



# Overview of present education and knowledge transfer mechanisms on Green infrastructure

Output T4.1.1

Location: Ljubljana, Milano

Date: June 2022

Editor: Nika Cvelbar Weber

Authors and contributors: Contributions from all LUIGI partners



# Content

The LUIGI project	
The scope of the document	4
The LUIGI project	5
Green infrastructure	6
Importance of Green infrastructure	6
Transfer of GI-related knowledge	8
The LUIGI approach	8
Differences in education systems in the Alpine space	9
Result of the Survey on GI-related education landscape	17
Project Regions	17
Educational institutions	19
Teaching and training modules	20
Knowledge end-users	24
Report for individual project regions	27
Austria	28
South Burgenland	28
France	30
French Northern Alps	30
Italy	32
Metropolitan City of Milan	32
Metropolitan City of Turin	34
South Tyrol - Italy	36
Germany	38
European Metropolitan Region Munich	38
Slovenia	40
Goriška statistic region	40
Schwitzerland	42
Canton of Grisons	42
Conclusion	44
Recommendations	44
References	45







This output was prepared in the frame of:

# The LUIGI project

The Interreg Alpine space project LUIGI (Linking Urban and Inner-Alpine Green Infrastructure - Multifunctional Ecosystem Services for more liveable territories) brings together 14 partner institutions and 26 observers from Austria, France, Germany, Italy, Slovenia, and Switzerland with the aim of strengthening the link between mountain ecosystems and urban centres at the foot of the Alps through sound economic and social exchanges.

By recognising the pressures on Alpine ecosystems and the services they deliver to wider areas beyond mountain regions, the project aims to strengthen the link between mountain ecosystems and urban centres at the foot of the Alps. The project's objective is to recognise and valorise the joint benefits of a GI network between mountain/rural and urban areas, as well as their potential for sustainable economic development based on natural resources and ecosystem services, ensuring a higher quality of life and better urban environments for people living in urban centres.

Work Package 4 of the LUIGI project focuses on knowledge transfer for sustainable management of green infrastructure elements in LUIGI model regions, leveraging knowledge from the Alpine region and beyond. It offers an overview of present status and tools and recommendations for improvements.







## **Output summary**

This output was prepared in the frame of the Interreg Alpine Space project LUIGI (Linking Urban and Inner-Alpine Green Infrastructure - Multifunctional Ecosystem Services for more liveable territories). Information was collected by project partners for their regions and processed according to predefined categories and definitions.

In the first part of this output differences in the official education system in participating countries are presented and reference to the Education-GPS of the OECD for further study is given. This highlights differences among countries and thereby project regions. The second part summarises collected information on status and transfer of knowledge relevant to the Green infrastructure governance for entire Alpine Space and then dissect it by pilot regions where data was provided. Data collected is presented in the Appendix.

Most of the GI-relevant knowledge present in the project regions is transferred by universities and other institutions in the official education system. But the role of other institutions like associations and chambers may be as important despite smaller number being identified. Their knowledge transfer addresses institutions and individuals working on or with GI-elements directly. This corresponds with identified knowledge end-users as identified by their categories and sector of activity.

Practical courses and demonstrative presentations were recognised as most important and relevant in most project pilot regions. Currently most knowledge transfer identified to have a connection to GI is dealing with ecological aspects or GI or landscape planning of GI elements. The business aspect and how to engage broader public seem to have a deficit. Filling this gap may improve management and sustainability of GI landscape elements in the future.

The information and understanding of green infrastructure related knowledge pools and current transfer trough teaching and training in the project regions can be a support for decision-making and policy on regional, national and international levels.

## The scope of the document

The aim of this output is to present current status of green-infrastructure-related knowledge pools and transfer in the Alpine Space area. It is aimed to local, regional, national and international governance organisations as a source of information and support for decision-making processes leading to improved GI network governance.







# The LUIGI project

The LUIGI project (Linking Urban and Inner-Alpine Green Infrastructure - Multifunctional Ecosystem Services for more liveable territories) was initiated by the EUSALP action group 7 to rise recognition of Green Infrastructure (GI) in the society and enhance the Ecosystem services (ESS) they provide.

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 a GI network between mountain/rural and urban areas as well as their potential for sustainable economic development, based on natural capital and ecosystem services that participate in assuring a higher quality of life and better urban environments to people living in urban centres.

Based on sound experience from past projects on ESS, GI and town-networks, the LUIGI project aims at:

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

Results are achieved by running tests and implementing actions in pilot-regions in six Alpine countries, where different GI linking urban to mountain/rural areas are addressed, by also considering GI' identity and cultural values LUIGI aims to implement the EUSALP political <u>declaration of Alpine States and Regions on Alpine Green Infrastructure</u> (2017) calling for setting up transnational pilot projects addressing EU-relevant GI. LUIGI also aligns to the thematic actions of the <u>Green Economy Action</u> Plan of the Alpine Convention, adopted by the 15th Alpine Conference (2019)

The project addresses three territorial megatrends ongoing in the Alpine Space:

- urban and metropolitan areas are flourishing and increasingly aware of the value of sustainable development and a high quality of life;
- rural areas supply cities with goods and services (e.g. food, recreation) that mainly benefit urban dwellers;
- the decline of plant and animal species and collapse of pollinators in urban areas raise concern for the growing loss of biodiversity. New more cohesive rural-urban partnerships, sustainable economic and management models are required to maintain a high-quality living space for the future in the alpine area.







New approaches are needed that rely on multifunctional Alpine Green Infrastructure networks: i.e. not only ecological corridors, but links supporting an exchange of economic, social and cultural values between urban and mountain/rural areas. ESS can be the building blocks of a safer territory and a greener economy; prompt financial innovation; support sustainable tourism.

The project aims at shaping a transalpine GI-network as ecological, economic and cultural connectivity factor of rural and urban Alpine territories. The project aims to implement EUSALP political declaration by States and Regions on GI. Based on EU standards for GI and ESS (e.g. MAES) and outcomes of ASP projects (e.g. AlpES, AlpFoodWay), representative GI (food-tree-based land-use systems, etc.) and value-chains for goods and services are analysed, related business models, financial and policy instruments are framed and spread. Based on harmonised procedures, representative cities, metropolitan and rural areas from six countries are covered. Findings are transferred on the transnational Alpine scale via existing networks (e.g. protected areas, LEADER, LOS-DAMA!-Alpine city network, METREX). Novel mechanisms of local empowerment, creative involvement of target groups (like citizen science and design thinking), teaching and training of students and practitioners are set up.

#### Green infrastructure

According to the European commission, a Green infrastructure is 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 such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity.

The European Commission has developed a <u>Green Infrastructure Strategy</u> (EU 2013). This strategy aims to ensure that the protection, restoration, creation and enhancement of green infrastructure become an integral part of spatial planning and territorial development whenever it offers a better alternative or is complementary, to standard grey choices.

The LUIGI project is working on the implementation of EC strategy in the Alpine Space regions.

According to the <u>CEEWeb (2020)</u> Green infrastructure is a spatial network of natural and seminatural features which aims to protect biodiversity and serve multiple purposes for the benefit of people and nature. Green Infrastructure can provide both socio-economic and conservation benefits at different scales – from local or regional level (e.g. wildlife overpasses, migratory corridors, floodplains) to European level (e.g. Pan-European Ecological Network). It is built up of various, both natural and artificial elements at different scales ranging from protected core areas to sustainable use buffer zones and green urban and peri-urban spaces.

#### Importance of Green infrastructure

Green Infrastructure (GI) while delivering a wide range of ecosystem services, also helps biodiversity to recover, maintains, enhances or restores the health of ecosystems, ensures that natural areas remain connected, and allows species to thrive across their entire natural habitat. GI also helps improve people's health and well-being.







Furthermore, GI such as freshwaters, ecological corridors, valuable green areas and urban parks - deliver nature-based solutions that reduce our dependence on 'grey' infrastructure, support a green economy, create job opportunities and enable landscapes to recover from biodiversity losses.

For further descriptions please read report **Green Infrastructure for the Alpine Space: from theory to practice. D.T1.1.1** of the LUIGI project by Giombini et al. (2020).







# Transfer of GI-related knowledge

An overall presence and functionality of GI elements in a landscape may be improved by increasing the pool of GI-related knowledge and enhancing its transfer to relevant stakeholders. For effective planning, preparation and maintaining of green infrastructure a defined set of knowledge is needed. Yet, another level of expertise is required to improve the sustainability of allocated GI by public involvement, ecosystem services evaluation and their transfer to the users by efficient value chains. The existence and transfer of knowledge on GI is crucial for:

- appropriate inclusion of GI into the landscape,
- appropriate design of individual patches of GI and their connection to each other to enhance ESS,
- correct long term management of GI once present,
- supporting an effective transfer of ESS and products to people and deficit areas through value chains,
- ensuring economic benefits of GI to society and
- appropriate society engagement with the GI and its ESS.

# The LUIGI approach

The LUIGI Alpine Space project dedicated one of its work packages to the teaching and training for sustainable GI management and ESS provision. The activities in this work package are:

- exploration of the educational landscape in different project regions,
- preparations of suggestions for improvement of selected present training and teaching modules,
- preparation of four training modules and
- execution of prepared training modules.

This output is presenting results of the first activity, the exploration of present GI-related knowledge pools and transfer for eight project regions. Data was collected by LUIGI project partners for their project region with their scope of interest. The project regions presented in Table 1 are areas where project partner are located and active. Within these project regions are also so-called project pilot areas where other LUIGI activities were executed. But for this activity more than geographical location a knowledge transfer and exchange is important. Therefore some of identified educational institutions may be based outside of the project region, but their students are active within it.

Collection of relevant institutions and their teaching and training modules is an approach to explore where GI-related knowledge is present, how it is transferred and who need GI-related knowledge in their daily work and decision-making.

In the next chapter general differences in official education systems are presented.







# Differences in education systems in the Alpine space

There are important differences among education systems of participating countries. General differences in the composition of education systems are best revealed by <u>education GPS provided by OECD</u> (OECD 2015). Below is presented a summary of education systems, but the information could be further studied in supporting reports provided on the OECD webpages.

In Figure 1, an overview of primary to secondary and compulsory education duration is presented for six of the Alpine countries. Compulsory education starts at the age of six years except for Switzerland at four years and lasts nine to twelve years. Compulsory education is shortest in Austria and Slovenia and ends at age 15 and longest in Germany where it ends at age 18 and Switzerland where it starts at age 4. In all countries, lower secondary schools are part of compulsory education except for Slovenia where it is included in the span of primary school. In Slovenia and Switzerland, compulsory education ends with lower secondary school while in other countries extend over some of higher secondary schools. Higher secondary school that sometimes already contains some of the GI-related knowledge ends at student age of 17 to 19 years.

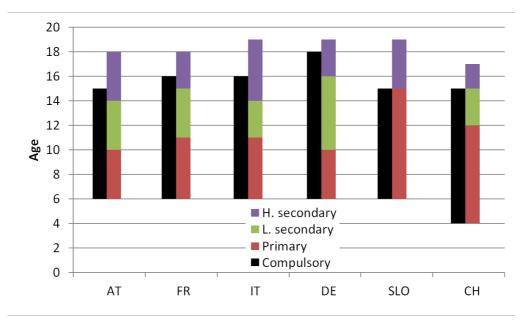


Figure 1: Duration of compulsory, primary, lower and higher secondary education in Alpine-region countries. Data obtained from the OECD webpage.

Education system after compulsory education is even more heterogeneous which makes it harder to draw clear parallels although the <u>Bologna process</u> (EU-2000) makes it more and more comparable. In Figure 2 schematic diagrams of the entire education system provided by OECD are presented. These diagrams provide information on the age of students and the duration of different levels of education and can be viewed in the <u>Education GPS</u> (OECD 2015) in the original size and with supporting documentation.





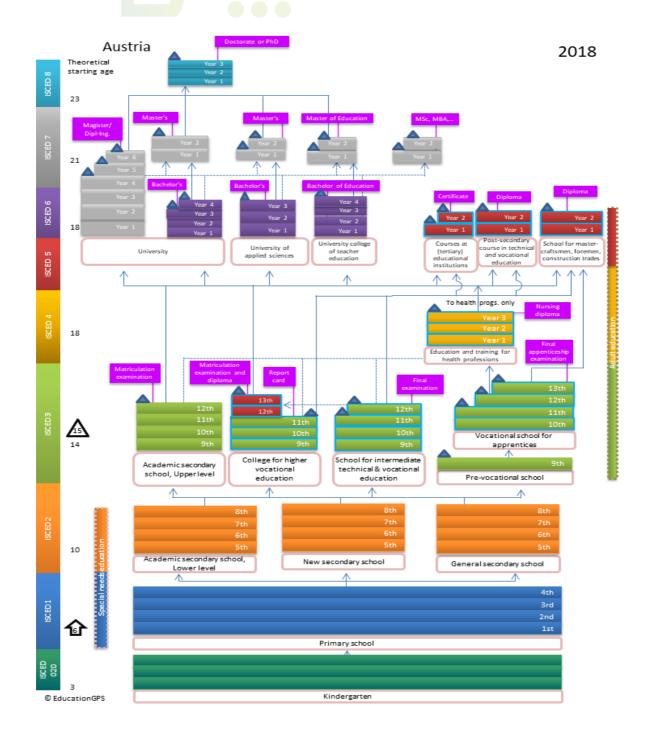


Figure 2: Education systems in Austria presented in diagram. Education levels are colour coded to allow comparison of different countries. Arrows show how students can pass from one level to another.





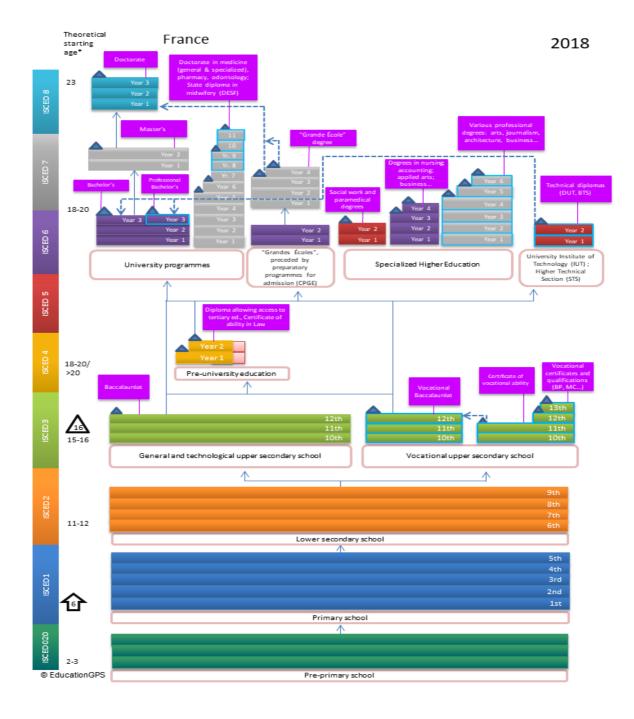


Figure 3: Education systems in France presented in diagram. Education levels are colour coded to allow comparison of different countries. Arrows show how students can pass from one level to another.





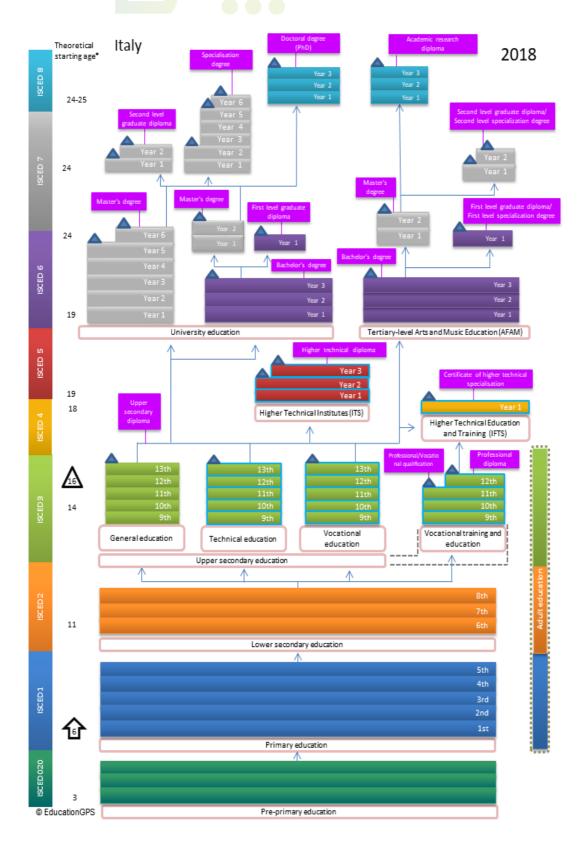


Figure 4: Education systems in Italy presented in diagram. Education levels are colour coded to allow comparison of different countries. Arrows show how students can pass from one level to another.





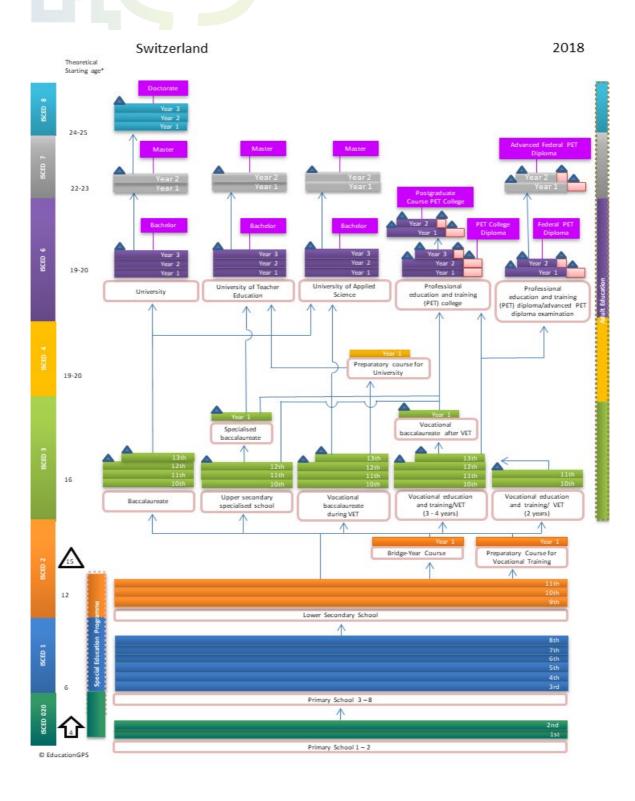


Figure 5: Education systems in Switzerland presented in diagram. Education levels are colour coded to allow comparison of different countries. Arrows show how students can pass from one level to another.





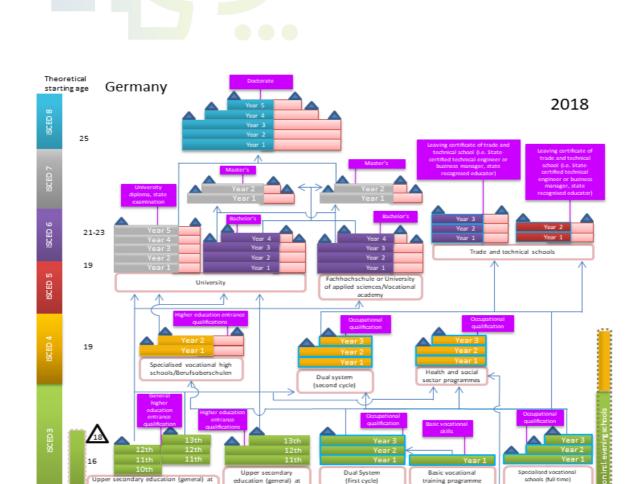


Figure 6: Education systems in Germany presented in diagram. Education levels are colour coded to allow comparison of different countries. Arrows show how students can pass from one level to another.

Primary school

Kindergarten

Créches, Day Nurseries



SCED 020

© EducationGPS

several educational progran



Kita



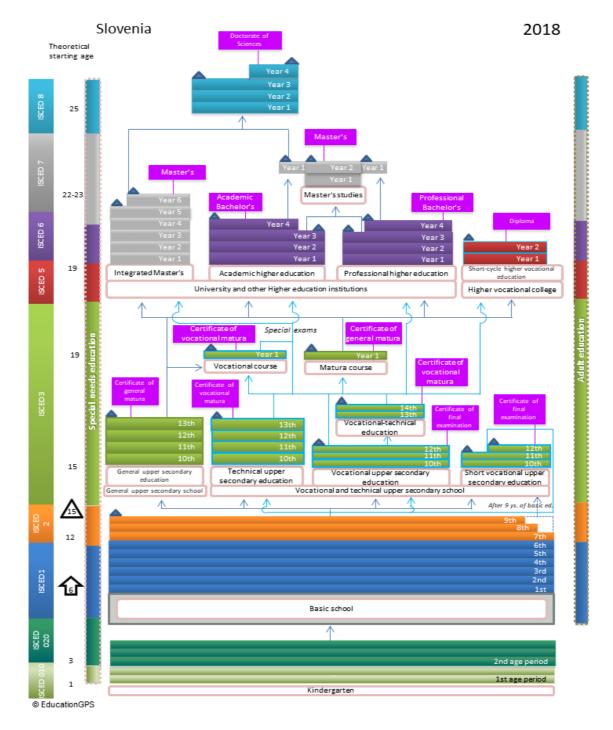


Figure 7: Education systems in Slovenia presented in diagram. Education levels are colour coded to allow comparison of different countries. Arrows show how students can pass from one level to another.







The GI-related knowledge is within formal education system transferred mostly in Upper secondary education (ISCED3 - Orange), Post-secondary non-tertiary education (ISCED4 - Light green), First stage of tertiary education (ISCED5 - Yellow) and Second stage of tertiary education (ISCED6 - Purple). However, much of GI-related teaching and training is not part of the formal education system as revealed by the exploration presented in the following chapters.







# Result of the Survey on GI-related education landscape

As part of the LUIGI project Work package 4, devoted to the teaching and training for sustainable GI management and ESS provision, a broad survey on the GI-related educational landscape in eight project regions was performed. It explored how the knowledge that is in one or another way related to green infrastructure elements is transferred within the official education system and through other knowledge transfer options like training for professionals and open courses.

Exploration of Educational landscape in project regions was executed in two parts:

- Preliminary online questionnaire was circulated among project partners from 15th March to
  the end of April 2020 to facilitate the generation of common understanding and collect preliminary overview GI-related education-landscape. Seven complete responses were received.
  Collected information was processed and used as a basis for the preparation of further data
  collection.
- Collection of information about educational institutions providing teaching and training modules and GI-related knowledge end-users was executed in dedicated spreadsheets for all eight project regions from June to August 2020.

All 14 project partners participated and provided information for eight project regions presented in Table 1.

Presented results may include bias due to different sectors of participating project partners and different amounts of collected data for individual regions. Collected data is also not strictly limited to the geographically identifiable area since as knowledge pool and transfer is not limited by borders. Nevertheless, they give an interesting overview of differences and similarities among GI-related educational landscapes in these regions.

#### **Project Regions**

Project regions for the exploration of the educational landscape were defined by participating partners according to their location and activities within the LUIGI project. Detailed presentations of the regions are in chapter Report for individual project region. Detailed information for project regions and project pilot areas presentation can be found in the LUIGI project report by Schrapp et al. (2020).







Table 1: Project regions and the participating project partners who contributed the information about the educational-landscape and GI-related knowledge transfer. Abr. - abbreviations of the project regions used within this report.

Project region	Project partners that provided information	Abr.				
Project region	Project partners that provided information	Abr.				
Burgenland	Regional management Burgenland	AT				
French Northern Alps	ALPARC – Alpine Network of Protected Areas and	FR				
	Grenoble-Alpes Métropolis					
South Tyrol	European Academy Bozen - Eurac Research	IT-ST				
Metropolitan City of Milan	Metropolitan City of Milan	IT-M				
Metropolitan city of Turin	Metropolitan city of Turin	IT-T				
European Metropoli- tan Region Munich	Bavarian State Ministry of Food, Agriculture and Forestry and					
	Weihenstephan-Triesdorf University of Applied Sciences					
Goriška statistic region	Agricultural Institute of Slovenia and	SLO				
	Development Agency of Idrija and Cerkno					
Canton of Grisons	FiBL-Research Institute of Organic Agriculture an					
	Foundation Pro Terra Engadine					







Information on three segments of knowledge transfer was collected:

Educational institutions providing GI-related knowledge

Project partners provided information about Institution names, Type of institution, Relevant Department, Level of knowledge transfer, Type of knowledge transfer and topics covered.

Teaching and training modules

For identified educational institutions relevant courses, teaching, training and practical demonstrations were described by titles and content. This data was further categorised to reveal which of four in the LUIGI project modules are covered (see section Teaching and training modules for description).

Knowledge end-users

Those who need and use GI-related knowledge in their daily work and decision-making, so-called knowledge end-users, were identified by name, their sector and topic of interest.

#### **Educational institutions**

In the frame of LUIGI project, we defined as educational institutions all organisations and experts which produce, gather and distribute knowledge related to GI planning, management, use and other activities in and around GI.

We envisioned the following groups of educational institutions to be involved in the GI-related knowledge transfer:

- Higher Secondary schools active in the ISCED3 educational level (<u>ISCED 2011</u>): This is the earliest time when students have courses dedicated to specific also to GI-related topics;
- Higher schools active in ISCED4 and ISCED5 level;
- Universities active in ISCED4 and higher levels of education and may possess a vast amount of GI-related knowledge;
- research and other Institutes involved in the formal education system as well as informal knowledge transfer;
- Agricultural chambers mainly offering knowledge to farmers and landowners in agricultural policy cycles;
- Agricultural associations spreading needed knowledge among members;
- Other chambers active in the GI-related sectors offering relevant knowledge;
- Other associations active in the GI-related sectors spreading knowledge among members;
- Cooperatives possess knowledge on the marketing of GI-product;
- Parks administrations promoting GI awareness and proper management;
- Sectoral agencies active on GI-related topics like environment,
- Administrative bodies (state, regional and local)
- SME: small and medium enterprises active in the management of GI and related knowledge transfer and
- Other.







The questionnaire revealed that the main GI-related knowledge transfer was performed by universities (Figure 3). About 12% of knowledge was transferred by secondary schools (ISCED3), higher schools (ISCED4 or ISCED5) and Agricultural associations, respectively, although there was a big difference between project regions as indicated by colour on Figure 3. Beside Agricultural association and Agricultural chambers also other, non-agricultural, associations play an important role in the transfer of GI-related knowledge outside of the official education system. Local administrations, sectoral agencies, parks and small- to medium-sized enterprises possess reasonable amounts of knowledge but according to our results do not organise teaching and training.

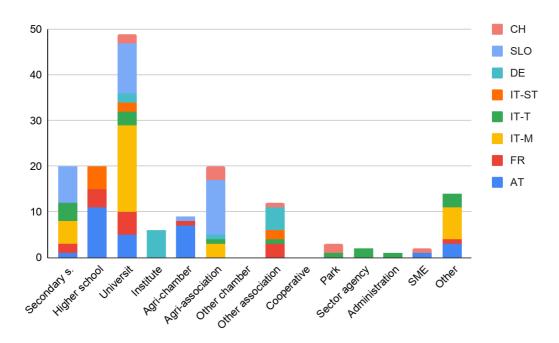


Figure 3: Number of identified educational institutions providing GI-related knowledge in 14 categories in project regions: AT - South Burgenland; FR - French Northern Alps; IT-ST - South Tyrol; IT-M - Metropolitan City of Milan; IT-T - Metropolitan City of Turin; DE - European Metropolitan Region Munich; SLO - Goriška statistic region; CH - Canton of Grisons.

# Teaching and training modules

Identified institutions provide teaching and training in different forms. Relevant modules including GI-related topics have been identified by project partners in cooperation with some of the institutions from their project regions. Modules were arbitrarily categorised into five groups of topics related to GI:

- Ecology and environmental aspects of GI,
- Landscape planning,
- Management,
- Business model and
- Society engagement.







Last four were selected for preparation of LUIGI training modules in separate activity as:

Training module for GI oriented sustainable landscape planning (Bertonceli et al., 2021)

This module includes knowledge about sustainable landscape planning, placement of different GI in the landscape for best ecosystem services provision. It integrates commonly available knowledge with information and best practices accumulated in the project.

Training modules for practical and sustainable GI management (Hladnik et al. 2021)

This training module brings to foreground practical management of GI and maintenance measurements to address and facilitate sustainability and enhance ESS provision.

Training module on possible business models and value chains of GI (Rekič et al. 2021)

This module aims to enrich trainees with knowledge on possible business models for selected GI. Modules will include examples of best practices and factsheets about proposed business models.

 Training module including knowledge possible secondary products from local GI and society participatory engagement (Hladnik et al. 2021)

This module includes a collection of practical instructions for the use and preparation of products from GI and good practices in society engagement on topics related to GI.

Summary of collected information on modules covering specific GI-related topics are presented in Figure 4. From modules offered by educational institutions the largest share was related to ecology and environmental aspects of GI, closely followed by landscape planning approaches. Some fewer modules were related to GI management aspects. As expected, least modules could be recognised to include some information on possible GI-related business models and society participatory engagement (Figure 4). The described order of importance is similar in all regions with the exception of French northern Alps where the largest number of modules was dedicated to GI management and South Tyrol in Italy where the largest number of modules was related to landscape planning.







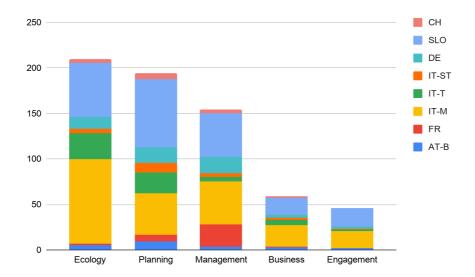


Figure 4: Number of modules per module topics as identified in different project regions: AT - South Burgenland; FR - French Northern Alps; IT-ST - South Tyrol; IT-M - Metropolitan City of Milan; IT-T - Metropolitan City of Turin; DE - European Metropolitan Region Munich; SLO - Goriška statistic region; CH - Canton of Grisons.

In the preliminary questionnaire, respondents were asked to evaluate the importance of these modules for possible enhancement of ESS provision in their project regions. As the most important were recognised the Landscape planning and the Management of GI elements, followed by Society participatory engagement and environmental aspects. Possible GI-related business models were recognised as less important at the beginning of the project.

Educational modules related to the GI are offered by educational institutions in different forms. Within the LUIGI project we proposed and evaluated four possible forms of knowledge transfer:

- Course entirely dedicated to GI-related topics (GI-course);
- Individual lecture dedicated to GI-related topics within regular educational courses (GI-lecture);
- Independent lecture executed outside of regular study (e.g. evening lecture);
- Practical workshop or field training.

How the educational modules are executed was evaluated on the educational institution level. In most regions practical training was the most spread form of GI-related knowledge transfer except for Metropolitan city of Milano (IT-M) and Slovenia (SLO) where lectures dedicated to GI were dominant and Metropolitan city of Turin (IT-T) where courses dedicated to GI had the biggest share (Figure 5). Independent lectures, which are on one side not part of regular studies and on the other side do not contain a reasonable amount of practical training elements were less common. However, we should note that there were large differences between the project regions.







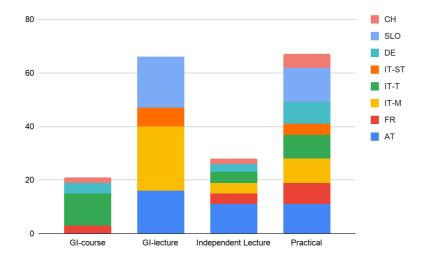


Figure 5: Number of courses in four forms of G-related knowledge transfer in different project regions: AT - South Burgenland; FR - French Northern Alps; IT-ST - South Tyrol; IT-M - Metropolitan City of Milan; IT-T - Metropolitan City of Turin; DE - European Metropolitan Region Munich; SLO - Goriška statistic region; CH - Canton of Grisons.







# Knowledge end-users

In the exploration of GI-related knowledge pool and transfer were also the knowledge end-users. These are organisations and individuals who use provided knowledge in their daily work and decision-making and thereby play an important role in GI creation, maintenance, sustainability and general public perception. These are important target groups for activities within the LUIGI project and beyond. Addressing their needs and thereby supporting their work and decision making have a direct influence on sustainability of GI elements

We envisioned the following groups of knowledge end-users to have the interest and would benefit from GI-related knowledge transfer:

- Farmers and land-owners who possess and work on the land with GI elements and are thereby directly influencing amount ecosystem services provided;
- Farmer associations that can have a broader effect as individuals;
- Cooperatives may be involved in the marketing of GI-products and can benefit from relevant knowledge;
- · Chambers of Agriculture and
- other Agricultural advisory organisations deal with more administrative aspects and may have an influence on farmers actions as well as on policy-makers;
- SME small and medium enterprises may be executing measures on GI elements or be other way involved
- Chambers of commerce on other chambers may have an interest in GI;
- Other associations like architects also have an influence on GI-planning and long-time management;
- Sectoral agencies;
- Local administrations like municipalities are important decision-makers in different parts of GI lifecycles;
- Local tourist organisations;
- Tourist guides can promote GI and use cultural ecosystem services in their services;
- Non-Governmental organisations can have a big influence on society engagement with GI;
- Social enterprises are like SME with additional stress on different social topics;
- LAG Local action group may execute GI-related projects and
- Journalists and General public are users of ecosystem services on one hand and can influence policies leading to the creation and maintenance of GI.

Heterogeneity of results presented in Figure 6 is a consequence of different focal points of participating partners due to their sector of the action and different activities executed in project pilot areas in the frame of LUIGI project. In all project regions, local administrations were recognised as an important target group for knowledge transfer. Nevertheless, they have in most regions a central decision-making role for the development of landscape planning. In some regions, sectoral agencies and non-agricultural associations play a supportive role in decision making. In South Burgerland (AT) small and medium enterprises were recognised as the most important target group for GI-related knowledge transfer, as they may play an important role in environmental and economical sustainability of present and future GI.







A very important segment of knowledge end-users are farmers and landowners including their associations and advisory organisations. They work on or live from the land with GI elements and their appreciation and understanding of ecosystem services these GI elements provide is crucial for their long term existence.

Local tourist organisations, in the Milano metropolitan region (IT-M) recognised as the most important target group, provide utilization of cultural ecosystem services of GI and thereby also higher awareness of GI importance. Awareness rising role play also Journalists and non-governmental organisations, while later are often also engaged in activities related to GI.

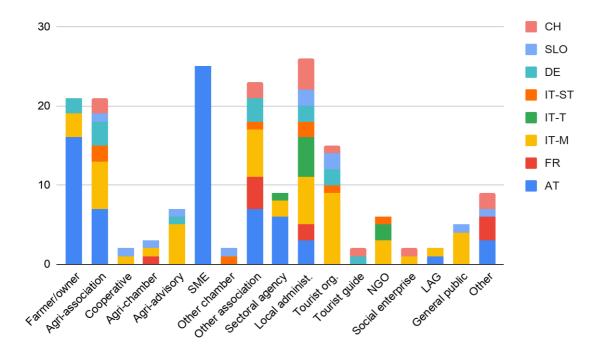


Figure 6: Number of knowledge end-users in 14 categories in different project regions: AT - South Burgenland; FR - French Northern Alps; IT-ST - South Tyrol; IT-M - Metropolitan City of Milan; IT-T - Metropolitan City of Turin; DE - European Metropolitan Region Munich; SLO - Goriška statistic region; CH - Canton of Grisons.

Identified target GI-related knowledge end-users organisations play a crucial role in the creation, maintenance, use and sustainability of green infrastructure elements in project regions. Estimating their activities we classified them into six sectors. The highest number of organisations was in the Food production (agriculture) sector and, as in all regions; landscape planning was an important sector of GI knowledge end-users. Organisations of the tourism sector were evenly present in most of the project regions. The largest share in organisations that are active in the economy, marketing and business sector was listed in the region of South Burgerland (AT). Organisations in the social and society-participating sector were mostly listed in Milano metropolitan region (IT-M) and were the most important sector in the French Northern Alps region (FR). Some of these organisations are active in the educational sector and are further sharing gained knowledge.







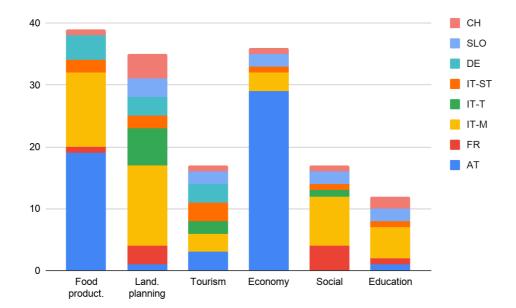


Figure 7: Number of knowledge end-users by sectors of their activity in project regions: AT - South Burgenland; FR - French Northern Alps; IT-ST - South Tyrol; IT-M - Metropolitan City of Milan; IT-T - Metropolitan City of Turin; DE - European Metropolitan Region Munich; SLO - Goriška statistic region; CH - Canton of Grisons.







# Report for individual project regions

In the previous chapter summary of results were presented and in this chapter results str dissected for individual project regions. Raw data are in the Appendix but summary of collected number of items per project region is presented in Table 2.

Table 2: Number of collected information for educational institutions, teaching and training modules they provide and end-users of knowledge related to green infrastructure in nine project regions: AT - South Burgenland; FR - French Northern Alps; IT-ST - South Tyrol; IT-M - Metropolitan City of Milan; IT-T - Metropolitan City of Turin; DE - European Metropolitan Region Munich; SLO - Goriška statistic region; CH - Canton of Grisons.

	AT	FR	IT-M	IT-T	IT-ST	DE	SLO	СН
Educational institutions	28	16	34	16	9	14	32	9
Teaching and training	23	35	227	63	23	55	221	16
Knowledge End-users	52	20	48	8	8	12	11	13

Within the exploration of the GI-related educational landscape of particular regions, project partners considered how knowledge related to green infrastructure is accumulated, distributed and used in the broader surroundings of project pilot areas. Below are short descriptions of each project region and a summary of the collected information. Further information on project regions can be found in the LUIGI report by Schrapp et al. (2020).









#### **Austria**

In the LUIGI project participated two partners from Austria who provided information for project region South Burgerland in the south-east of the country.

#### South Burgenland



Project partner Regional management Burgenland provided information on the educational landscape for the project region South Burgerland with special focus on project pilot areas of nature parks Geschriebenstein, Weinidylle and Raab.

South Burgenland is southern part of Burgenland on the east of Austria. It include the districts Oberwart, Güssing and Jennersdorf, listed from north to south. Burgenland lies on the eastern edge of the Alpine Space area. Through South Burgenland the rivers Pinka, Strem, Lafnitz and, in the very south, the Raab flow into which they all finally flow into the Raab and then into the Danube. These rivers all come from the Alps. Southern Burgenland is a hilly region; more precisely, we call it "Riedelland", which no longer has a share in the Alps. Geologically, however, the Alps are marked by the Eisenberg (415 m) on the eastern border.

In this project region, 28 educational institutions providing knowledge relevant to GI management were identified and most of them were higher schools and universities offering some knowledge related to GIs in the region (Figure 8). An important part of knowledge transfer in the region goes over agricultural chambers offering knowledge to farmers and practitioners working on the GI elements.

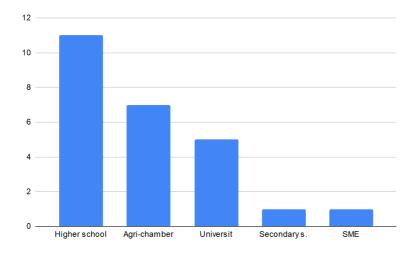


Figure 8: Number of identified educational institutions providing GI-related knowledge per categories in project regions South Burgerland, Austria.

Within listed institutions, 23 teaching and training modules were identified to have a direct connection with GI. Most of the modules were dealing with landscape planning topics followed by ecological aspects and management and production.







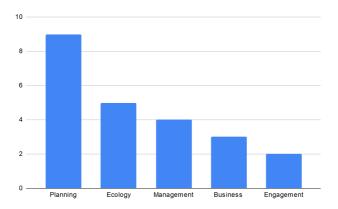


Figure 9: Number of modules per module topics in South Burgerland region, Austria.

53 important knowledge end-user stakeholders were identified in the South Burgerland region, Austria (Figure 10). Majority of these were active in the economy and marketing sector and were small and medium enterprises involved in local value chains or sectoral agencies and associations supporting them. The second segment were farmers/landowners and their associations from the food production sector who work on and manage GI elements. Tourism, landscape planning and education were not in focus in this region. See Figure 3 for details on end-users groups.

A discrepancy between end-users sectors of interest and offered knowledge transfer was detected in this project region. Business aspects of GI should be enhanced within the knowledge transfer systems in this region to better satisfy the needs of end-users in the economy and marketing sector and farmers.

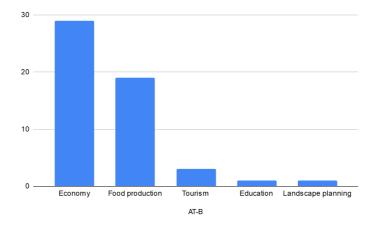
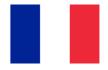


Figure 10: Number of knowledge end-users by sectors of their activity in region South Burgerland, Austria.





#### France



In the LUIGI project participated two partners from France and provided information for the project region French Northern Alps.

# French Northern Alps





Project partners Grenoble-Alpes Metropolis and ALPARC – Alpine Networκ of Protected Areas provided information on the educational landscape for the project region French Northern Alps with special focus on Grenoble Metropolitan Area and Regional nature Park Massif des Bauges.

The area concerned by the project covers the three French department Isère, Savoie and Haute-Savoie. A particularity of the areas the focus is laid on is the presence of several protected areas in the category Regional Nature Parc that offer interesting possibilities of territorial cooperation and implementation of GI policies. Another aspect to highline for the areas is the altitudinal gradient covered including valley bottom locations up to high mountain environments. The type of possible GI elements is there for important and their management can by nature diverse, including a large panel of potential partners when discussing education and training issues.

In this project region, 16 educational institutions providing knowledge relevant to GI management were identified and most of them were universities and higher schools (Figure 11). There were also two higher secondary schools who offer training on GI management practices. Further, there were identified three professional associations active in other fields as agriculture and one association for traditional fruit varieties preservation who offer GI-related education.

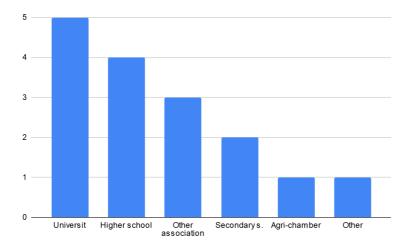


Figure 11: Number of identified educational institutions providing GI-related knowledge per categories in the project region French Northern Alps.

Within listed institutions, 33 teaching and training modules were identified to have a direct connection with GI. Most of the modules were covering GI management. This topic was recognised as the most important knowledge segment for safeguarding GI ecosystem services provision in the initial







questionnaire. Eighth modules were dealing with landscape planning of GI. Only two listed modules have ecological aspects in their content, but we assume the number would be greater if other methodology for data collection would be used. However, the absence of modules on society engagement topic and only one related to possible business models reflect similar deficit as in other pilot regions.

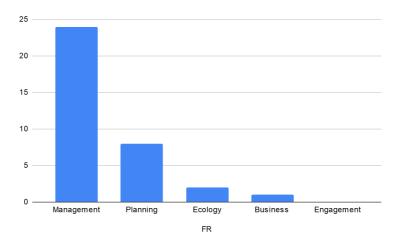


Figure 12: Number of modules per module topics as identified in the project region French Northern Alps.

10 important knowledge end-user stakeholders were identified in the Region of French Northern Alps (Figure 13). There were four non-agricultural associations active in the society engagement sectors. Additionally, there were three park administrations active in landscape planning and two local administrations active in food production and education relevant to GI elements.

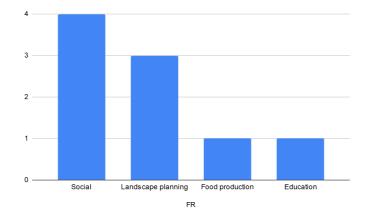


Figure 13: Number of knowledge end-users by sectors of their activity in the project region French Northern Alps.





### Italy



In the LUIGI project participated four partners from Italy who provided information for three project regions.

#### Metropolitan City of Milan





Project partners Metropolitan City of Milan and Lombardy Foundation for the Environment provided information on the educational landscape for the project region Metropolitan City of Milan.

With an area of 1,575 km2, covering 133 municipalities with over three million inhabitants, the metropolis of Milan is the third most populous area in Europe after London and Paris. It is very rich in infrastructures and can be considered as one vast urban area that is constantly growing and integrating. It is located in the central-western part of Lombardy Region, in the northern part of Po Valley and has a heavily irrigated area between Ticino River in the west and the river Adda in the east, crossed by a rich network of rivers and canals (the rivers Olona, Lambro, Seveso, the Navigli network and several streams). In Italy, Metropolitan City is most similar to the major developed regions of Europe, both in terms of the variety of activities that take place there and the level of prosperity and economic standards achieved.

In this project region, 34 educational institutions providing knowledge relevant to GI management were identified. Majority of them were universities offering GI-related knowledge in some of their regular courses. Also five institutions active in the upper-secondary level of the official education system were recognised as an important segment of GI-related knowledge transfer. Three agricultural associations and an educational farm promoting GI awareness and knowledge were also identified along with some other organisations active in different segments of knowledge transfer.

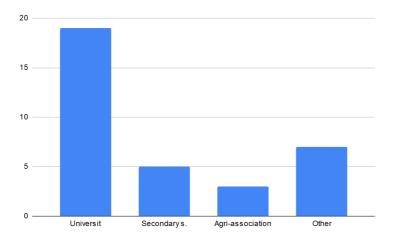


Figure 14: Number of identified educational institutions providing GI-related knowledge per categories in the project region Metropolitan City of Milan.

Within the programs of the listed institutions, 227 teaching and training modules were identified to include information on GI-related topics. Majority of them was dealing with environmental and eco-







logical aspects of GI. Half less, modules were, in one way or another, dealing with the inclusion of GI elements in the landscape planning processes and management of the GI elements once present in the landscape. Around 20 modules were dealing with GI-related business models or a society engagement, respectively, giving additional content to GI elements.

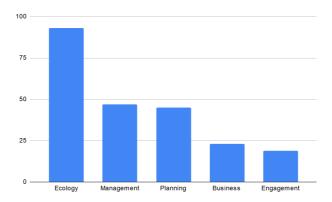


Figure 15: Number of modules per module topics as identified in the project region Metropolitan City of Milan.

41 knowledge end-user stakeholders were identified in the region of the Metropolitan City of Milan (Figure 16). The highest number of identified organisations was active in the landscape planning sector closely followed by food production. The demand of these organisations for GI-related knowledge seems to be matched with offered educational modules relatively good (Figure 15). Organisations like non-governmental, active in the society engagement segment of GI lifecycle, represent a relatively high share of identified organisations in the region of the Metropolitan City of Milan. Five institutions of the education sector were journals or publishers who search for GI-related knowledge and share it with their readers. Three knowledge end-users from economy and tourism sector were dealing with the marketing of GI-products and cultural ecosystem services, respectively.

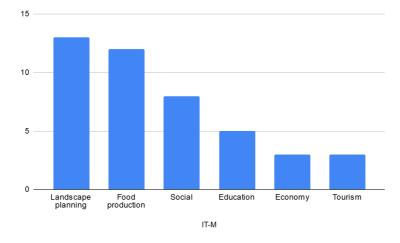


Figure 16: Number of knowledge end-users by sectors of their activity in the project region Metropolitan City of Milan.







#### Metropolitan City of Turin



Project partners Metropolitan City of Turin provided information on the educational landscape for the project region Metropolitan City of Turin with special focus on Ivrea Morainic Amphitheatre.

The Metropolitan City of Turin (MCTo) (NUTS 3 ) is located in the north-western part of Italy and is part of Piedmont Region. The western sector of the Alpine chain forms the border with south-eastern France (186 km of border area). Morphogenetic processes and climatic-biological changes over the millennia have formed a highly diversified territory, characterized by ridges, impuviums, valley bottoms and terraced edges, contributing to the formation of three distinct macro-systems: mountains (57%), hills (15%) and plains (28%). The different geomorphological characteristics correspond to different stages of anthropization, which can also be seen in the demographic distribution, with a strong concentration of activities towards the plains and valley bottoms on the one hand, and sparse alpine settlements, which are less and less inhabited, on the other. The MCTo has a population of about 2,252,000 inhabitants, of which 871,000 live in the city of Turin. The majority (74%) of the resident population is concentrated in a few larger municipalities in the plain, while around 20% live in the hilly areas and only 6% in the mountains.

In this project region, 16 educational institutions providing knowledge relevant to GI management were identified. A quarter of them was higher-secondary schools providing vocational training to students of age 14 to 16 years. Three institutions offer GI-related knowledge on university level of education. From professional organisations, two sectoral agencies, agricultural and architect association, one park administration and Piedmont region administration were identified recognised as important in GI-related knowledge transfer by their teaching and training modules.

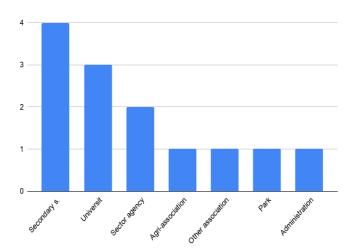


Figure 17: Number of identified educational institutions providing GI-related knowledge per categories in the project region Metropolitan City of Turin.

In programs of above listed institutions, 63 teaching and training modules were identified to have a direct connection with GI. The highest share of them was dealing with ecological aspects of land-scape and GI elements. Also landscape planning and inclusion of GI elements seem to be covered sufficiently in this project region, while business opportunities related to GI elements, management of GI elements and especially society engagement seem to be in deficit according to collected data.





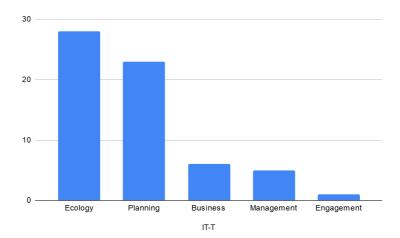


Figure 18: Number of modules per module topics as identified in the project region Metropolitan City of Turin.

In the project region of Metropolitan City of Turin were identified nine GI-related knowledge endusers who use it in their daily work and decision making. Most of them were municipalities or sectoral agencies that are managing areas in their jurisdiction. There were also two nongovernmental organisations dealing with tourism and landscape planning and one tourist organisation which may benefit from GI-related knowledge in their work.









#### South Tyrol - Italy

Project partners European Academy Bozen (Eurac Research) provided information on the educational landscape for the project region South Tyrol with special focus on municipality (Comune) Bolzano and the Venosta valley.

South Tyrol has an area of 7,398 km2 and comprises 116 municipalities with more than 532,080 inhabitants (12-2019, Istat). South Tyrol, also known as the province of Bolzano, is located in the central area of Alpine Space Region. The territory of the province lies in the central and eastern part of the Alpine arc. Especially the Ortler group and part of the Dolomites are found here. Most of the territory is mountainous, as over 37% of the territory is above 2000 m altitude. Therefore, the majority of the population lives in the urban centres located on the ground and on the slopes of the Vinschgau Valley, the Adige, the Valle Isarco and the Val Pusteria. Due to the geographical position and the great differences in altitude, there are very different climates, ranging from Mediterranean to polar, which has a strong impact on the diversity of the natural and cultural landscape.

In this project region, nine educational institutions providing knowledge relevant to GI management were identified. Most of them were higher schools and universities offering some of GI-related knowledge within their regular educational process. Additionally, chamber of architects were identified as important GI-related knowledge providers.

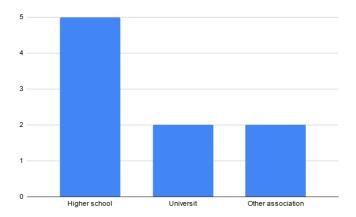


Figure 19: Number of identified educational institutions providing GI-related knowledge per categories in the project region South Tyrol.

Above listed institution offer 23 teaching and training modules connected to GI-related topics. Half of these courses dealt with the planning of GI elements in the landscape, which is an essential first step in the GI lifecycle. In this pilot region a relatively low number of courses on ecological aspects of GI was identified. Topics related to GI management were covered in four modules while topics on business opportunities and society engagement were in deficit according to collected data.







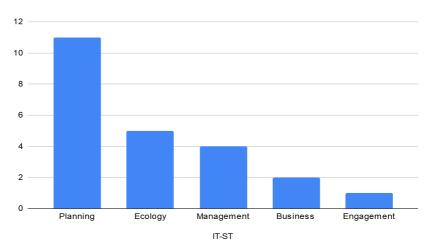


Figure 20: Number of modules per module topics as identified in the project region South Tyrol.

Eight end-users of GI -related knowledge from different sectors and organisation types were identified in South Tyrol. One non-governmental organisation, a local tourist organisation and the provincial government of Bolzano were active in the tourism sector. The provincial government is active also in other sectors and may influence many other aspects of GI. Also a chamber of architect was recognised as an important GI-related knowledge end-user in the landscape planning sector.

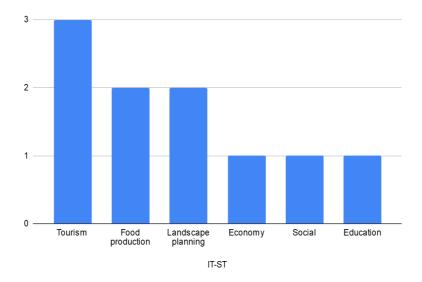


Figure 21: Number of knowledge end-users by sectors of their activity in the project region South Tyrol.





#### Germany



In the LUIGI project participated two partners from Germany and provided information for the project region European Metropolitan Region Munich.

#### European Metropolitan Region Munich

Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten



Project partners Weihenstephan-Triesdorf University of Applied Sciences and Bavarian State Ministry of Food, Agriculture and Forestry provided information on the educational landscape for the project region European Metropolitan Region Munich with special focus on district of Rosenheim, Freising and Ammersee.

The European Metropole Region of Munich (EMM) comprises 27 administrative districts, around 40 municipalities and 6 independent cities in Bavaria. It has about 6 million inhabitants on an area of 26,000 km2. The EMM is located in the northern border zone of the Alpine Space, whereby the center is about 80 km away from the Alps. It has a high international reputation, with one of the highest quality of life in Germany with high-quality jobs and optimal location conditions for business and research.

In this project region, 14 educational institutions providing GI-related knowledge were identified of which most are titled institutes and were offering vocational education and training outside of the official educational system. Similar modules were also offered by associations active in different sectors in this region. Only two universities were identified in this project region, but they offer many different educational opportunities related to GI to their students.

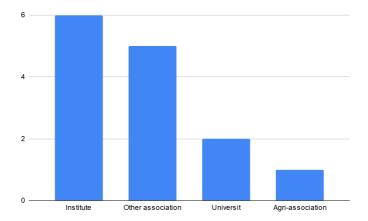


Figure 22: Number of identified educational institutions providing GI-related knowledge per categories in the project region European Metropolitan Region Munich.

Out of 55 teaching and training modules identified to contain GI-related topics, 18 were connected to the on-site management of GI and 17 to the planning of GI elements. These modules were in large extend executed as practical lectures and field training by identified educational institutions. As in most regions also in European Metropolitan Region Munich ecological aspects of GI were relatively







good covered while business opportunities and society engagement topics were covered insufficiently.

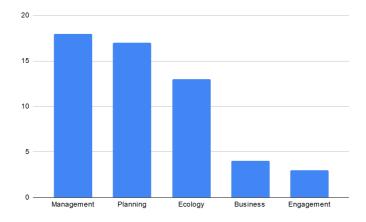


Figure 23: Number of modules per module topics as identified in the project region European Metropolitan Region Munich.

Ten knowledge end-user stakeholders were identified in European Metropolitan Region Munich active in food production, landscape planning and tourism sectors. As target group were recognised also students and professors of two universities.

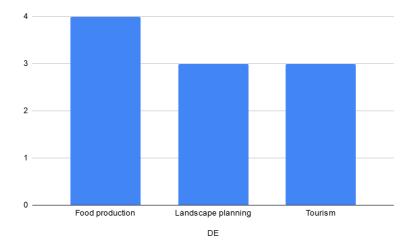


Figure 24: Number of knowledge end-users by sectors of their activity in the project region European Metropolitan Region Munich.





#### Slovenia



In the LUIGI project participated two partners from Slovenia and provided information for the project region Goriška statistic region.

#### Goriška statistic region





Project partners Agricultural institute of Slovenia and Development Agency of Idrija and Cerkno provided information on the educational landscape of the Goriška statistic region with special focus on the project pilot area of municipalities Cerkno and Idrija.

The Goriška region covers the western part of Slovenia with an area of 2,325 km2 and 117,616 inhabitants. It lies at the geographical intersection of several regions: the Alps, the Pre-Alps, Karst-Dinaric and the Sub-Mediterranean area. The region consists of 13 municipalities organised into four subregions: the upper Soča valley (Posočje), the Idrijsko and Cerkljansko area, the sub-region of Nova Gorica and the Upper Vipava Valley. The Goriška Region includes the high mountains and hills of the Soča river basin. In the north there is the Julian Alps around the deeply incised upper Soča valley. The population density in the region was 50.6 inhabitants per square kilometre, making it one of the least populated regions (SURS, 2019).

In this project region, 32 educational institutions and organisations providing knowledge relevant to GI management were identified. There were 12 active local associations of fruit growers who organise educational events and excursions for their members. This is a small but an important way of knowledge transfer. On a bigger scale and national level Slovenian Chamber of Agriculture and Forestry play an important role in knowledge transfer to the practitioners working GI elements. I the official education system eleven faculties from two universities and eight secondary schools provide teaching and training with GI-related topics.

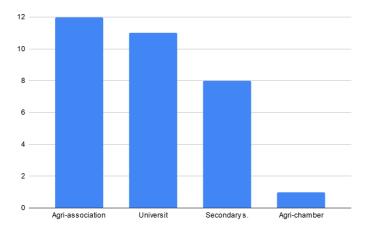


Figure 25: Number of identified educational institutions providing GI-related knowledge per categories in the project region Goriška statistic region.







Listed organisations offer 221 teaching and training modules that include some GI-related topics. These modules mostly deal with the planning of landscapes with GI elements and ecological importance of GI elements. Hand on management approaches knowledge about GI element were spread to and among fruit grower associations but was also part of secondary and university education.

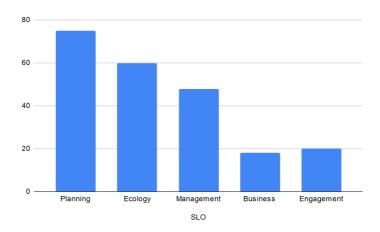


Figure 26: Number of modules per module topics as identified in the project region Goriška statistic region.

Eleven GI-related knowledge end-user stakeholders from different sectors were identified in or close to the project pilot area of municipalities of Cerkno and Idrija. Beside administration of concerned municipalities and a sectoral agency active in landscape planning sector, two local tourist organisations and agricultural and commerce chambers were interested target groups for GI-related knowledge. In social and society engagement sector local broadcasting organisation and association of fruit growers were identified. An important educational role plays also the agricultural chamber of Slovenia with its local branch.

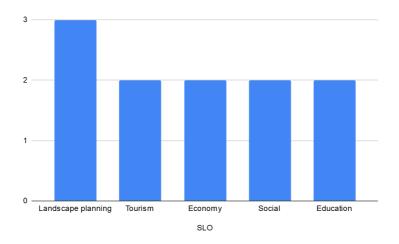


Figure 27: Number of knowledge end-users by sectors of their activity in the project region Goriška statistic region.







#### Schwitzerland



In the LUIGI project participated two partners from Switzerland who provided information for the project region Canton of Grisons.

#### Canton of Grisons





Project partners Research Institute of Organic Agriculture (FiBL) and Foundation Pro Terra Engadinae provided information on the educational landscape for the project region Canton of Grisons with special focus on the regions Lower Engadine, Trin/Domleschg and Poschiavo.

The canton of Grisons (Graubünden) lies in the eastern part of of Switzerland. Grisons is the only trilingual canton in Switzerland. It is very diverse also in economic, cultural and political terms. It is the largest canton by area, but with 198.500 inhabitants it is also the least densely populated canton since the population density is approximately 27,9 people per square kilometre. The cantonal capital Chur is one of the oldest cities in Switzerland and has about 37.500 inhabitants.

In this project region, nine educational institutions providing knowledge relevant to GI management were identified. Three of these organisations were agricultural associations and one association of for people interested in cultural landscapes. These associations, and two one nature park, one national parks and one private enterprise were offering practical lectures and field training to their students. Additionally, two universities have some of GI-related knowledge integrated into their regular educational program.

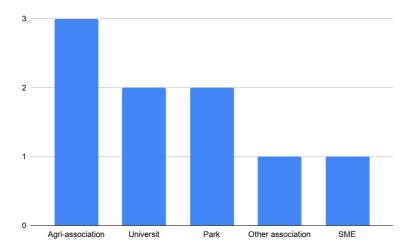


Figure 28: Number of identified educational institutions providing GI-related knowledge per categories in the project region Canton of Grisons.







In programs of listed educational institutions, 16 teaching and training modules were identified to have direct connection with GI-related topics. Around third of the modules were dealing with land-scape planning and quarters with ecological aspects of GI and management of GIs, respectively. Only two modules deal with GI-related business models and none with society engagement options were listed, what clearly reviles deficit in the transfer of knowledge on these topics.

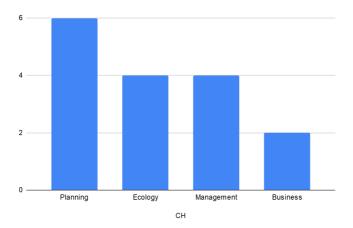


Figure 29: Number of modules per module topics as identified in the project region Canton of Grisons.

Nine knowledge end-user stakeholders were identified in the project region Canton of Grisons. Administrations of canton, two parks and municipalities were interested in the GI-related knowledge to support their daily decision-making in the field of landscape planning. Park administrations also provide educational opportunities to their visitors. As important knowledge end-users were identified also: a tourist organisation, an association in the sector of regional development, a social enterprise and an association of farmers from the food production sector. As important were recognised tree nongovernmental organisations active in this project region.

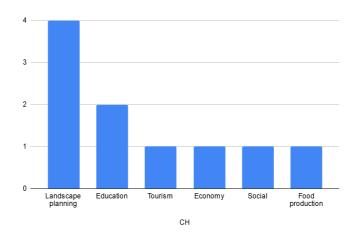


Figure 30: Number of knowledge end-users by sectors of their activity in the project region Canton of Grisons.







# Conclusion

This report summarizes information collected by project partners of the Interreg Alpine Space project LUIGI for their regions. It reveals differences in the education system in participating countries and in status and transfer of knowledge relevant to the Green infrastructure governance.

Most of the GI-relevant knowledge present in the project regions is transferred by universities and other institutions in the official education system. But the role of other institutions like associations and chambers may be as important, since their knowledge transfer addresses those working on or with GI-elements, despite smaller number being identified. This can be concluded from identified knowledge end-users categories and sector of activity.

Practical courses and demonstrative presentations were recognised as the most important and relevant in most project pilot regions. Currently, most knowledge transfer we could identify to have a connection to GI is dealing with ecological aspects or GI or landscape planning of GI elements. The business aspect and how to engage broader public seem to be deficit fields of knowledge and their enhancement may have positive influence in the future.

Information provided in this report is further elaborated in the LUIGI deliverables:

#### educational modules

- Training Module 1: Spatial planning related to Green Infrastructure
- Training Module 2: Management of Green infra-structure elements
- Training Module 3: Business models related to Green Infrastructure
- Training Module 4: Use of Green infrastructure products and society engagement

and the *report* Suggestion for improvements of selected existing educational courses (Hladnik et al. 2022 – in preparation).

#### Recommendations

The information and understanding of green infrastructure related knowledge pools and current transfer trough teaching and training in the project regions can be a support for decision-making and policy creation on regional, national and international level.







# References

Bertoncelj et al., (2021 - in preparation) Training module for GI oriented sustainable landscape planning

COM - Communication from the EU Commission (2013) Green Infrastructure Strategy Retrieved from: <a href="https://ec.europa.eu/environment/nature/ecosystems/strategy/index\_en.htm">https://ec.europa.eu/environment/nature/ecosystems/strategy/index\_en.htm</a>

CEEWeb - CEEweb for Biodiversity (2020) What are ecosystem services? Retrieved from: <a href="http://www.ceeweb.org/">http://www.ceeweb.org/</a>

Giombini, V., Tasser, E. and Egarter Vigl, L. 2020. Green Infrastructure for the Alpine Space: from theory to practice. D.T1.1.1 of the Interreg Alpine Space project "LUIGI".

Hladnik, J., Apollonio, E., Egarter, V.L., Simion, H., Giombini V., Dankowski, E., Schrapp, L., Czippank, K., Guillaume, T., Kohler, Y., Boehm, T., Brückler, M., Abderhalden, A., Moschitz, H., Stolz, H., Bertoncelj, I., Rekič, K., Golob-Mrak, D. (2022-in preparation) **Suggestion for improvements of selected existing educational courses** (Hladnik et al. 2022).

Hladnik et al. (2021 - in preparation) Training modules for practical and sustainable GI management

Hladnik et al. (2021 - in preparation) Training module including knowledge possible secondary products from local GI and society participatory engagement

Istat – Istituto nazionale di statistica (2020) Bolzano - Comunicati e analisi Retrieved from: <a href="https://www.istat.it/it/uffici-territoriali/bolzano">https://www.istat.it/it/uffici-territoriali/bolzano</a>

OECD - Organisation for Economic Co-operation and Development (2020) Education GPS - The world of education at your fingertips Retrieved from: <a href="https://gpseducation.oecd.org/CountryProfile#">https://gpseducation.oecd.org/CountryProfile#</a>

Rekič et al. (2021 - in preparation) Training module on possible business models and value chains of GI

Schrapp L., Czippán K., Blum P. and Reinke M. (2021 – in preparation): Gl-governance approaches in the Alpine Space based on the analysis of the LUIGI pilot regions, Report of the LUIGI project.

SURS - Statistični urad Republike Slovenije (2020) Goriška regija Retrieved from: <a href="https://www.stat.si/obcine/sl/Region/Index/11">https://www.stat.si/obcine/sl/Region/Index/11</a>

UNESCO Institute for Statistics (2012) International Standard Classification of Education (ISCED 2011). Retrieved from: http://uis.unesco.org/en/topic/international-standard-classification-education-isced



