



Interreg
Alpine Space



Co-funded by
the European Union

PlanToConnect



Fondazione
Politecnico
di Milano



POLITECNICO
MILANO 1863

Multifunctional GBI for the Province of Sondrio

Challenges/Methods and Practices/Approach

Fondazione Politecnico di Milano (FPM)/ Dastu - LabPPTE



Challenges addressed / problem statement

- **Multifunctionality assessment and integration:** The analyses and design phases are highly focused on assessing multifunctionality among the Sondrio Province. Multifunctionality aims to integrate ecosystem services, ecological connectivity areas and sustainable recreation activities into a comprehensive green and blue network.
- **Provision of a design model that can be integrated into planning mechanism:** *The project is defined by a strongly practical feature, providing the possibility to become regulative and integrated in the plans at the various scales. The GBI will provide direct interventions in the territory, defining both conservative and adaptive actions.*
- **Dialogues with local stakeholders:** *The project aims to provide support to local and regional authorities, associations, local communities, tourism organizations, agricultural and forestry consortium in the:*
 - *provision of updated and advanced **environmental** analyses;*
 - *support in defining **compensation** areas and modalities;*
 - *understanding their challenges and needs in **tackling climate change dynamics**,*
 - *supporting the ongoing revision process of the **Territorial Provincial Plan***
- **Lack of data:** Some crucial data are missing in the provincial open access dataset, as for example for what concerns sustainable energy production and provision that can potentially be threatening for ecological connectivity
- **Climate change uncertainties:** Climate change dynamics are testing urban planners in forecasting upcoming challenges related to intense natural phenomena, demographic changes, inadequate infrastructures, limited fundings...



Does your project or daily work refer / contribute in any way to...

...land use planning and land take limitation	<i>The multifunctional GBI contributes to avoid or limit land take in defined strategical areas. At the same time areas suitable for environmental compensation practices are identified by the project</i>
...climate adaption	<i>The ecosystem services' assessment set the groundwork for understanding the lacks/strenghts of the soil, vegetation and intrinsic characteristics of the area in reacting to the intensification of climate change effects. The project aims to increase the local biophysical performances in order to positively respond to urban heat island, runoff, erosion, habitat decay phenomena.</i>
...strategical agricultural areas	<i>The project take into account, preserve and enhance the strategical role played by agricultural areas in terms of biodiversity, pollinators presence, soil conservation, food security, cultural heritage</i>
...protected areas and ecosystemical valuable areas	<i>The richness of protected areas and reserves within the area underscores the critical conservation and maintenance role of the project's GBI. This can be achieved through actions of monitoring and conservation, protection from unsustainable tourism, and prevention of new transformations.</i>

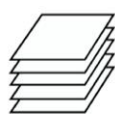


Did you apply a specific method to analyze connectivity / successful implementation procedures / stakeholder processes?

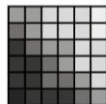
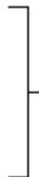
Multifunctional Green & Blue Infrastructure

Step 1 / Analysis & Overlay

Mapping and assessment of multiple ES



Regulating
Provisioning
Cultural



Multisystemic
analysis

COMPLETED

Step 2 / Design

Green & Blue Infrastructure + NBS



Spatial
project



Downscaling to local
and supra-local level

WORK IN PROGRESS

Step 3 / Implementation

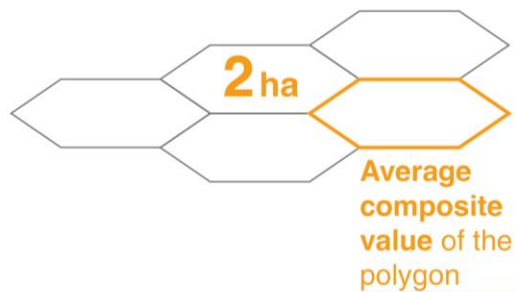
Planning process



Indicators to implement GBI in
planning with high degree of
ransferability



Step 1. Ecosystem services assessment + Overlay



Multisystemic
Composite
Analyses

Habitat Quality

Nutrient Retention

Crop Pollination

Stormwater Retention

Agricultural value

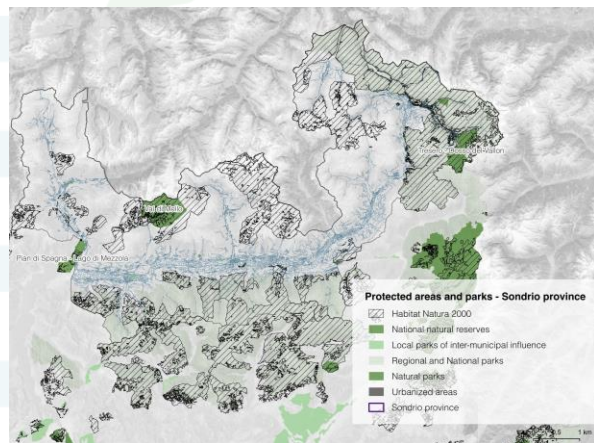
Sediment Retention

Cultural Value

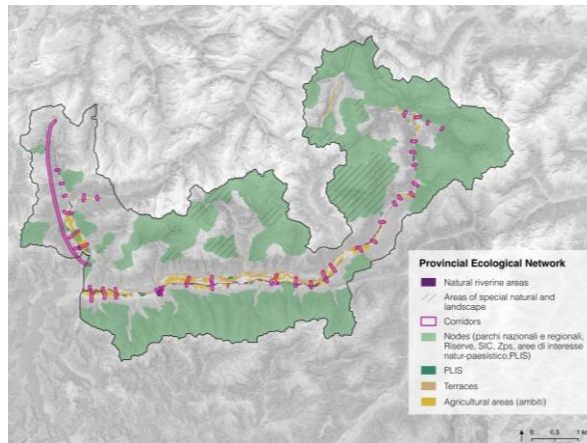


Step 2. Integration of connectivity local and supralocal knowledge (SACA, Regional and Provincial ecological networks), and integration of multifunctional identitary elements (Landscape, Recreational and tourism elements...)

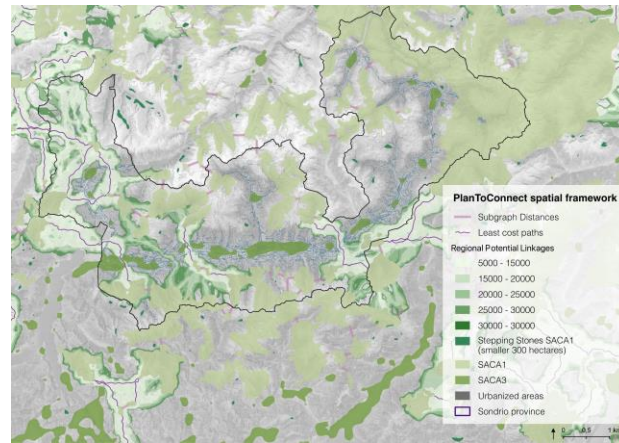
System of Protected areas and Parks



Provincial Regional Network (REP)



SACA Framework



Step 2. Definition of the GBI strategic frameworks

- **Conservative**

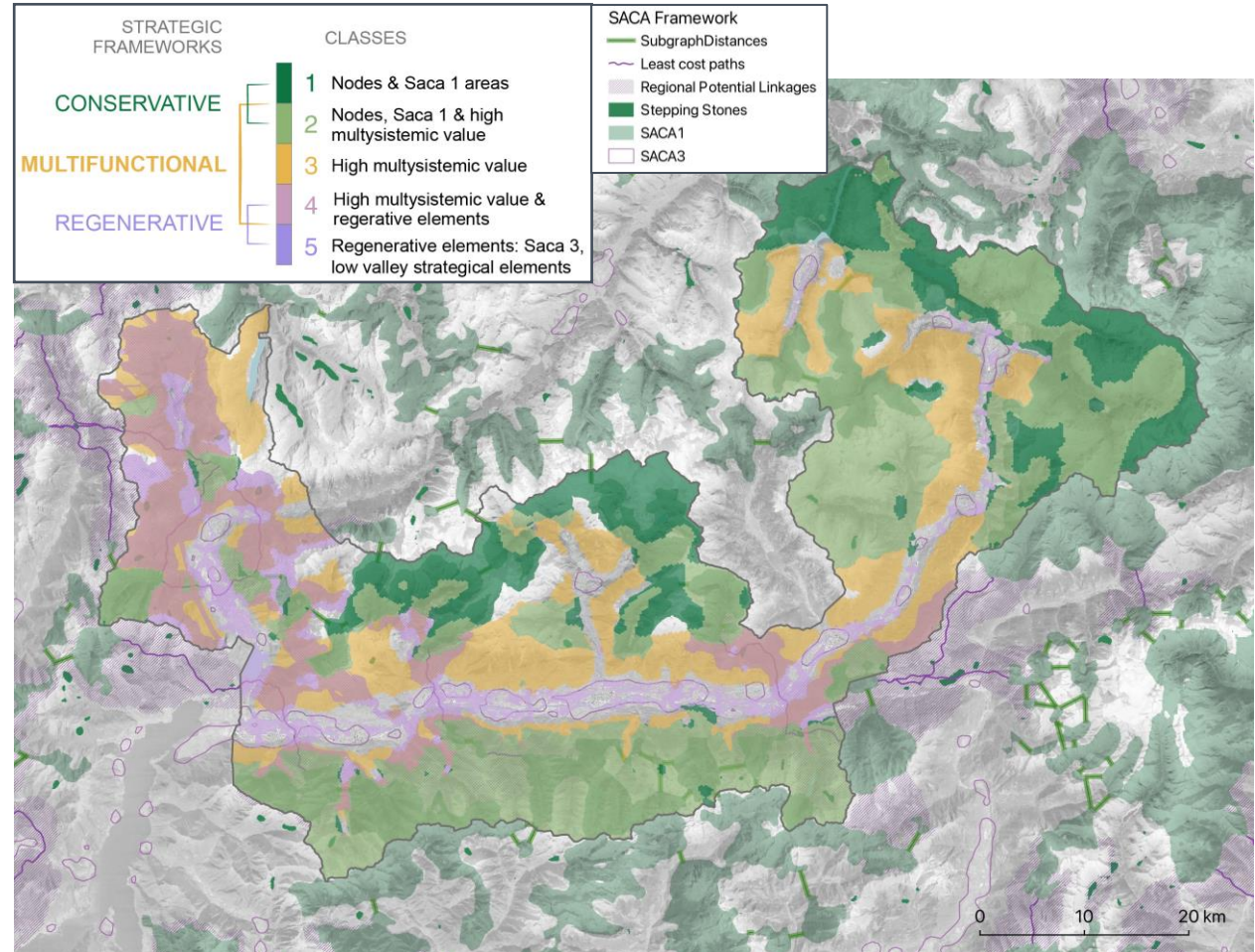
Composed of areas with high naturalistic and ecological value, as well as high biodiversity (SACA 1, Nodes) to preserve and maintain.

- **Multifunctional**

Areas of high ecosystemic, landscape, cultural, and touristic value (SACA 1, landscape routes, agricultural activities, recreational infrastructures, valuable ecosystemical areas).

- **Regenerative**

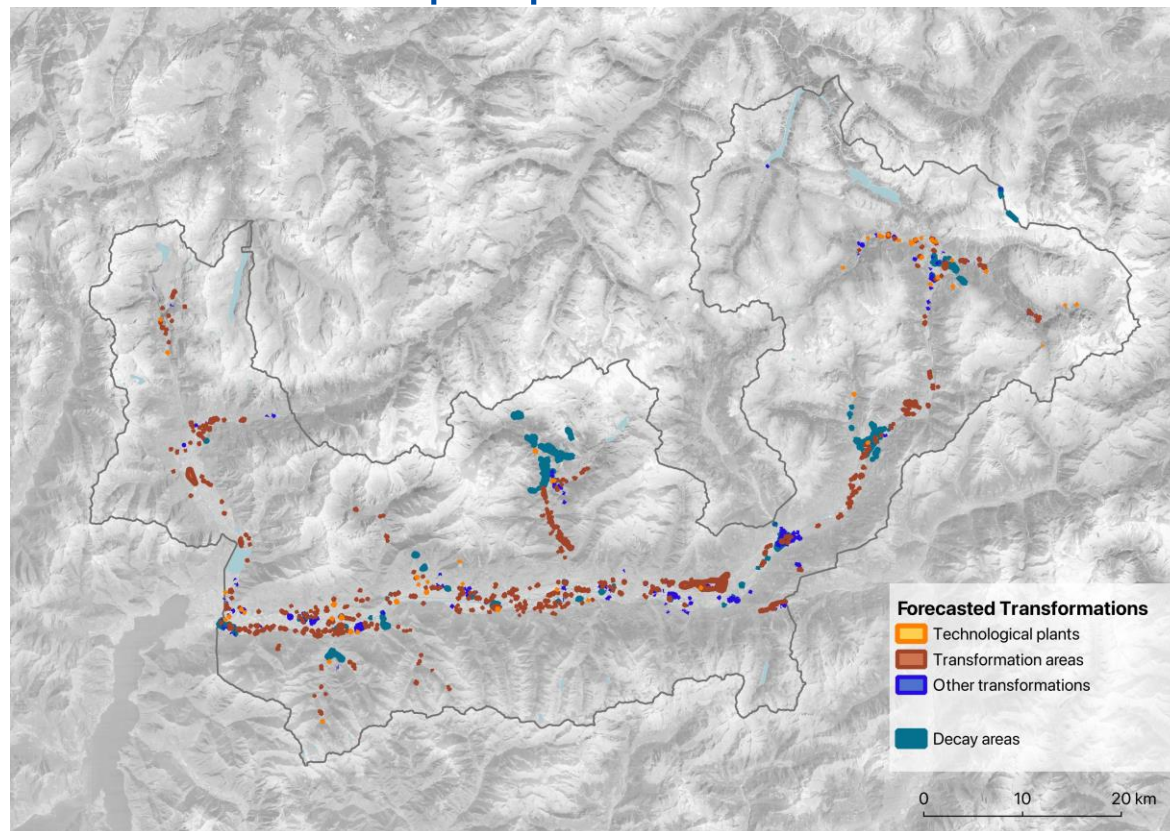
Valley floor areas with significant regeneration potential aimed at restoring ecological connectivity between the two slopes. Specifically, these include riverine areas, strategic agricultural lands, terraced landscapes, and potential ecological corridors (REP).





Step 3. Planning Process

Transformation
forecasting
analyses





Interreg

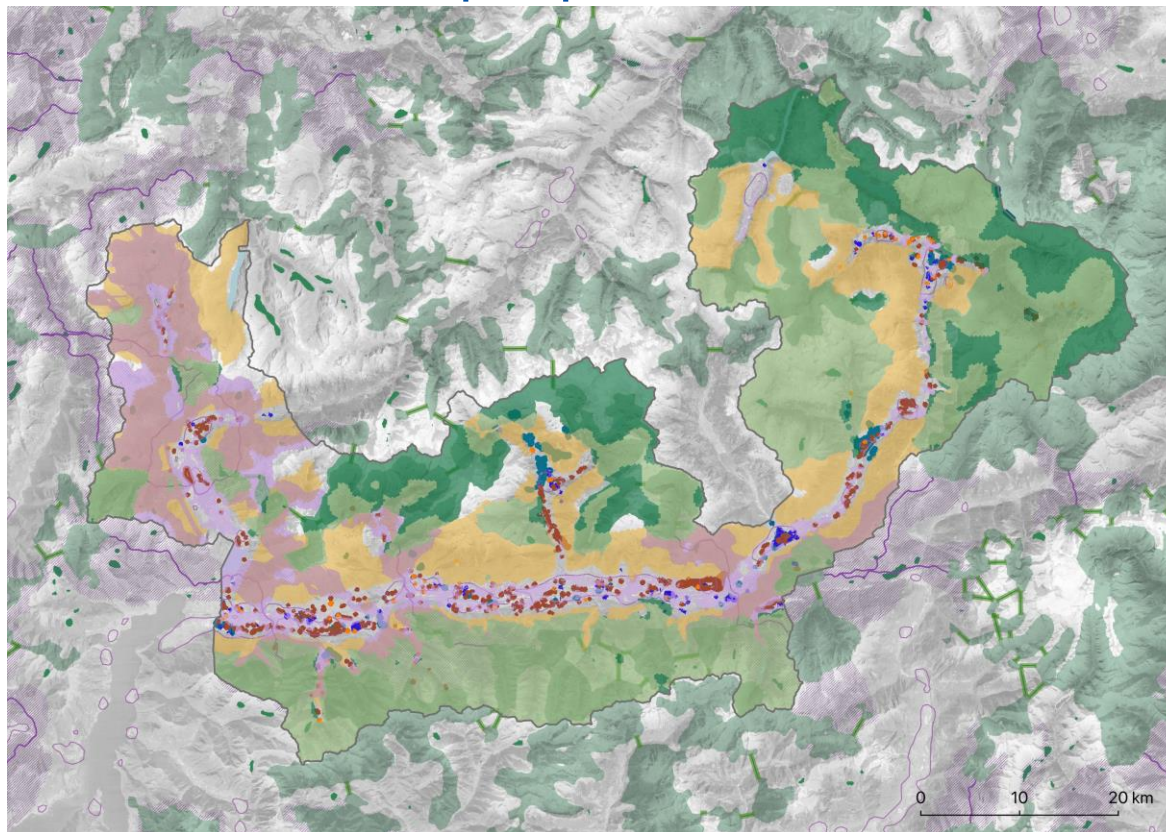


Co-funded by
the European Union

PlanToConnect

Alpine Space

*Intersection
with GBI
valuable areas*





Soil consumption forecasting

- Transformation areas by municipal plan
- Other approved transformation
- Plants in project

935 ha in total

6878 ha of consolidated urban fabric

→ **+13,5%** of new planned
soil consumption

Forecasts falling on the
strategical Multifunctional
GBI frameworks

1

Conservative
(Saca 1 and 3,
ecological nodes)

22,5 ha

main planned functions:
*productive, touristic,
residential*

2

**Conservative ^
Multisystemical**
(Conservative, High
multisystemical value)

8,4 ha

main planned functions:
residential, productive

3

Multisystemical
(High multisystemical
value)

38,4 ha

main planned functions:
touristic, residential

4

**Multisystemical ^
Regenerative**
(Multisystemical, Low
valley elements to be
regenerated)

18,3 ha

main planned functions:
*touristic, residential,
services*

5

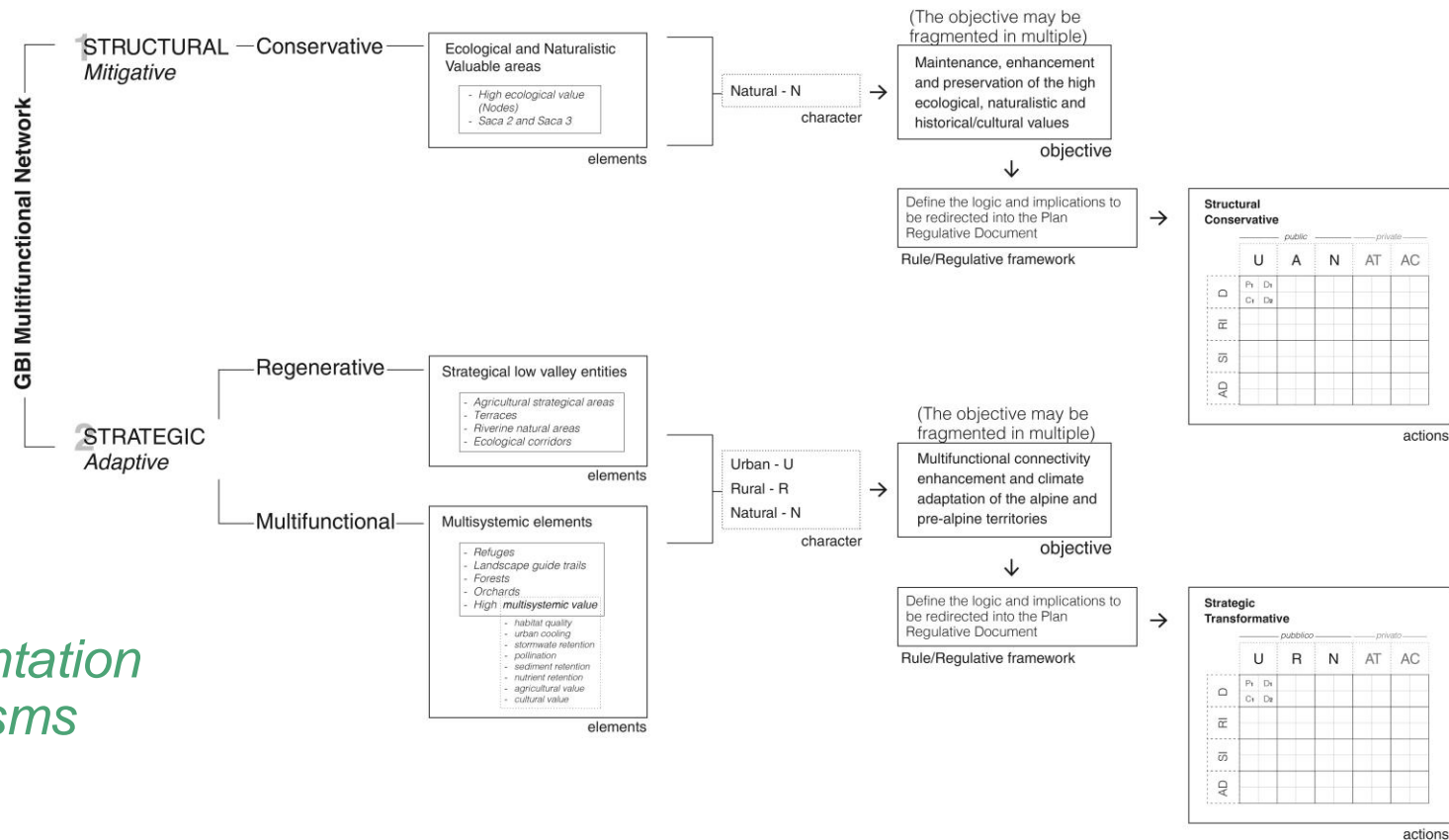
Regenerative
(Low valley elements to
be regenerated and
reconnected)

119 ha

main planned functions:
*touristic, residential,
productive, services,
technological plants*



Step 3. Planning Process



Implementation mechanisms



Step 3. Planning Process

Stakeholder engagement

- Susanna Lauzi, **Sondrio Province – Spatial planning agency**
- Gabriella Bianchi/ Gisella Frepoli, **Sondrio Province – Agriculture and Forest Agency**
- Filippo Pighetti, **Valchiavenna Touristic Consortium**
- Renato Dolci, **Valchiavenna Mountain Community**
- Michele Zanolì, **Alta Valtellina Mountain Community**
- Donato Campolieti, **CIA Alta Lombardia**
- Stefano Morosini, **Stelvio National Park**
- Paolo Angelini/Valerio Comple, **Ministry of Environment and Energy Security (MASE)**



What is your approach?

How can our project gain an **added value** from your project learnings (regarding approach, results, network integratin, etc.)?

The **multifunctional dimension**, already guiding other projects implemented within the LabPPTE, proves to be a valuable principle to support **sustainable development** together with the **engagement of local strategical actors**. Especially in the areas that present a wide variety of activities and environments.

How should your approach/method be applied **further in ecological connectivity** planning / research?

- **Future scenarios** forecasting
- Make the method **directly implementable** in the planning tools
- Support decision-making processes of **local authorities**
- Support the integration of **ecological conectivity practices in environmental regulations** at the multiple legislative scales



Best / Worst practice

- *Sinergy and cross-pollination among the PlanToConnect international group (methods and approach, regulative frameworks, common objectives and shared strategies..)*
- *Opportunity to deepen the analyses and experimental approach on ecological connectivity, ecosystem services assessment, multifunctionality*
- *Communication with local actors (Difficulties in engaging actors and explaining what they could learn/gain by their participation in the process)*
- *Limited time of the project implementation leading to prioritization and simplification of the selected pillars (that may not be enough satisfactory/ could not match the exact needs of local population)*
- *Lack of updated data (ex. Renewable energy plan – the only published document is a draft referring to 2011)*