

# Report of output O.T5.1

## Capacity building module on GIs enhancement and ESS valorization

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# Introduction

“Linking Urban and Inner-Alpine Green Infrastructure: Multifunctional Ecosystem Services for more liveable territories” (LUIGI) is a 33-month project funded by the European Union (EU) through the Interreg Alpine Space (AS) programme. The project involves 14 partner institutions and 26 observers from Austria, France, Germany, Italy, Slovenia, and Switzerland.

Green infrastructure has been defined by the European Union as “**a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation**” (EC, 2013).

GI, or green infrastructure, involve interlaced, linked networks of diverse green spaces, ranging from city parks to rural orchards to mountain bike trails in remote areas. Inhabitants use the GIs in slightly different ways, and that diversity is appreciated in the LUIGI project. Still, in many areas, there is a desire to better connect mountain ecosystems with urban centers. These connections might be carried out via eco-tourism or sports, but also through ecosystem services: food supplies and access to them, clean water, construction materials, pollination services, honey production, local craft materials and knowledge, temperature regulation and protection from extreme weather events, etc...

## Report summary

This report brings insights on **capacity building triggered by LUIGI projects** and particularly work package 5 activities. It is built on the different report from work package 5 and insights, knowledge collected in other work packages.

**Provided information can be important support for decision and policy making** on regional, national and transnational levels. The report is structured around WPT5 activities during the LUIGI projects such as facilitation of policy makers workshops and roundtables, the Massive Open Online Course, policy recommendations and gives an overview of what these different works favorize capacity building for various stakeholders around Green infrastructures.

## The scope of the document

**Knowledge and skills** are the most important tools for any decision making and quality management measures. Therefore, LUIGI highlights the fact that GI-related knowledge availability is a key investment into sustainability of present and future GI elements and development of Ecosystem services.

The aim of this report is to present how the work led during LUIGI contribute to **GI stakeholders' capacity building**, showing concrete examples from work package 5. The second aim is to **raise awareness about the importance of capacity building in GI protection** and development but also about ecosystem services benefits from these GIs: we need actors that are in capacity to know the problem and to act.

This report is replicable and usable immediately at the end of the project for using in different contexts: it can be used as a path for policy makers to show the interest of focusing on Green infrastructure for example, and **what stakeholders could gain or expect by participating in actions around GI conservation and development**. Showing those outputs and outcomes of the project can be inspiring for some and lead to concrete actions from policy-makers, NGOs and even business organizations. Policy makers could replicate any actions led here such as workshop with different stakeholders around GIs for example. It could also be used by associations to draw knowledge on capacity building through Green infrastructure management.

## LUIGI work packages

The LUIGI project has developed, based on scientific work, different approaches of GI:

Work package 1 (WPT1) highlighted the multiple benefits (ecological, economic, social and cultural) of **GI as a common natural capital, and ESS providers**, as it mapped GI and their connectivity on pilot regions.

WPT2 developed **tools and explored mechanisms for enhancing GI value chains** for a more effective cooperation between urban and rural areas, as well as a framework to better quantify benefits and economic values of GI.

WPT3 explored **governance approaches and participation for spatial development of GI** in the pilot regions, therefore underlined different set of key challenges and good practices to govern GI.

WPT4 focused on **education and training for sustainable GIs management and ESS provision**, through the development of training modules, where professionals, policy-makers, students can learn about specific aspects of GI management.

WPT5 aimed at **transferring knowledge and building capacity** through the creation of a Massive Open Online Course, the preparation of stakeholder workshops at various levels, and the creation of policy recommendation levels. The present policy recommendation reports are part of WPT5 as they aim at communicating key challenges and recommendations to all stakeholders with a role in GI policy development at different levels.

Reports and results from these different work packages can be found [here](#).

One of the work packages of the LUIGI project is dealing with **policy development and knowledge transfer to policy-makers and other stakeholders**, from the local to the EU level. This activity is notably oriented towards building capacity of different stakeholders that are involved in GI management on the alpine space.

The following documents (DT. 5.1.1) will present how different activities of WPT5 has created capacity building towards all actors met during the projects and different workshops organized.

## A word on GEM's Chair of Inclusive sustainability


The leader of the work package 5 of the LUIGI project is Grenoble Ecole de Management. It may be surprising to see a management school participating in an INTERREG project focused on green infrastructure and eco-system services! Grenoble Ecole de Management, a company with a mission, has been taking sustainable development issues to the heart for several years, with the creation of specific courses and an environmental program for its students. The creation of the Chair of Inclusive sustainability in 2019 confirmed this commitment, with research particularly focused on the environment and territories: the challenge of the chair is to link private and public stakeholders with researchers on transition issues. The Chair is thus committed to 5 research areas: New eco-responsible behaviors, New organizational models, Experimental devices, Transition of mountain territories, Teaching and training on transition. **The Chair is committed to tackle the major challenges related to sustainable development.** The participation of the Chair in this project allows us to confirm the experience of researchers already working on the theme of nature-based solutions (urban collective gardens for example). **Our goal, through our research and development activities, is to have an impact on society, to contribute to building a more just and sustainable society.**

## Capacity building through LUIGI

With this in mind, we will discuss how GEM's participation in the LUIGI project enables us to reach out to different actors and to carry out capacity building, both among these actors and among ourselves. While there is a plethora of definitions of capacity building (Simmons et al., 2010), **according to the United Nations, the definition of capacity building is the following:**

"Capacity-building is defined as the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world." (United Nations).

Also, capacity building takes place at an individual, an institutional, societal level. A definition in line with the academic component. According to Simmons et al. (2010), three characteristics of capacity building emerge: **(1) community capacity building is a process/an approach; (2) capacity building is a collection of domains often referred to as characteristics, aspects, capabilities or dimensions;** and **(3) definitions incorporate an outcome or the rationale for building capacity.** According to this definition, all activities in work package 5 are capacity building activities: that is, any activity that seeks to increase the skills, knowledge or networks of an individual or group. Capacity building is therefore a process according to which activities will promote the capacities, development and experience of actors in the short or medium term, in order to achieve social or economic objectives.



Through the project, we have facilitated a number of workshops and produced documents for public actors, researchers and also inhabitants. The idea here is to show how these different activities have enabled these actors to increase their competence.

We normally define **five elements for success in capacity building** (Eade, 1997), e.g., to define if an activity was successful in building capacity for individuals or groups: Commit for the long term, Co-create solutions with stakeholders, Strengthen the ecosystem, Support both technical and adaptive capacities, Ground capacity building in equity, building a strong foundation for successful capacity-building partnerships.

The aim of this work package was not to propose good practices to be adapted according to one's territory, as the territories of the Alpine arc are numerous and diversified; but rather to encourage actions, to talk to the actors, to strengthen cooperation and to distribute information on the research currently carried out in the LUIGI project and beyond on green infrastructure, with the idea of developing everyone's skills for a better consideration of these infrastructures in the future. We hope to bring a small stone to the colossal challenge that awaits us in the coming years to move towards a more sustainable society.

To structure our capacity building approach around green infrastructure, we use the quadruple helix (e.g., Roman et al., 2020) to show how the project LUIGI affects all stakeholders of green infrastructure and ecosystem services. We thus consider 4 stakeholders as very important in this perspective, which we have kept in mind during our different deliverables: it is about building the capacities of these four actors and not privileging one over the other.

- **Institutions:** the decision-making level that must guide the action, vision and laws concerning the maintenance and development of green infrastructure. This institutional aspect must be analyzed in detail because local, regional and even international actors (European institutions) are included in this definition because they all have the capacity to act on green infrastructures.

- **Academia:** research is also an important actor in the management of green infrastructure, particularly for mapping and quantifying, identifying these infrastructures, ecosystem services and even areas where it is more urgent to act. This component provides useful tools for decision support or even planning.

- **Civil society:** civil society is a very often underestimated actor in the management of green infrastructures, because it is very fragmented. It is necessary to distinguish between associations, NGOs and inhabitants, who can represent different interests. The civil society brings its field experience, its experience and its capacity to act at the local level.

- **Business:** Companies are an actor to be taken into account in the management of green infrastructure, because they can create sustainable business models around these infrastructures, replacing public funds, for example.

This report will be organized as follows: we will first address the outputs and capacity building of the organized workshops, then the MOOC, and finally the production of policy recommendations reports.

## REGIONAL EVENT WORKSHOPS



Credit: Metropolitan city of Milan, 25th February 2022

### Workshop description

During the LUIGI project, GEM participated in and facilitated **six workshops aimed at getting policy-makers, academics, inhabitants and sometimes companies** to think about the development and maintenance of green infrastructure in the Alpine arc. Our idea was to include, at different moments of the project, the main actors concerned by our results and the recommendations that emerged from these results, in order to collect their experience and also to see their reactions. These numerous workshops allowed us to refine the recommendations and to collect experiences from different territories of the Alpine arc.

**Table 1. Workshops facilitated by WPT5 team during LUIGI**

Name	When	Where
Policy Challenges and Opportunities for Green Infrastructures in the Alpine Space	September 09, 2022	Online (Laufen)
<b>Biodiversity and ecosystem services: driving a renewed approach</b>	October 06, 2022	Grenoble
Le infrastrutture verdi metropolitane: opportunità da	February, 25, 2022	Milan

cogliere e rischi da considerare		
How to value green infrastructures	March 03, 2022	Grenoble
How to valorize the green infrastructures of the territory	April 30, 2022	Salzburg
Orchards - Specialties in and outside the kitchen	June 1, 2022	Poschiavo
LUIGI and after: what Transnational / local policies can do for GI and ESS?	June 13, 2022	Milan

## Expected outcomes

The team that organized and facilitate different workshops have different outcomes in mind:

- **Build/strengthen the network** of key actors at a regional level, not only policy-makers but also researcher, citizens and business, when possible,
- **Increase knowledge and understanding** of GI and its potential for all these stakeholders concerned with GI,
- **Share emerging challenges and recommendations** from the LUIGI project,
- **Prompt thinking on GI opportunities** and barriers and on specific recommendations,
- **Generate acknowledgment by local policy-makers** of the results achieved through LUIGI,
- **Inform and engage stakeholders on key LUIGI results** around GI valorization mechanisms and challenges,
- **Engage and collaborate with SHs through interactive workshops** to allow them to develop their own thinking and share their point of view.
- **Network of key actors from different levels of action and different SH groups**, all interested in GI development and management.

## Actors targeted and involved

Regional event workshops were the occasion to bring together different stakeholders concerned by GI conservation and development in different territories: **policy-makers** in order that they bring their knowledge about challenges and potential solutions about GI conservation, **SMEs** to discuss GI viability and business model, **NGOs** to think about how residents can participate to GI development and conservation and researchers for their expertise. Projects partners were also participants to these events to coordinate or bring their expertise. Our core idea is that every stakeholders concerned by GIs have an experience, an expertise or hints to share on GI protection and valorization.




## Outputs and results

**The first workshop took place in Laufen and Online on September 8-9, 2021**, and was entitled Policy Challenges and Opportunities for Green Infrastructures in the Alpine Space. The second day of the event was dedicated to policy challenges around green infrastructures, with researchers, local and regional policy-makers and others. Through the creation of discussion groups in order to answer targeted questions (how to manage green infrastructures at local, regional and national level for example), we could discuss challenges for local policy-makers, challenges for regional policy-makers and challenges for the transnational aspect. For example, we have benefited from feedbacks on current experiments in the field of green infrastructure maintenance in Milan, Turin but also from some European projects (Los-Dama!) not identified until now. During this first workshop, it is mainly the researchers who have acquired knowledge on green infrastructures.

**The second workshop took place during the mid-term event of LUIGI in Grenoble on October 6, 2021.** The event involved the Metropolis of Grenoble, the Metropolitan city of Milan for the FORESTAMI project, the Development Agency of Idrija and Cerkljano for their project of tourism offers around the forest and Forest selfness, an elected official of Polo Poschiavo who came to present the actions of the municipality in terms of green infrastructure, and an architect from Turin who is the carrier of the Paesaggisensibili device, creating a dialogue of the inhabitants with the green infrastructures. The interventions and questions that followed gave examples to the researchers but also to the local elected officials present of good practices and projects in progress in the development of green infrastructure on the Alpine arc. During this second workshop, elected officials, technicians, researchers but also some representatives of the civil society were able to learn more about green infrastructures. During this day, the team also recorded all the roundtables and interventions to create a webinar about Green Infrastructures and connectivity from the point of view of practitioners and policy-makers, available here: <https://youtu.be/6KURppNC0mE>

**The third in Milan, on February 25, 2022**, entitled “Metropolitan Green infrastructure: opportunities and risks to consider” brought together the Metropolis, the City, and researchers to discuss the first recommendations of the project and to get local political actors, professionals, SMEs, NGOs and researchers to react to them. With a workshop focused on the local and regional management of these infrastructures, we were able to test the first recommendations of the project, to see the evolution of the different ForestaMi type projects and to think about the business opportunities around these green infrastructures. During this workshop, elected officials and researchers were able to give their feedback and benefit from this moment of presentation and common reflection.

**The fourth workshop in Grenoble took place on March 3, 2022**, and was entitled How to value green infrastructures. It brought together inhabitants of the territory, local elected officials from different municipalities and the Metropolis, managers of the Parc des Bauges and professionals (e.g., teachers in botanical schools). This workshop was an opportunity to discuss the knowledge of these actors of green infrastructures and more particularly of eco-systemic services: we made each group of actors think about specific questions (which business model around these infrastructures, how to develop them on the long term, how to make them recognized?) This workshop allowed companies, some inhabitants, elected officials mainly to discover the evolution of the LUIGI project, the activities carried out in the field of green infrastructures and to leave with knowledge on the necessity of their management.




**The fifth workshop in Salzburg took place on April 28, 2022**, and was entitled "How to valorize the green infrastructures of the territory". It gathered researchers and local policy-makers, as well as some companies of the territory; we organized 4 workshops to make the participants exchange and work together around the involvement of young people in the policy making of green infrastructures, the involvement of the civil society, the creation of sustainable business, etc. This workshop allowed local elected officials and researchers to acquire knowledge on green infrastructure, the ecosystem services that are linked to it and the business model possibilities to build around it.

**The sixth workshop was held in Poschiavo, on 01 and 02 June 2022**, entitled Orchards - Specialties in and outside the kitchen. The aim of the event was to have participants from different countries and fields of interest learn about the value of fruit trees in green infrastructure (GI). They are important sources of diversity in GI structures, contributing many ecosystem services for the surroundings, or downwind, landscape. They have ecological value on small and large scales, and they have social value for knowledge and for economic development of products. Gathered GI items might also be further considered as a valuable resource in a diverse, sustainable gourmet cuisine.

The goal was to foster cross-border discussion about the value of fruit trees in GIs, especially for local use by various stakeholders. Possible entrepreneurial ideas for SMEs were shared, as participants were able to converse while preparing locally grown or wild-sourced foods for the public event. The event also included a wide range of stakeholders, from various backgrounds and interest in GIs. As people spoke to one another, they were able to combine some of the local and regional interests. Also, something to consider for the future is how to expand the GI pilot regions to connect with their neighbors. Poschiavo, as a pilot region, was finding success, as community members recognized their entrepreneurial efforts and valorized local products, including the Torre apples. The next step might involve branching from Poschiavo to other cities along the valley.

**The final workshop took place in Milan, for the Final conference of Luigi, the 13 June, 2022**, with two roundtables, one with transnational policy-makers, the other one with local policy-makers. The aim of this workshop was to generate reflections and discussions at the EU level on GI policies and future direction of travel. With representatives from the EU Commission, the European Parliament and the Interreg Alpine Space Joint Secretariat, we covered 3 key actors for transnational GI policies. By conveying key LUIGI policy recommendations and prompting reactions from our four panelists, we aimed to investigate current positions from these 3 key organizations and influence future decision-making. The outlook presented by our four panelists is in line with the policy recommendations emerging from the LUIGI project, notably highlighting the need for further policy integration around the GI concept and for harnessing the full potential of GI across different sectors. Panelists have also highlighted the need to reflect such ambitions in next generation, complementary funding instruments in order to make them become a reality. More permanent participatory mechanisms are also a key tool to support the GI approach. Finally, panelists agreed there are two key dimensions that will have a substantial, positive impact for GI: education on the GI approach and funding efficiency for GI/ESS projects and initiatives.

Through these workshops, GEM's idea was to **impregnate the participating actors with the ideas of the project**: to develop a common vision around green infrastructure for example, to make all the stakeholders work together for the maintenance and the development of these infrastructures and



to leave a trace of the project and the event to create a "path dependency". We hope to have contributed as much to nourish the reflections of these actors by confronting them with others as the way they nourished our reflections. These groups of inhabitants, policy-makers and academics have thus fully participated in the development of the project.

These workshops have highlighted **key opportunities** thanks to various participants:

- **Establishing common goals among local actors**, collaboratively defining a clear vision and mission to better enhance the development of GI networks. This could also play on synergies across regional/local stakeholders,
- **Creating and reinforcing incentives to develop and maintain GI elements** and networks, which can also be combined with opportunities to create jobs, local know-how and specialist sectors,
- GI networks are nature-based solutions to the climate and biodiversity crises; **more must be done on raising awareness of policy-makers, civil society and organizations** on the potential of GI to address these complex challenges,
- **Labeling / certification of local products** can be very powerful to support productive GI,
- **Farmers should be key targets of GI policies** to bring more farms into 'high nature value' practices; other farming types besides orchard meadows deserve more attention in the future (including urban farming),
- **Tourism and working with tourism stakeholders are sensitive topics** (risk of over-tourism, harm to the environment) but can be approached positively through GI.

Also, participants raised **key challenges and barriers** during these workshops:

- There is a **lack of accessible communication materials and tools to increase knowledge** – partially available through LUIGI but in English. Participants highlighted the need to continue to translate project outputs into local languages; there is also a need for a local, specialized knowledge base (maps, types of GI relevant locally, locations to develop more GI, key actors, etc.); this could be used to engage local politicians and policy-makers,
- **Cost of creation and maintenance is often perceived as a barrier** meaning that GI is not economically viable, there is there a wide concern about how to show that GI can be viable for economic actors,
- **Developing GI and supporting ESS requires a bit of an 'innovative' or entrepreneurial mindset** for now, it does not feel accessible to all,
- **Finding a balance between economic development and environmental protection seems to be raised by many actors**, but beyond this it is more a case of imagining new models that combine both successfully, rather than staying in an approach of 'one or the other'.

Also, participants have highlighted **existing strengths in the GI conservation and development**:

- There are strong stakeholder networks to tap into (notably involving local business partners), and a key role of local public authorities in fostering cooperation.
- There is an emerging feeling that individuals can start contributing to implementing a GI approach through their actions, by raising awareness in their own networks, paying greater consideration to GI in their day-to-day work, and even becoming GI ambassadors in their own organizations,
- There is appetite to increase knowledge, to engage with experts on the subject; if training became widely available, people would be keen to participate,
- There is a strong awareness that different stakeholders require different types of language and communication tools, and a desire to use the right approach with the right people.

## What does this mean for capacity building?

Overall, these workshops have brought together a wide range of actors in different territories and have fostered reflection on the maintenance and development of green infrastructure (Building a strong foundation for successful capacity-building partnerships): these events have also raised awareness among a number of actors, who will hopefully communicate with others and raise awareness in turn, mainly around the knowledge of green infrastructure (strengthen the ecosystem). Being in contact with different policy makers helped to diffuse the importance to act for green infrastructures in different institutions (local, regional, transnational ones) and networks. Slides, figures, recommendations presented to participants are as many resources as possible that can help them to bring this GI knowledge in their daily work and in their structure.

In addition, we take examples, challenges and recommendations from the many meetings. We have reached during this workshop policy-makers, civil society and researchers (Support both technical and adaptive capacities): a good way to disseminate knowledge but also and above all the challenges around the development of green infrastructure for the future.

For the researchers involved: meeting and debating with these different actors was a way to learn and extend the field of skills on workshop facilitation, while acquiring knowledge on the involvement of each actor, the functioning, the link with the protection and development of green infrastructure.

# MASSIVE OPEN ONLINE COURSE (MOOC)

One of the challenges of the LUIGI project was to produce an online course to train as many people as possible on the challenges of green infrastructure and to be able to communicate some of the results and reflections of the project through this online course, for both individuals and professionals. The MOOC is based on the results and reflections of the project: and each work package had the opportunity to contribute to this online course: by one or several articles, for example. This course is designed for anyone with an interest in green infrastructure management at any level, from local to transnational. It should be especially useful for public administrators, policy-makers, private sector business owners, and charitable organizations.

## Course description

The course is entitled "Create sustainable environmental policies and shape tomorrow's green communities": (<https://www.futurelearn.com/courses/shaping-a-sustainable-future-with-green-infrastructure/>). Professionals working with Green Infrastructure (GI) come from all sorts of backgrounds, ecology, economy, urban planning, and many others. To be effective in creating resilient places and working with the environment to combat climate change and biodiversity loss, they need to draw on all these areas. The MOOC is built around those 5 areas.

Online Courses / Nature & Environment



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## Shaping a Sustainable Future with Green Infrastructure

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Develop your skills and understanding to manage Green Infrastructure and Ecosystem Services and lead for sustainability.

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**The idea of the MOOC is to get to know green infrastructure and ecosystem services and what is at stakes.** The course begins with an introduction to green infrastructure and ecosystem services, including how these concepts relate to each other and their importance for effective environmental policy.

Participants get to reflect on the challenges GI and ecosystem services can help solve and learn to identify practical online tools for GI and ecosystem service management. They also discover how to

maximize benefits for people and nature, overcome governance issues, manage GI networks, collaborate with others to unlock funding, and ultimately make key decisions that lead to more sustainable living and more resilient places. In other words, the course can also help policy makers to **make informed decisions and develop solutions for sustainability in rural and urban areas.**

## Expected outcomes of the MOOC

By the end of the course, participants are able to...

- Demonstrate and understand the concepts of Green Infrastructure (GI) and Ecosystem Services (ESS),
- Explore how GI and ESS relate to and matter for their area of work/study and identify GI and ESS present in their area,
- Reflect on the wider environmental policy context for GI and ESS (climate change, biodiversity loss, environmental injustice)
- Identify what practical tools and resources are available online for GI / ESS management
- Investigate how to identify and maximize benefits generated by GI/ESS and understand how to apply that knowledge to their area
- Explore where GI governance issues come from and how to overcome them by generating engagement and communicating on GI/ESS benefits
- Collaborate with stakeholders to unlock investments and resources for GI and GI network Management.

On the participant side, expectations of the course are quite varied. Here are some of the questions that participants hoped to answer through the course.

- *How can we reduce GHG and PM emissions from the household heating using GI?*
- *How can GI help Climate Change mitigation and adaptation in my town (here our major risks are floods, hot waves and desertification)?*
- *How can GI serve to prevent more biodiversity loss? How can GI function to assure our food sovereignty and get a healthier way of life?*
- *How can I ensure sustainable farming by putting in place GI practices?*
- *How can I improve by GI, urban to natural area crossing industrial BLOCKS?*
- *How can the GI change a no sustainable city?*
- *How can I use GI in the fashion industry in terms of better agricultural practices and uplifting farmers' livelihoods?*
- *How can I use GI to reduce flooding in urban areas? How can I get people to understand that social status and salary range does not reduce the risk of damage caused by a loss of the eco system, pollution and Global Warming?*
- *How can I address social inequality with Green Infrastructure?*
- *How can I create places which are of REAL benefit to the local ecosystem, rather than a token add-in limited by the project site boundary?*
- *How can a series of smaller urban parks be managed to benefit biodiversity and local people the most?*

- *How can Green Infrastructure maximize benefits for Nature?*
- *How can we convince people to actually act against global warming? How to teach them to save water, manage and reduce their waste, protect the flora and fauna?*
- *How Liège as a community could benefit from green infrastructure in the future to avoid repeating this traumatic episode? How can we rebuild the city and the citizens (sustainability triple-bottom-line approach) while restoring the environment?*
- *How can I integrate the concepts of Green Infrastructure into my community operational plan (COP)?*
- *How can I present or generate significant interest and buy in and position GI and ESS within my community to ensure it is one of the first elements to be discussed and planned instead of an addition or after thought?"*

## Outputs and results

The MOOC has been launched for **5 weeks on an international platform** (Futurelearn.com) and given to a large audience, not limited to France. Table 2 shows basic statistics on the course student over time. This table tells us that the students of the course are few to stay after 90% of the course, in spite of the fact that there are many registrations: 40% of the students who registered finished the course in fine. This seems quite normal since the course was online and free, accessible from a public platform.

**Table 2. Statistics on MOOC participants**

Course measures	Total	
Joiners	324	
Leavers	17	5,20%
Learners	228	70,40%
Active Learners	132	57,90%
Social Learners	58	25,40%
Learners with ≥50% step completion	50	21,90%
Learners with ≥90% step completion	31	13,60%
Run Retention Index	0,394	39,40%
Upgrades Sold	4	1,80%
Gross upgrade revenue in GBP	£168	
Unlimited Learners	24	10,50%
Unlimited Learners with permanent access	8	3,50%

Table 3 shows us that the course is mainly attended by students from Europe, followed by Asia and the United States. This course on green infrastructure is therefore reaching the international level: this is a good thing and will help to ensure that the concept does not remain solely European. The results of the LUIGI project and the knowledge of green infrastructure and ecosystem services are thus raising awareness of a very wide audience in geographical terms.

**Table 3. Geographical origins of MOOC participants**

Demographics	Joiners
<b><u>Geography</u></b>	
<b>Africa</b>	24
<b>Asia</b>	53
<b>Australia (incl. NZ)</b>	7
<b>Europe</b>	160
<i>Germany</i>	6
<i>Switzerland</i>	4
<i>Austria</i>	4
<i>Slovenia</i>	1
<i>Italy</i>	13
<i>France</i>	12
<b>North America</b>	20
<b>South America</b>	7

Table 4 shows the level of education of the MOOC participants. It can be seen that most of the participants were university graduates. We are confident that future versions of the MOOC will be able to address a wider audience with less education and potentially less expertise.

**Table 4. Educational level of MOOC participants**

Highest education level	
<b>Professional</b>	4
<b>Secondary</b>	8
<b>Tertiary</b>	4



<b>University_degree</b>	25
<b>University_doctorate</b>	5
<b>University_masters</b>	19
<b>Unknown</b>	259

Table 5 shows that this course reaches a wide range of sectors, not just agriculture, for example. The most represented sector in our sample of participants is business and consulting management: a very good thing because it means that this course on green infrastructure spreads the knowledge to various fields of activities.

**Table 5. Employment area of MOOC joiners**


<b>Employment area</b>	
<b>Accountancy_banking_and_finance</b>	2
<b>Business_consulting_and_management</b>	7
<b>Charities_and_voluntary_work</b>	6
<b>Creative_arts_and_culture</b>	3
<b>Energy_and_utilities</b>	1
<b>Engineering_and_manufacturing</b>	3
<b>Environment_and_agriculture</b>	4
<b>Health_and_social_care</b>	4
<b>Media_and_publishing</b>	1
<b>Property_and_construction</b>	2
<b>Public_sector</b>	4
<b>Retail_and_sales</b>	6
<b>Science_and_pharmaceuticals</b>	5
<b>Teaching_and_education</b>	7
<b>Unknown</b>	266

Finally, the participants were asked to justify the choice of this course within their curriculum. We find people who, for example, are looking for a clear and up-to-date vision of green infrastructure:

“I am representing a French NGO (LPO) in several GI governance bodies. I am taking this course to get a wider and updated view on GI governance and management.”

Participation is also linked to a desire to become more competent in tackling issues of nature and preservation that are more or less urgent and topical depending on the country.

“To preserve the fast disappearing and only remaining natural places in Nigeria and find new ways to use less raw materials especially in the construction industry. I was struck by seeing the beautiful rocks and hills in Abuja destroyed in what is one of the fastest growing cities in the world.”



For some participants, learning more about GI is useful to be able to participate in the development of new tourist offers (for example) that can also benefit local businesses and inhabitants: the climatic consequences of global warming are mentioned and related to the need to understand GI.

“For me, GI is a new revolution and calling for everyone's attention and involvement. As someone in charge of product development and investment in tourism, I need to understand GI very well in order to make it part of my tourism product development for the benefit of the communities and Ghana as a whole.”

“I'm a Security Manager and work some of the largest and most expensive sites in London. I want to be able to bring GI into the business model for these developments and help improve the whole of the Estate that I work on. We've had some serious floods this year throughout London and I want to see if simple solutions can reduce this and protect the areas I work on.”

A variety of reasons to participate that show that the challenges raised in LUIGI are present in the whole world: in front of that, the consideration and the maintenance of the GIs seem to be a very relevant solution.

## What does this mean for capacity building?

The course has been followed by more than 250 participants with various profiles and from different countries all over the world. This is already a positive sign that GI and ESS became topics that are not only limited to the alpine area but concerned a lot of people. Overall, the course has been very well received by the students with very positive reviews, and lots of them have completed the course.

The course brings knowledge and develops skills of participants through numerous examples from LUIGI and the alpine region (Support both technical and adaptive capacities).

The course was only 5 weeks: with a longer online time, there can be more participants. The course can be re-developed and can be very well adapted for institutions, for example. Also, we can already imagine doing different versions of the course to adapt it to different public, such as institutions but also civil society, for example. The MOOC have the potential to bring knowledge, network and skills to a lot of people all over the world (Building a strong foundation for successful capacity-building partnership). The MOOC has therefore reached a wide range of participants, from very local policy-makers to civil society and entrepreneurs in a large number of countries (strengthen the ecosystem): it has therefore helped to raise awareness of the concept of Green infrastructure and recognize the issues around these infrastructures, while disseminating the knowledge resulting from the project to a wide audience. A set of knowledge that these actors will be able to reuse in their respective context.

For the researchers who participated in the construction of the MOOC, it allowed them to develop their skills in the popularization of scientific data and production.

## POLICY RECOMMENDATIONS

The WPT5 was also about producing policy recommendations (PR) about GI management from LUIGI projects results, mainly for local, regional and transnational policy-makers. GI management relates to several policy documents such as the EU Biodiversity strategy, the Green Infrastructure Strategy in 2013 by the European commission, EU territorial agenda (2011), EU urban agenda (2016), EUSALP (2015), European landscape convention (2004) and Faro Convention (2011). These key documents and strategies place GI as natural capital, as a value for Europe and as a cultural heritage for society.

### Policy recommendations description

Through LUIGI, different key themes to address have been identified such as:


- **Identifying, mapping and promoting** specific GI (urban and/or rural) and their values through eco-system services,
- **Developing the understanding of GI and ESS** concepts across all stakeholders, and support initiatives to develop and maintain GI,
- **Addressing conflicts of interest** around GI,
- **Developing local, regional and transnational public policies** for GI.

These recommendations hopefully will enhance the adoption process and implementation measures for GI maintenance all across the Alpine Space. **The content is based on the work and information collected by the project partners**, through the different work packages: results that have been verified and based on legitimate and scientific methods (econometrics, interviews, mapping...). These recommendations also lie on **previous work and recommendations from European projects focused on GI and green spaces connectivity** (GreenSurges, LosDama!, MagicLandscapes, Alpgov...) read entirely and discussed amongst the WPT5 team. Finally, these reports **take advantages and feedback from the different workshop organized during the project**: Laufen, Grenoble, Salzburg, Milan and others, where WPT5 team had the opportunities to discuss, test and get feedback on their ideas from project partners, policy-makers and other actors involved in green infrastructure maintenance.

Therefore, policy recommendations reports are built from experiences from different policy-makers and researchers, from previous European recommendations in terms of GIs and on the results of LUIGI.

### Expected outcomes

These recommendation reports are mainly directed to **elected officials and technicians of the territory**, who are in a position to take positions and concerned with green infrastructure. We hope that these reports:

- 
- Can complement what each territory or elected official is already doing at their level, in order to give ways to overcome possible blocking points for the development or maintenance of green infrastructure,
  - To show and make these actors aware of the benefits of green infrastructure,
  - Create a path dependency effect for the future of public policies,
  - Can serve as a tool for decision support,
  - Can more widely disseminate knowledge on green infrastructure and trigger real long-term partnerships on each territory between the different stakeholders related to green infrastructure.

## Actors targeted and involved


These reports are mainly aimed at an audience of elected officials, technicians of the territory and even researchers. They should serve to inform public action for a better consideration of green infrastructure and an improvement of existing policies in this area, while allowing the recognition of stakeholders little or not taken into account in their management, such as residents or businesses, for example. With these recommendations, we also aim at a wider audience of companies and inhabitants, in order to allow them to acquire the necessary knowledge to advocate in favor of green infrastructure on their territory: because we deeply believe in the involvement of these spheres of the society. Finally, these reports will be of interest to researchers and experts in green infrastructure, allowing them to see the current shortcomings of local, regional and transnational public action in this field and their future evolution.

In the elaboration of these reports, we involved a number of actors who proved to be crucial. The researchers of the different LUIGI work packages were the first to be involved in order to explain to us the salient points of their research on the project and what, according to them, was not yet taken into account in the territories studied.

During the different workshops organized for the project, WP5 team oriented the presentations, questions and debates around the current needs for the maintenance of green infrastructure, from the point of view of the researchers, the policy-makers and the inhabitants. This has allowed us to collect many elements, and even some recommendations. We took advantage of the last workshops to test some of the recommendations and to get concrete feedback from these different actors on the interest of these recommendations and their articulation with the situations they know that they have experienced as researchers or policy-makers.

## Outputs and results

Three possible ways emerged from the LUIGI project to improve the promotion and management of GIs. These three paths allow the team to structure recommendations in three different reports.



**Mapping & Quantifying:** When it comes to understanding GI elements and GI networks, data and expertise must be considered a crucial and strategic element. Decision-makers must be able to identify GI elements (whether existing or potential), how they connect with each other, and the benefits they provide to communities but also to other GI.

**Enabling:** Having the knowledge on GI or needed funds are not the only condition for participation in their management – it also relies on key actors to enable this management at different geographical levels – local, regional and transnational. Enabling is considered here as a set of practices to deploy resources to ensure cooperation, develop training for specific actors, enhance educational activities, willingness to pay but also trigger new business models for companies seeking to promote and manage GI.

**Governing** is the implementing part of the policymaking cycle. It requires decision-making and monitoring of results and this can be done more effectively if the stakeholders are actively involved, meaning policy-makers, civil society, SMEs and academia.

Also, we have decided to organize these blocking points and recommendations according to three relevant geographical levels for GIs, identified and tested during the project workshops:

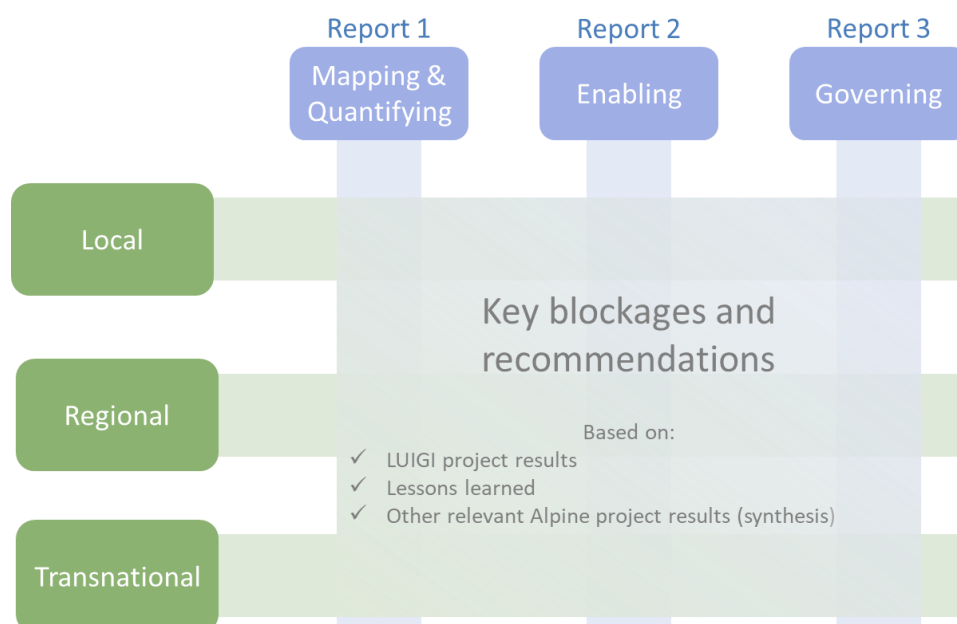
**Local:** this is the level of municipalities (local administrative units) and inhabitants, i.e., the closest level to GI where a variety of actors are directly concerned.

**Regional:** this is notably NUTS1-NUTS2 areas (regions, provinces, states, etc.); it is the level where decisions can be taken concerning several metropolises or even cross-border regions as well.

**Transnational:** designates the level of the Alpine arc or even of the European Union. It is the level where our recommendations are more strategic and focused on EU and national policy making.

From there, we listed all of our identified challenges and recommendations from workshops, previous reports and LUIGI results in an Excel document in order to code each with a type (enabling, governing or mapping & quantifying) and a level (local, regional, transnational). Then we were able to sort out all challenges and recommendations, to compile the most relevant one according to the project specificities to draw a matrix (Figure1).

**Figure 1. Visual representation of the approach for this set of policy recommendations reports**



We developed a first table of the general principles under which we have grouped more specific and targeted recommendations. The general principles and targeted recommendations are presented under the lens of the local, regional and transnational levels described previously. The idea of these three reports is to provide simple, effective, concise and research-based tools that can inform or convince decision makers of the actions to be taken in their territory.

**Table 6. General principles identified for GI policy making**

General principles for GI policy making	
<b>MAPPING &amp; QUANTIFYING</b>	Place emphasis on data development
	Make meaningful use of data
	Enhance mapping and quantifying capabilities
	Support policy integration
<b>ENABLING</b>	Enhance the knowledge and understanding of GI and ESS concepts across all stakeholders
	Improve the understanding of and harness the linkages between ESS / GI and economic and business opportunities
	Develop more rounded GI policies at each level
<b>GOVERNING</b>	Foster collaboration between all stakeholders that are concerned with GI

	Empower stakeholders through decision process and cooperation
	Combine the maintenance and development of GI within existing policies
	Coordinate these policies between the different levels of action in order to give a clear vision of green infrastructures in the Alpine territory

*Note: Each of these principles are further explicated in the relevant report.*

As these recommendations progressed, we disseminated part of them during workshops. The workshop in Laufen, for example, allowed us to test the relevance of the geographical levels and to get feedback from some elected officials and researchers. The workshop in Milan (February) and Salzburg allowed us to test the recommendations more widely and to get feedback from local politicians and researchers involved. These recommendations were very well received by these different audiences. The Salzburg workshop was even an opportunity to exchange and discuss the recommendations of the LUIGI project and OpenSpace Alps project.

## What does this mean for capacity building?

These recommendation reports, aimed at an expert public composed of policy-makers, technicians or researchers, are intended to build the capacities of these different actors: many recommendations are based on the fact of co-creating solutions with civil society at the local level, for example, but also of reaching out to local companies that can have a say in creating new business models around green infrastructure.

The numerous exchanges we have had during workshops with policy-makers and researchers have contributed to strengthen the eco-system of actors gravitating around this consideration of GI and ecosystem services. Several recommendations, both regional and transnational, focus on the need to create and extend existing green infrastructure networks. These networks can build a strong foundation for successful capacity-building partnerships.

Recommendations are also focused on the contribution of technical skills, beyond the knowledge of many actors from civil society as well as professionals facing GI as technicians of the territory, for example.

These recommendation reports contribute fully to the strengthening of the knowledge and capacities of different stakeholders of green infrastructure: civil society, government, academia and business.



## Conclusion

LUIGI WPT5 aims at communicating and disseminating the results of the project and of the different WPTs within different institutions and more widely in society. It was therefore logical to expect from this work package an aim of capacity building of different actors: as a reminder, capacity building is the fact of conferring knowledge or skills to actors in order to allow them in turn to act at their level.

The activities carried out within the framework of WPT5 allowed the building of capacities of individuals and groups involved in the management of green infrastructure, well beyond those encountered within the framework of the project. The solutions have, in the framework of this work package, been built with the stakeholders (researchers, civil society, policy-makers and companies), bringing technical and informational capacities (policy recommendations for example), with a view to equality and equity (involving all stakeholders and including them as much as possible in the decision-making process), strengthening the ecosystem of actors around green infrastructure and laying the foundations of different partnerships between researchers and communities for future research and / or actions on green infrastructure.

In the field of green infrastructure, where it became urgent to act both on urban (rather develop GI) and rural territories (protect but also re-develop GI), the dissemination of knowledge and empowerment of complicated actors in the management of GI is crucial. We hope, through the regional events workshops, the MOOC and the policy recommendations, to contribute to the dissemination of this knowledge and practices to reach a large number of actors and trigger future policies and various actions in favor of Green infrastructure management.



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