the federal and state administrations, and the members of the technical committees are usually the heads of department of the ministries. In addition, the politicians or the ministries maintain their own scientific advisory boards, whose members - mostly experienced professors or heads of institutes - regularly prepare expert reports on current issues. While the influence on the Common Agricultural Policy (CAP) is rather limited to high level lobbyists and Brussels based NGOs, this channel of influence can be well undertaken by representatives of governments through their respective EU liaison offices etc.

The intensive involvement of lower-level administrations in particular can help to solve the problems of intersectoral and multi-level coordination. In the future, too, lower-level politicians and administrations should be invited to as many events as possible dealing with GI, also and especially in order to keep this target group up to date with the latest developments the field.

### **Resources**

Political lobbying represents the fourth axis of regional governance: the use of democratic and accountable expertise. The following innovation tools from LUIGI have been proven useful for this target group: expert workshops, public events, closed events (round tables, workshops, practice innovation days, etc.).

### **Users**

All those advocating GI will benefit from improved framework conditions. Land users and all actors in the GI-sector benefit from a good involvement of the lower policy level in this topic, provided that this also improves the conditions for GI.

## 4.2 Businesses



### **Activity**

Representatives of businesses, such as merchants, processors, service providers and associated enterprises, such as private consultancies and planning offices, were involved in the LUIGI in-depth analysis very frequent and their opinions thus had a share of 22% of the participants.

Typical roles of businesses in the surroundings of GI are tourism operators, marketers, juice manufacturing companies. Developers of machinery or special tools, such as the Obstraupe, mobile juice presses, both that can be leased through associations.

Businesses suggest innovation pathways in the area of innovative ideas, strengthening exchange and cooperation, and, as expected, in the strengthening of economic efficiency (Figure 13).

Consultancy companies can acquire business by planning, establishing, managing, harvesting and converting the areas. For the agricultural machinery trade, specific equipment is more of a niche, especially as the innovative land users or farmers also make do with their own constructions or with old equipment, as this is usually more suitable than modern machinery with a large working width/impact. Various joint events and participatory activities will facilitate networking between businesses, service providers and potential customers. Many other stakeholders and market participants with different GI-products can benefit from participation and open up new business ideas/fields.

### **Environment**

The presence of appropriate businesses is crucial to maintain GI, especially orchard meadows. Fruit processors bundling the scattered sources under one concept or label (e.g. ORO Juice Producers in Rosenheim, DE). For large customers such as public utilities, educational institutions or municipalities that demand larger quantities of food, strategies for climate protection or for strengthening regional economic cycles, such as those adopted by municipalities in many places, could be beneficial. Therefore, it seems to make sense to evaluate (public) procurement practices critically. This has been started for instance in schools in the Municipality of Munich (DE).

### **Interaction**

Businesses often work together, however may well compete with each other – a normal process in a free market economy. In the medium to long term, this will lead to a differentiation of the goods and services offered in sector in terms of content and location. In this very diverse market there is little need for consolidation and there are mainly synergies in the form of business relations among each other. These synergies should be optimized to represent full value chains with the possibility for value-added regionally. This would generate additional support.

### **Objects**

From the repertoire of LUIGI particularly suitable innovation formats were: events on demonstration sites, visits to best practice examples, regional and supra-regional events, especially trade fairs, for example to promote certain initiatives or labels. In the course of the increasing professionalization of the business sector, this target group will gain in influence in the future. New business opportunities lie in the field of initiating and trading credits for ESS, such as carbon credits.

### **Users**

Businesses, companies and service provider benefit first from better networking and more customers, but farmers and producers also have the opportunity to better market their products.

## 4.3 Nature Conservation



### **Activity**

The target group of Nature Conservation includes interest groups and representatives, e.g. nature conservation and environmental organisations. The main concern of environmental non-governmental organisations is the protection of biodiversity and landscape. However, as many nature conservation representatives are often close to an opposing position to a number of mainstream developments in modern agriculture, support for new GI-measures with a

somewhat stronger economic drives are thus under pressure. Any development is often seen critical. Nature conservation representatives see a necessity predominantly in the development of strategies for (new) challenges, and sharing and raising knowledge/awareness (Figure 13). This group prefers to keep things the way they are and do not seem very open to new ideas. This may create conflict with other, more innovative groups.

### ***Environment***

Since too few studies so far show advantages for biodiversity and the provision of ESS compared to conventional agriculture without trees and shrubs, research in this area should be intensified to enable well-founded assessments by or with the support of environmental and nature conservation associations. Existing pilot areas can be used for this purpose.

### ***Interaction***

From the various graphs from social network analysis (SNA) across all LUIGI pilot areas, the impression remains, that protagonist for nature conservation have fewer connections to fellow stakeholders as they potentially could have. This might be historically developed in an economically driven world where only protest and – even more serious – lawsuits were the means of choice to take a stand. Nevertheless, for GI one may consider rather ways of cooperation and build and strengthen coexistence. Many successful examples have surfaced throughout the LUIGI project.

### ***Objects***

Cooperative projects, citizen science, public land-care events, etc. seem to work well to bring environmental protection and a “soft” use of the landscape and the nature together. Nature based recreation is a main driver for e.g. municipalities to invest in GI, this must be allowed. A careful balancing of use, concepts and respective funding for the management and maintenance into the future are key. A good example was provided by the Agricultural Park Milano in the Ticino Valley (IT).

### ***Users***

Here a primary target group would be children and kids, through games and modern forms of environmental education. An example is the Memory Card game with old and valuable fruit varieties.

## 4.4 Land Users



### ***Activity***

In the implementation of GI-projects, land-users are an important group of actors, as they often own the property rights to land. From the interviews, it quickly became clear that very

specific and target group tailored information on the suitability of GI is necessary to convince them. The term “Green Infrastructure” itself is little known.

Economic profitability is the most important puzzle in the game that leads to a decision for or against the maintenance of existent GI, even more so for the (re-) establishment of new orchard meadows, naturally meandering creeks, etc. An upcoming new trend is that some innovative farmers are already starting to plant woody plants in strips in form of agroforestry measures, especially to prevent wind erosion, but at the end of the day, most farmers seem reluctant to change their management strategies.

Land users seem somewhat reluctant towards innovative ideas (Figure 13), but are, on the contrary in favour of strategies for (new) challenges and increase economic efficiency.

By and large, the economic viability was the most important decision-making determinant among the land-users across all LUIGI pilot regions, alongside the problems of the uncertain agricultural and environmental policy framework, such as the reclassification of orchard meadows in Germany as biotopes.

### ***Environment***

Sociological research has shown that farmers' self-motivation can be an important resource for policy, as self-motivation links one's own benefits (e.g. pleasure and satisfaction) with the common good. Accordingly, the promotion and support of self-motivation through appropriate measures tends to lead to farmers voluntarily and permanently deciding in favour of nature- and environmentally-friendly action. It should also be possible to transfer this meaning to the promotion of green infrastructure if it succeeds in discovering, addressing and enhancing existing self-motivation among farmers. Here, especially the younger and the retired generation seem susceptible, thus be targeted. A bridge between them would be beneficial. It is important to communicate that the management and maintenance, even more so the creation, offers a wide range of social recognition by the public. A potential target group of interest for the development for GI establishment in the rural areas are landowners that lease land to farmers. Often they express a deep interest in a sustainable use of their land thus require farmers to change behaviour. As the farmer is obliged to obtain the consent of the landowners for the establishment. This in turn involves additional effort for the farmer, as it may not always meet with the approval of the landowners.

### ***Interaction***

Farmers are generally well interconnected. However, a typical phenomenon is that farmers are usually named as known by a large number of people (so-called inbound connections, indegree), but their own connections to other actors in the network (outbound connections, outdegree) are usually much lower. The group of farmers was represented averagely in the LUIGI activities, with 14 % of the interviewees.

**Tools**

Suitable means and strategies for the participation of farmers and producers are the participation formats like farmers' markets, field days, open-farm-events, holiday on the farm, etc. Since economic efficiency considerations and area-specific planning are considered most important from the farmer's point of view, organisations and agencies should further extend their advisory service in this area. Such tools promote the third axis relevant for successful regional governance – the adaptive and the iterative planning approach.

**Users**

Obviously, all other stakeholders benefit from the participation of the target group farmers or producers but the farmers themselves benefit from the meetings within the peer group or with the advisory network from the LUIGI-project, especially if this is continued on an ongoing basis, e.g. in the form of advisory or support contracts beyond one-off meetings.

## 4.5 Associations

**Activity**

The target group of associations and federations includes all forms of interest groups and representatives, e.g. land care associations, water and soil associations and farmers' associations. Depending on the governance mode typical in a certain region, these group may have an extraordinary reach and influence.

Associations have the capacity in many different solution pathways, not alone to mobilize people, but through their expertise and business connections, also able to increase the economic efficiency of GI, strengthen exchange and cooperation, and develop strategies for (new) challenges (Figure 13).

**Environment**

Regional actor networks for GI are to be established and strengthened for which associations are ideal. Civil society efforts, such as frequently in charge in the Kanton Graubünden, should be involved and supported, as should scientific associations, such as the EUSALP AG7, EURAC (IT), or the DeFAF (DE).

**Interaction**

Clubs and associations in all fields can influence their members' behaviour comparatively easily. This makes it immensely important to convince them of the benefits of GI, They often hold a position known as knowledge broker. There is also a considerable amount of exchange among them, but this is associated with the problem that communication usually only takes place within one sector or at one level. One possibility here would be to gain a stronger influence on the umbrella organisations. National organisations and regional activist groups have

the ability to focus their lobbying activities on the national level, namely the Ministries of Rural Development, Environment and Agriculture, or the Chambres d'agriculture (FR), on the regional or federal levels.

### **Objects**

Important and (partially) successful measures employed by associations are petitions, open letters, and public relation in general. Petitions have been used for example in the debate about the declaration of orchard meadows under the Bavarian Law of Nature Protection starting from the Association of Bavarian Distillers in 2019, to maintain an economic production perspective of traditional fruit orchards.

### **Users**

All friends and supporters of the associations or members of the associations.

## 4.6 Science and Education



### **Activity**

Research on ESS in general and GI specifically is on the rise, especially through the implementation of so called Living Labs, often means of choice in European research funding. Therefore plenty of opportunities exist to deepen the knowledge. The field of policy evaluation is seen the most promising area of research with regards to the implementation of GI.

### **Environment**

International research collaborations with the possibilities of practitioners to collaborate, such as LUIGI or LosDama! allow for the inclusion of a wide range of stakeholders. However, the necessity of partial funding from own sources is a challenge for NGOs, associations etc. Often participants in these Living Labs receive no compensation which makes the search for partners difficult.

### **Interaction**

Crucial for a wider spread of research is frequent public presentation of research results and the publication in open-access journals. A good exchange with media representatives guarantees, that research is communicated publically and reviewed publically.

### **Objects**

Suitable formats or tools to be used and or further developed are for example Massive Open Online Courses (MOOC) to increase technical understanding and raise awareness (e.g. developed exemplarily by Grenoble Ecole de Management). Also the launch of interactive webinars to share best practice examples, teaching and training modules (e.g. by Technical University of Munich) or the development of ESS stock exchange models.

### **Users**

Foremost students, fellow researchers, especially in other regions, and everyone interested in scientific information will benefit.

## 4.7 The Public



### **Activity**

Food and consumer goods from GI projects can represent an added value that can trigger a higher willingness to pay for these products. It also is a form to express appreciation for the action of the initiators and practical land users / farmer and their general or personal commitment to sustainability. In some cases, food product customers get personally involved (e.g. orchard tree-shares as a proven financing model by the public) or accept additional costs (e.g. a longer journey to a specialized on-farm shop for direct marketing). Nevertheless, there will be a broad mass of people, who do not care about the advantages of locally and sustainably produce. Therefore it is recommended to build up corresponding advisory competence on the advantages and GI-topics in general.

### **Environment**

At present, the opportunities for sustainably produced products, especially from the utilisation of GI-projects, are rather good. The overall economic situation is characterized with severe interruptions of trade in the globalized world, so that regional produce and consumption is once again, a trend and necessity. In general, a trend towards more sustainable lifestyles (fair prices for farmers, climate-friendly, regional, from organic farming, etc.) illustrate the generally favourable environment for such products.

### **Interaction**

Bulk buyers, for example of fruits from orchards for industry, are less likely to come into personal contact with farmers. Also, individual end customers for consumer goods usually only come into contact with producers via the retail trade or direct marketing when they are introduced (e.g. trade fair stand with tasting) or at special events (e.g. farm festivals). Not to be underestimated, however, is the word of mouth for good products and a trend towards a more conscious and responsible way of eating, especially among the younger population. Tasting events undertaken by several partners in LUIGI have apparently been very successful.



**Figure 10: Impressions from various activities for and with the public – LUIGI local knowledge exchange workshops with the public in five pilot regions (Schrapp et al. 2021, Schrapp et al. 2022)**

Contact with municipal climate protection managers, municipal utilities and planning offices in the energy sector can be conducive to initiating new GI-projects with municipalities.

### **Objects**

Suitable tools for the involvement of the general public and end customers or buyers are presented as a photo collage in Figure 10. Best practice examples on GI as part of municipal climate protection activities should be further elaborated. A food label could also be interesting for buyers and industrial customers if the products produced GI become more attractive for the end consumer through the label.

### **Users**

Those who will benefit are those who appreciate the advantages of GI.

## **5 Conclusion and outlook**

Within WP 3 we have identified, documented and investigated a number of different participatory and governance approaches for GI management that strengthen, improve and restore biodiversity, as well as ecosystem services.

The state of the art on GI planning and management in the LUIGI pilot regions and selected case study areas reveal that a wide spectrum of actors can contribute to maintain and further develop GI. They can be assigned to different stakeholder groups such as government, busi-



ness, land user, science and education, nature conservation, associations, and public. According to their involvement, roles, values and collaboration they can constitute to very different governance arrangement, ranging from rather top-down government lead approaches on the one side to top-up non-government led approaches on the other side and variances of open and closed co-governance approaches in-between.

Within respect to the key Alpine GI of the six LUIGI pilot regions, in addition to the overview given by the “status analysis” (Deliverable D3.1.1, Schrapp et al. 2020) as well as the “in-depth analysis” (Deliverable D3.2.1, Hübner et al. 2021), this report put emphasis on a number of important success factors. Overall, we can conclude, in order to better plan, manage and maintain GI in the alpine area, it depends less on a specific governance approach related to specific factors. Across regions, across the different government approaches and across different stakeholders, it shows, that a number of factors can be considered as relevant for success, rarely single, outstanding ones, such as the availability of financial resources, the empowerment of actors, and network building, awareness raising, besides the need of appropriate politics and economic considerations. Still, a number of conclusions can be derived with regard to the different stakeholder groups related to goal-oriented actions and needed environment settings, key elements of the environment, interactions, as well as the consideration of profiteers.

The following diagrams give a summary about the mentioned promoting factors of GI (Figure 11) as well as the possible solution strategies by region (Figure 12) as well as by stakeholder group (Figure 13).

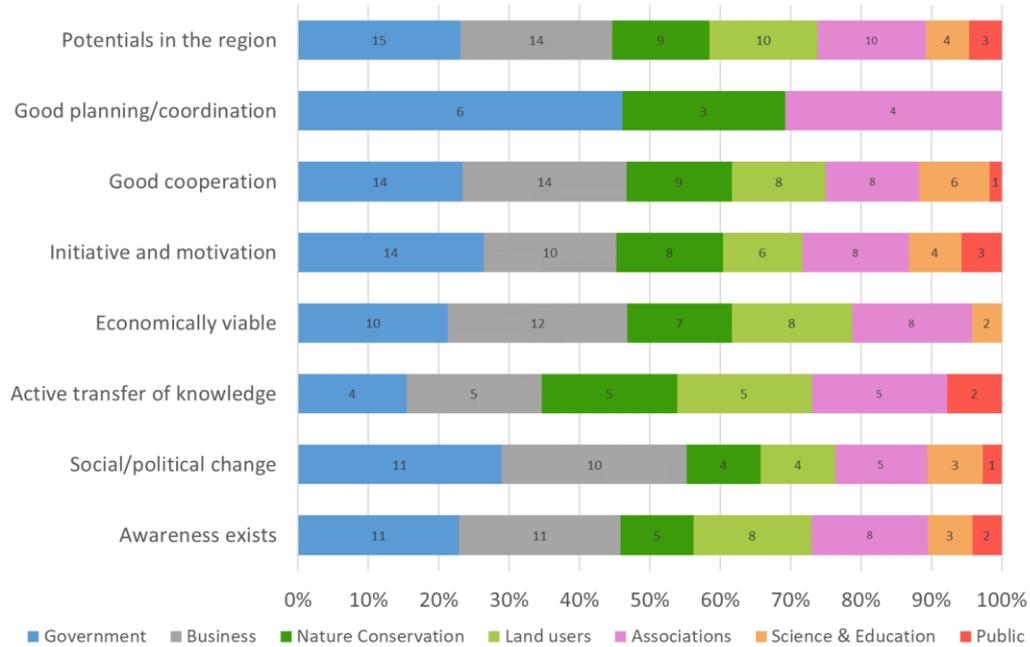


Figure 11: Mentioned promoting factors of GI by stakeholder group.

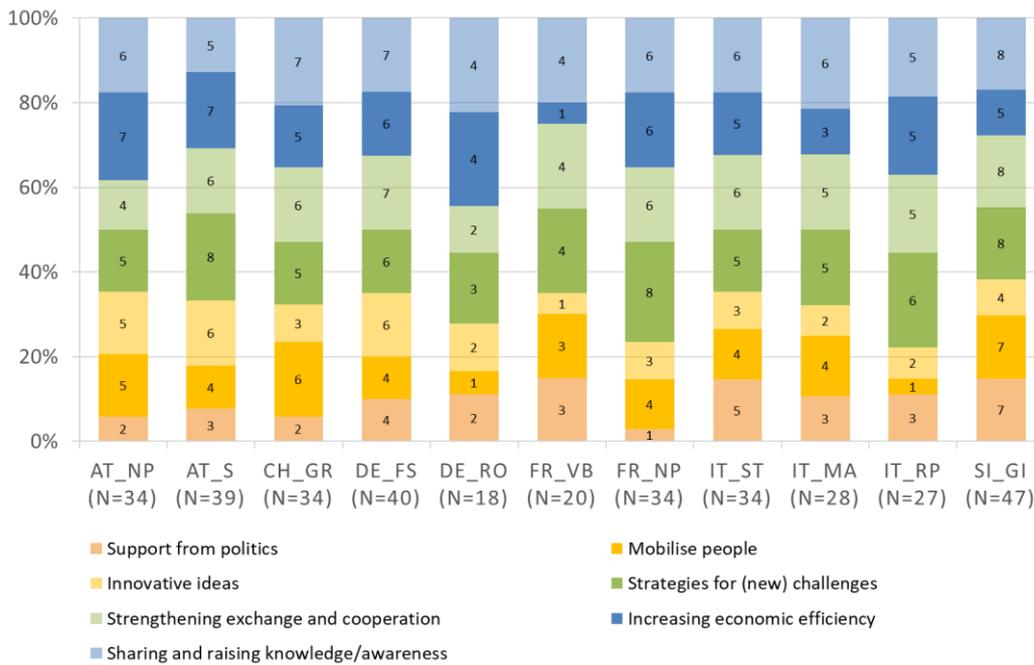
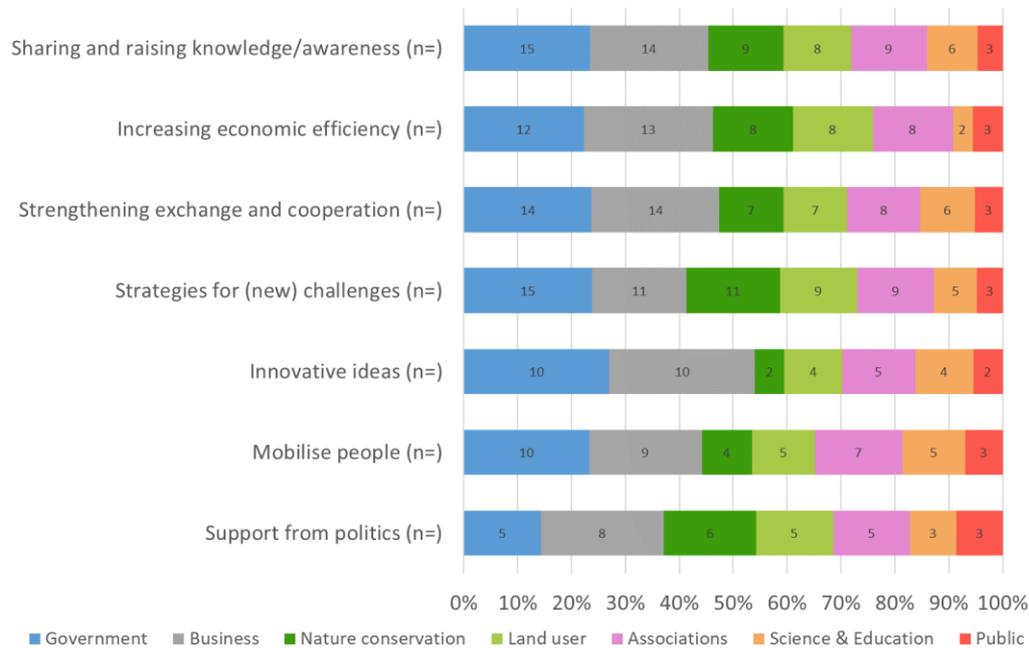


Figure 12: Mentioned possible solutions by region.



**Figure 13: Mentioned possible solutions by stakeholder group**

Concluding, this work provides an overview of the current state of governance approaches in key alpine GI in ten different pilot regions and puts emphasis on challenges and how governance can address. Furthermore, these outcomes are considered to stimulate further initiatives beyond the LUIGI pilot regions and their case studies, to further enhance governance of GI. At that point, the authors would like to stress that there is no one-size-fits-all solution. These different approaches should not be seen strictly separated, as transitions are fluid. Furthermore, approaches can stimulate each other to further enhance governance of GI. They need to fit in the national and regional planning framework and need to be adapted to regional and local constellations, available resources and the presence of actors.

## References

- Arts, B., Leroy, P., van Tatenhove, J., 2006. Political Modernisation and Policy Arrangements: A Framework for Understanding Environmental Policy Change. *Public Organization Review* 6, 93-106, <https://doi.org/10.1007/s11115-006-0001-4>.
- Barbier, E.B., 1987. The Concept of Sustainable Economic Development. *Environ Conserv* 14, 101-110, <https://doi.org/10.1017/s0376892900011449>.
- Hübner, R., Rolf, W., Buschhaus, M., Salgado, S., Blum, K., Czippán, K., Schrapp, L., 2021. Urban green infrastructure governance approaches: Indepth analysis of alpine space case study regions, D.3.2.1. of the Interreg Alpine Space project "LUIGI". Technical University of Munich, Freising-Weihenstephan.
- Khan, S., VanWynsberghe, R., 2008. Cultivating the Under-Mined: Cross-Case Analysis as Knowledge Mobilization. *Forum: Qualitative Social Research* 9, 34.
- Kohlbacher, F., 2005. The Use of Qualitative Content Analysis in Case Study Research. *Forum: Qualitative Social Research* 7, 21.
- Liefferink, D., 2006. The dynamics of policy arrangements: turning round the tetrahedron. In: Arts, B., Leroy, P. (Eds.), *Institutional Dynamics in Environmental Governance*. Springer, Dordrecht, pp. 45-68.
- Nawroth, G., 2017. AEIOU – Beschreibung der Arbeitsmethode. In: Fraunhofer Institut (Ed.), p. 1.
- Ragin, C., 1997. Turning the tables: How case-oriented research challenges variable oriented research. *Comparative Social Research* 16, 27-42.
- Schneider, C.Q., Wagemann, C., 2010. Standards of Good Practice in Qualitative Comparative Analysis (QCA) and Fuzzy-Sets. *Comparative Sociology* 9, 397-418.
- Schrapp, L., Hübner, R., Rolf, W., Czippán, K., Blum, P., Reinke, M., 2020. Green Infrastructure governance approaches in the Alpine Space – Status analysis in selected Alpine Metropolitan regions and case studies. D.3.1.1. of the Interreg Alpine Space project "LUIGI". University of Applied Science Weihenstephan-Triesdorf (HSWT).
- Schrapp, L.; Czippán, K.; Sebastian, A. (2022): Knowledge exchange workshops in six pilot regions of the LUIGI project – Internal Report D.3.3.2.
- Schrapp, L.; Czippán, K.; Ejderyan, O.; Home, R.; Moschitz, H.; Sebastian, A., Uttur, A. (2021): Internal guideline for participatory approaches and stake-holder



management for the project implementation - Linking Urban and Inner-Alpine Green Infrastructure, Deliverable 3.3.1.

## Acknowledgement

The authors would like to express our gratitude to all observers and stakeholders of the LUIGI project for providing valuable expert knowledge during the interviews.

## Photo sources & copyright

The content of this report is protected by copyright. You are permitted to extract from this material for public use, provided the source is acknowledged. None of this material may be used for any commercial use. Reproduction or use of text or image material is not permitted without the express consent of the author. Protecting your personal data is extremely important to us. This data protection declaration sets out the method, extent and purpose of our collection, processing and use of your personal data. Photo copyright LUIGI project partners: Metropolitan City of Milan (MCM), Metropolitan City of Turin (CityMetroTo), European Academy Bozen (EURAC), Bavarian State Ministry of Food, Agriculture and Forestry (alpBayern), Weihenstephan-Triesdorf University of Applied Sciences (HSWT), Grenoble-Alpes Metropolis (GAM), Grenoble Ecole de Management (GEM), Regional management Burgenland (RMB), Salzburg Institute for Regional Planning and Housing (SIR), Foundation Pro Terra Engadine (PTE), Agricultural Institute of Slovenia (AIS), Development Agency of Idrija and Cerkno (ICRA).

## Appendix

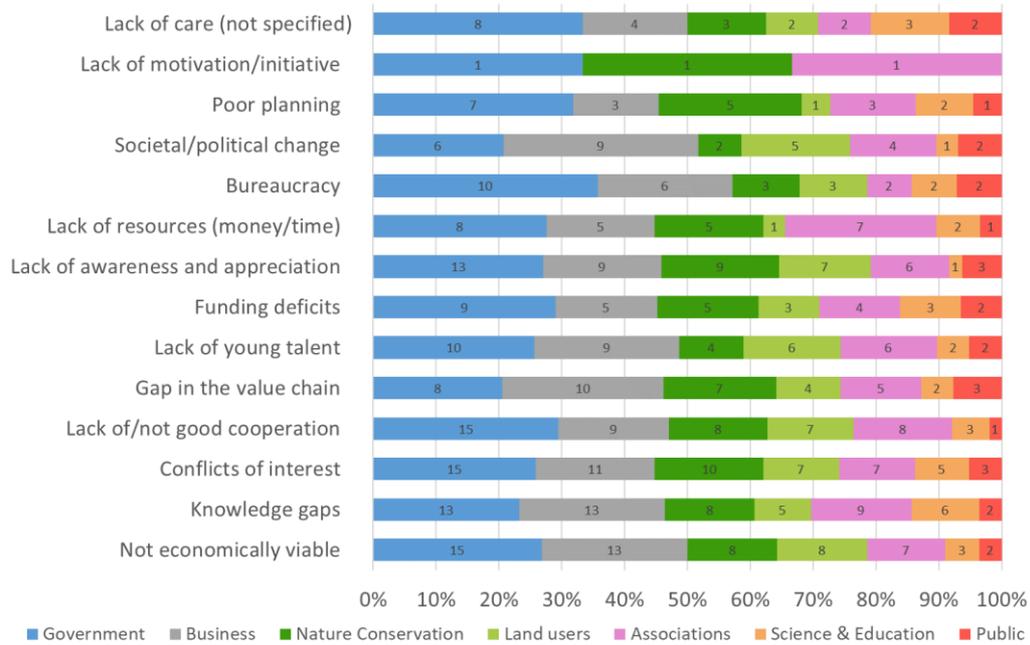


Figure 14: Mentioned inhibiting factors for GI development by stakeholder group.

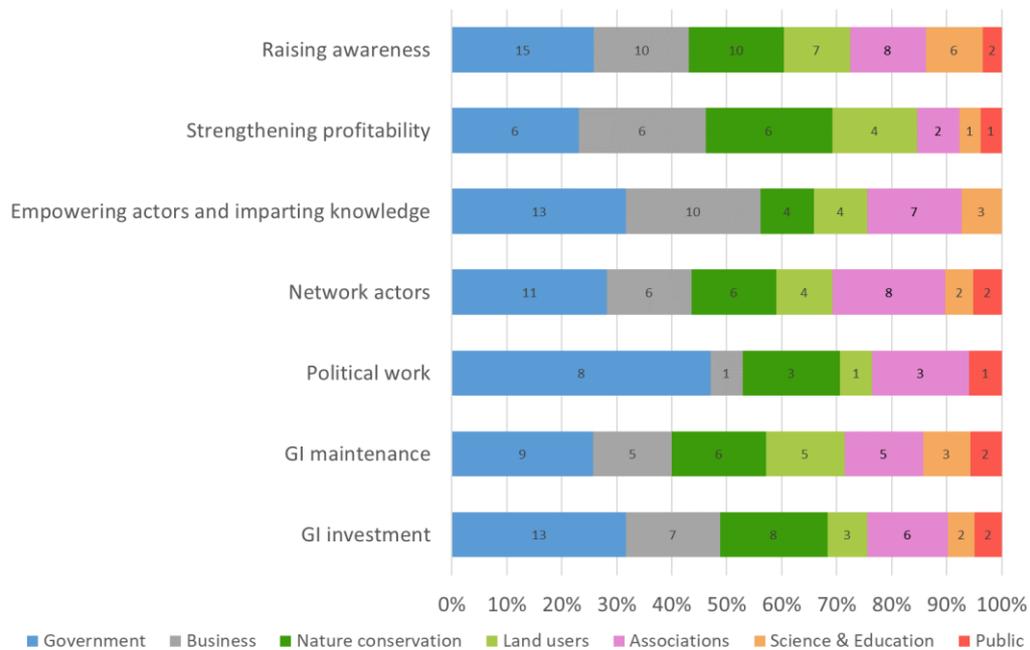


Figure 15: Mentions of action taken by stakeholder group.