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Planning Strategies and Environmental Design

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ISSN 2365-757X ISSN 2365-7588 (electronic)
The Urban Book Series
ISBN 978-3-031-28771-8 ISBN 978-3-031-28772-5 (eBook)
https://doi.org/10.1007/978-3-031-28772-5

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword by Stéphane Sadoux

If you run a quick search on any university library catalogue, you will notice an increase in the number of scholarly publications devoted to green and blue infrastructure in recent years. Although this trend is encouraging, the gap in literature is still significant and the publication of this edited volume is a particularly welcome addition to existing material. The COVID-19 pandemic has, sadly, made the content of this book all the more relevant. Where available and accessible, green and blue infrastructure has provided urban populations with outdoor recreational spaces in which they sought to mitigate the stress caused by the pandemic. The past few years have thus served as a powerful reminder that green and blue infrastructure caters for community as much as environmental needs and that their uneven distribution and quality in cities and regions is yet another indicator of social injustice.

That more attention should be paid to the roles and importance of green and blue infrastructure is old news. Calls for action at the supranational level, particularly those led by the United Nations and the European Union, have over the years contributed to fueling debates and raising awareness of populations and policy-makers. The various chapters included in this volume provide detailed and thought-provoking insights into the ways in which a range of stakeholders have sought to act through policies, plans and projects. The case study-based approach provides readers with thorough local and regional investigations showing how objectives, such as those found in the EU's Biodiversity Strategy, are locally translated into context-specific actions.

Water courses and networks of green spaces cut through administrative boundaries. Addressing green and blue infrastructure therefore requires a multiscale approach and this book clearly demonstrates the importance of joint-up thinking, from the local to the supranational levels. The devil is in the detail and authors successfully highlight the complex challenges which policy-makers and practitioners face when they attempt to transcend spatial and indeed sectoral boundaries. This book should also be praised for highlighting the positive outcomes of bottom-up initiatives, which allow local communities to take an active role in the governance of green and blue infrastructure management. Populations' knowledge of the places they live in is priceless and needs to be documented, understood and fed into action. This book stresses the role of academics in this process and the field work carried out by the

authors confirms the relevance of grounded and qualitative research in architecture, urbanism and landscape planning.

This book is a compelling call for the systematic integration of green and blue infrastructure in spatial planning policy and practice. It is also a cruel reminder that new approaches and skills are now required to address the complex and daunting contemporary challenges we face. The inclusion of practitioners' viewpoints in this publication is particularly inspirational and refreshing: these first-hand accounts stress the importance of retrofitting our fragmented and degraded environment.

This collection of multidisciplinary contributions from doctoral, postdoctoral and senior researchers as well as practitioners will undoubtedly be of interest to undergraduate and postgraduate students in architecture, urban, regional and landscape planning, geography, environmental sciences and engineering. The material will also provide policy-makers with much-needed practical knowledge and recommendations. In addition, and perhaps most importantly, it will encourage other scholars and practitioners to further investigate green and blue infrastructure.

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Foreword by Grazia Brunetta

The Green and Blue Infrastructure Projects in Spatial Planning as a Key Component for Adaptation to Climate Change

In recent decades, we have been witnessing on a planetary scale a weak or almost zero response capacity of the cities and territories to the events caused by the ongoing systemic dynamics of climate change. The significant effects of climate change are the result of the increasingly high temporal frequency of extreme natural phenomena and the greater vulnerability of soils, the result of the intense and growing dynamics of urbanization and the consequent fragmentation of natural environments. The process of fragmentation of natural environments due to anthropic causes is the primary cause of biodiversity loss, generating ecological losses and environmental and landscape challenges. The drastic loss of biodiversity is a consequence of the development model pursued up to now—strongly polarized on urban areas and primarily based on the intensive and extensive exploitation of natural resources—still supported today by a growing urbanization dynamic on a global scale. The United Nations estimates that 65% of the world's population (about 6 billion people) will be concentrated in thirty mega-cities which will consume 75% of the planet's resources, producing a widespread loss of biodiversity by 2050.

It is necessary to carry out new knowledge paradigms for urban projects and territorial actions oriented toward the regeneration of biodiversity. However, it should be considered that since the early 1990s, with the introduction of the Habitats Directive (92/43/EEC), the goal of conservation of biological diversity has established itself as a priority theme in community planning actions, in order to promote environmental conservation policies aimed at enhancing and protecting ecological resources and the landscape. Should be mentioned here of the first pioneering agreements on biodiversity promoted by the Council of Europe, such as the *European Network of Biogenetic Reserves* (1992),[1] followed by a package of global agreements—*Rio Convention on*

[1] CoE 1992. European network of Biogenetic Reserves. Strasbourg.

Biological Diversity (1992),[2] *IUCN Caracas Action Plan on Parks and Protected Areas* (1992),[3] *Pan-European Strategy for Biological and Landscape Diversity of the Council of Europe* (1996)[4]—which gave impetus to the launch of a political debate and initial objectives shared internationally. In that decade of activity, the first theoretical considerations and experimentations were promoted to direct the *ecological network* project in spatial planning at the different scales of action. Among the promising innovations in terms of local spatial planning practices of green and blue infrastructures (GBI), in the national context, it should be mentioned here the ecological approaches introduced in the 1990s in some urban plans and the multidisciplinary research promoted by the *National Institute of Urban Planning* and by the *National Environmental Protection Agency* to define the first national guidelines for the design of ecological infrastructures on a local scale.[5] In this perspective, the pioneering experiences of the urban plans of Faenza and Reggio Emilia should be recalled here for having introduced an ecological approach to the design of a continuous and open system of urban green areas with the aim of restoring an ecological balance in urbanized areas, and to regenerate the environmental resources in the collective urban spaces.[6]

Today, on this issue, there are various and consolidated international references which, in response to the climate crisis, promote the project of ecological regeneration in urban and regional policies. Among all, specific references for spatial planning are the *Paris Agreement on Climate Change* (2015),[7] the *New Urban Agenda* (2016)[8] and the *2030 Agenda for Sustainable Development*[9] with the Sustainable Development Goals 15 (life on the land) eight (water) 11 (human settlements), and 13 (climate action) and the recent *Nationally Determined Contributions Report* (NDCs—2022)[10] which analyzes the urban content of one hundred and ninety-three national strategies for adaptation to climate change. The NDCs Report clearly shows that there is a lot of work to do on the ecosystem and biodiversity issue, as only 26% of the adaptation actions introduced in national policies concern the recovery of biodiversity in urban projects.

In this perspective for action, the book presents a review of proposals on the GBI project in an attempt to overcome the operational difficulties and the sectoral nature that has always characterized the approaches and experiences of ecological heritage projects. As noted by the authors, the concept of GBI in spatial planning is

[2] UN 1992. Convention on Biological Diversity. Rio de Janeiro.

[3] IUCN 1992. Caracas Action Plan on Parks and Protected Areas. Caracas.

[4] CoE 1996. Pan-European Strategy for Biological and Landscape Diversity. Strasbourg.

[5] APAT-INU 2003. Gestione delle aree di collegamento ecologico funzionale. Manuale n. 26. Roma. ISBN: 88-448-0111-6.

[6] See: *Plan of Faenza* (1998), and *Plan of Reggio Emilia* (1999).

[7] UNFCCC 2015. Paris Agreement on Climate Change. Paris.

[8] UN 2016. New Urban Agenda. Habitat III: Quito 17–20 October.

[9] UN 2015 2030 Agenda for Sustainable Development. New York 25–27 September.

[10] UNFCCC 2022. Nationally Determined Contributions under the Paris Agrrement. Synthesis report by the secretariat. Sharm el-Sheikh Climate Change Conference, November.

an "old wine in new bottles," implemented with great weakness in urban design, that returns to being topical today. In the era of the Anthropocene, the GBIs become key components of the urban project for adaptation to climate change and regeneration of the terrestrial ecosystem in national and international strategies. The project of the GBIs requires an intersectoral and transcalar spatial planning approach capable of overcoming the mere regulatory vision of territorial and urban plans, with the aim to implement a strategy and a project through forms of co-planning and multiscalar governance. On these aspects, the book presents good practices and innovation experiences in the fields of territorial planning and urban design, focusing attention on the necessary elements of innovation to implement the concept of GBIs as a socio-ecological part of a path toward the sustainability of development processes. But as the volume shows in the third part, these practices need to be operationalized in order to become the engine of new urban projects capable of integrating the objectives of recovering ecological diversity in the processes of transformation. This new ecological vision for regenerating cities and territories is a promising work perspective, but it is still to be implemented in regional planning and design at different scales toward an ecological and socio-cultural transition path aimed at promoting sustainability, quality and liveability of development by 2030.

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Contents

Chapter 6
A Multi-Scalar Green Infrastructure Project for the Landscape Enhancement and Regional Regeneration of Media and Alta Valtellina

Andrea Arcidiacono, Silvia Ronchi, Viviana di Martino, and Guglielmo Pristeri

Abstract In the process of updating the Lombardy Region's territorial and landscape planning tools, the Green Infrastructure has been defined as a strategic landscape infrastructure built based on the interpretation, assessment, and mapping of Ecosystem Services, with the aim of increasing their relative performance and, consequently, their Natural capital. The Regional Green Infrastructure is inspired by the European Commission's principles, defined as a network of natural, rural, and anthropic landscape elements planned at a strategic level to improve human well-being. The Green Infrastructure design is multi-scale in that it allows both for the analysis of Ecosystem Services using the most appropriate functional and ecological scale and for the formulation of strategies and objectives that can be taken up and systematised by the most appropriate planning and programming tools with respect to the scale of implementation. This paper describes the procedure for downscaling the project contents and design of the Lombardy Region's Green Infrastructure in the pilot area of Media and Alta Valtellina, as a fragile landscape context subjected to significant planning projects scheduled for the coming years. The Green Infrastructure downscaling procedure also becomes an opportunity to systematise and highlight the synergies among the various strategic and design-related components developed in support of the Lombard landscape planning tools.

Keywords Landscape planning · Ecosystem services · Landscape regeneration · Performance objectives · Strategic guidelines

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B. Giudice et al. (eds.), *Green Infrastructure*, The Urban Book Series,
https://doi.org/10.1007/978-3-031-28772-5_6

6.1 Regional Green Infrastructure (RGI): A Resilient Spatial Structure for Landscape Planning

In recent years, there has been significant growth in Green and Blue Infrastructures (GBI) projects as an important field of design experimentation useful for increasing territorial resilience and counteracting the effects of climate change. This has been made possible also through Ecosystem Services' (ES) assessment and mapping, which identifies vulnerabilities and performance requiring associated planning actions, strategies, and solutions (including nature-based) with the aim of improving human well-being and the quality of life. The GBI are intended as a spatially and strategically planned network, composed of a set of interconnected areas with different characterisations (natural, rural, anthropogenic in addition to watercourses and water bodies) capable of providing a broad spectrum of ES (European Commission 2013). The ES constitutes a qualitative and quantitative approach based on the performance of ecosystems, both directly and indirectly, that support the definition of strategies, guidelines, and actions to improve human living conditions (Millennium Ecosystem Assessment 2005).

The innovative character of the GBI lies in their mainly anthropocentric vocation, which goes beyond the ecological–environmental sense oriented towards the conservation and protection of habitats, instead established as the backbone of contemporary regional landscape planning.

Recent experiences have demonstrated that the adoption of an ES-based approach in regional and landscape planning can provide qualitative and performance support to the design and development of GBI and that GBI are a vehicle for the integration of ES into the planning process (Arcidiacono and Ronchi 2021a; Ronchi 2021). The link between planning, ES, and GBI has also undoubtedly been strengthened by the increasing focus on ecological and environmental issues and the need to respond to the important and urgent challenges of the climate change in progress (Estreguil et al. 2019; Ronchi et al. 2020).

GBI are a strongly multi-scale, spatial organisation model and facilitate the integration of ES into the regional and landscape planning process and support the definition of its strategic and planning content. More than that, GBI are also recognised as a key instrument in the EU biodiversity strategy for 2030 requiring a multi-scale framework to guarantee and monitor territorial cooperation (European Commission 2020).

As part of the process of revising and updating Lombardy's regional landscape planning tools, the LabPPTE (Lab Plans, Landscape, Territories, and Ecosystems) of the Politecnico di Milano's Department of Architecture and Urban Studies (DAStU) has developed the design experimentation of a GBI that could constitute the strategic regional spatial and landscape structure, aimed at enhancing and preserving Natural capital and at providing strategic and planning guidelines for the landscape enhancement and regeneration, even in degraded and vulnerable areas (Arcidiacono et al. 2018).

Considering the guidelines set out by the European Commission, the Regional Green Infrastructure (RGI) was defined based on the examination of the ecosystem functionalities of the Lombardy territory with the objective to provide, govern, and expand multiple ES, assuming the community guiding principles and aligning itself with these guidelines (European Commission 2013). The assessment and mapping of ecosystem functionalities covered: (i) habitat quality, understood as an indicator of overall biodiversity (Salata et al. 2017); (ii) the value of the rural landscape, expressed in terms of agricultural productivity and biodiversity in rural areas; and (iii) the state of cultural-anthropic heritage, as a cultural ES derived from an analysis of the protected and historical/identity elements of the Lombardy region, with the associated aesthetic, spiritual, identity, educational and recreational values of the landscape (Arcidiacono et al. 2016a; Arcidiacono and Ronchi 2021b).

The articulation and integration of the three ecosystem components (natural, rural, and cultural-anthropic) allowed to define the scope of the RGI, i.e. identify the areas to be included in the strategic design, considering the principles defined by Benedict and McMahon (2001), Kambites and Owen (2006), and Hansen and Pauleit (2014), namely: (i) the integration of green spaces (natural and semi-natural areas) and grey spaces (densely populated areas); (ii) the multifunctional nature of the spaces with different functions (ecological, social, landscape, cultural, etc.); (iii) the connectivity of the elements of the network necessary to create connections and relationships between spaces; (iv) the multi-scale aspect useful for evaluating a specific ES using the most appropriate functional ecological scale; (v) the plurality of spaces with different size, potential, morphology, land uses and cover, etc.

The combination of the different strengths of ecosystem also allowed to formulate strategies and actions calibrated according to the level of ES supply and associated landscape maintenance and planning, for different categories of regional areas: those with an existing strong ecosystem; those requiring landscape regeneration; those featuring degradation and compromised Natural capital.

The strategic design of the RGI also identifies specific guidelines of connection (to be strengthened or newly created) that can stitch together elements of the landscape, defragment peri-urban areas, and stimulate the use and organisation of recreational activities through sustainable mobility (Fig. 6.1).

The characterisation of the RGI and the detailing of the planning strategies in relation to the ecosystem qualities and potential enable their effective breakdown on the different territorial scales. The RGI constitutes, in fact, a multi-scale landscape structure of a vast area in that it relates to not only the institutional administrative levels of spatial planning, but also achieves a close synergy with intermediate and inter-municipal regional systems, aligned in terms of landscape and ecosystem. The Geographic Landscape Units (*Ambiti Geografici di Paesaggio*—AGP) have been identified by the Regional landscape plan (*Piano Paesaggistico Regionale*—PPR) as territorial aggregations characterised by homogeneous landscape features, with associated quality objectives and strategic operational guidelines for landscape and territorial planning. In this sense, the AGP, which is positioned at an intermediate

level between the large-scale scenario and the processes taking place on a local scale, outlines a direct reference for the project definition and the operational downscaling of the RGI.

The RGI is therefore defined on a regional scale but can be broken down to a local dimension, where the design of the infrastructure is more detailed, activating targeted and timely planning actions with the aim of protecting and increasing the ES through the design of resilient open spaces (urban, peri-urban and rural) integrated with Nature-Based Solutions (NBS), with mitigation and compensation strategies for urban transformations (which can lead to a decrease in ecosystem functionalities), and with actions for the recovery and regeneration of degraded areas (such as brownfield sites) by rebuilding lost or severely compromised Natural capital (Arcidiacono and Ronchi 2021).

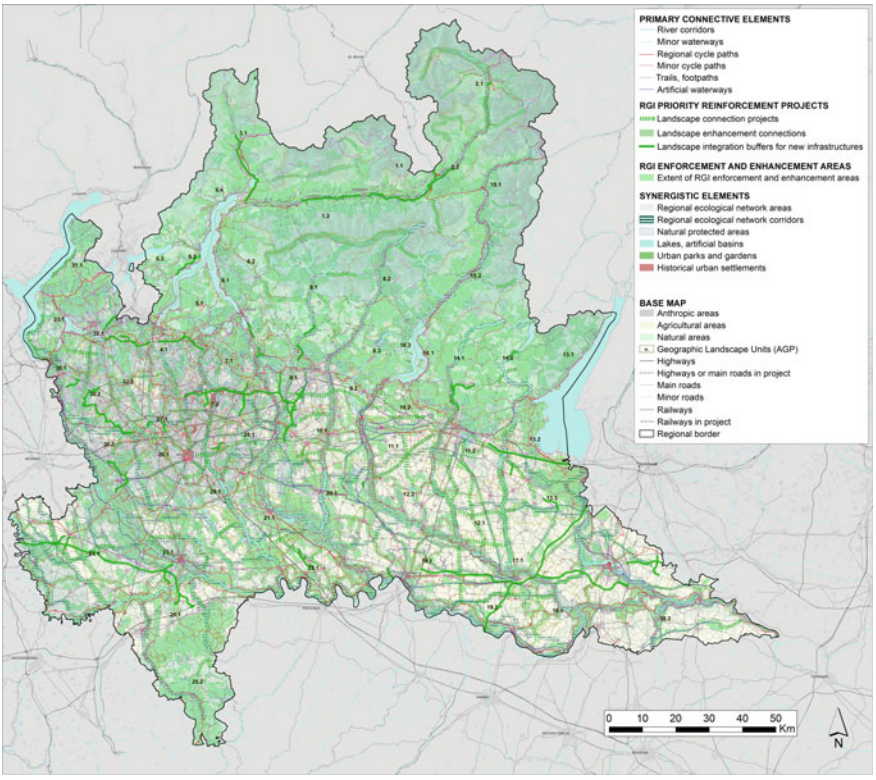

Fig. 6.1 Regional Green infrastructure (RGI) (above), detailed RGI for the area of Media and Alta Valtellina (below) (*Source* Authors elaboration)

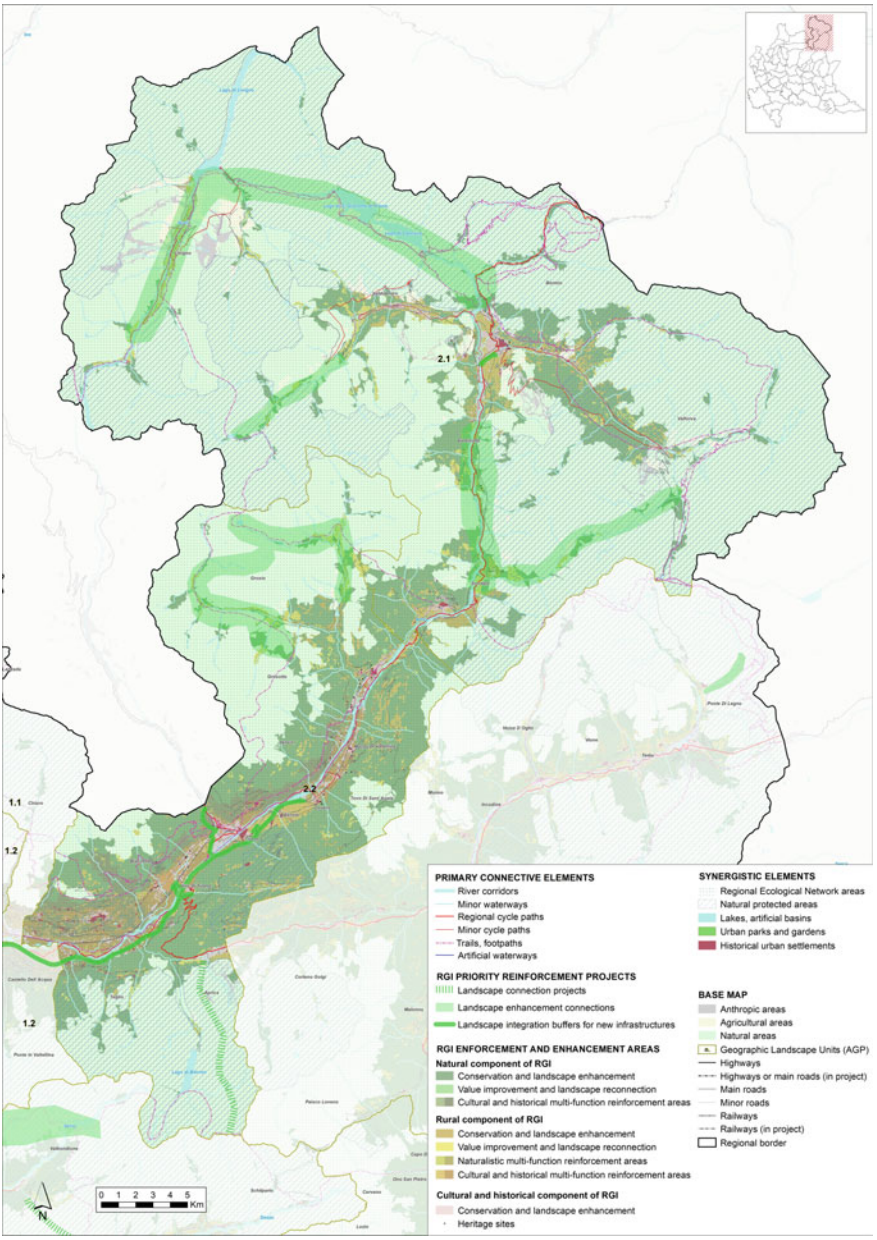

Fig. 6.1 (continued)

6.2 Quality Objectives for Landscapes in Lombardy

Dealing with landscape planning on a regional scale means approaching the landscape in its plurality (Gambino 1997), made up of rich and varied contexts, each characterised by its values and pressure dynamics that require measured responses concerning the specific characteristics of the areas. Whilst, on the one hand, the design of the RGI defines a consistent strategic and spatial structure for the entire region, on the other hand, the richness of the landscapes in Lombardy, together with the complexity of the distinguishing risk and pressure factors, has demanded the introduction of regional sub-divisions that overlay the RGI design synergically, contributing to the definition of more detailed operational guidelines and thus contributing to the pursuit of greater operational effectiveness of the large-scale vision (di Martino and Restelli 2021).

A first level of interpretation is represented by 'Landscapes of Lombardy', regional divisions on an intermediate scale that coincide with morphologically unitary macro-areas, and which are taken as a reference to identify a first set of general objectives for the protection and enhancement of the regional landscape. These macro-areas include: alpine mountain landscapes (distinguishing between the open landscapes of the high mountains, the alpine landscapes of the valleys and slopes, and the landscapes of the pre-alpine valleys); the landscape of the Apennines; the hilly landscapes (comprising on the one hand the landscapes of the foothills, hill conurbations, and moraine amphitheatres and on the other hand the valleys and ridges of the Apennines); lake landscapes; river landscapes (which have different characteristics depending on the environments they pass through, such as a high dry plain, a low irrigated plain, or the Po river valley system); the lowland landscapes (in turn divided into irrigated lowland landscapes planted with rice, feed, and cereal crops and the landscapes of the Oltrepò plain in the Pavese and Mantua areas), as well as the metropolitan conurbation landscape, which develops along the east–west axis between the Piedmont foothills and the northernmost part of the irrigated lowland, covering almost the entire dry plain.

Thus defined, the 'Landscapes of Lombardy' are also the main reference for identifying homogeneous features related to geographical, hydrological, geomorphological, environmental, ecological, anthropic, historical, and cultural components that have enabled the entire region to be further subdivided into 57 AGP.

The definition of smaller homogeneous units in the region is the first useful tool for addressing specific issues concerning the different regional and landscape environments and identifying targeted priority actions, facilitating the implementation of strategic guidelines developed on a regional scale through the definition of measures that can guide landscape planning decisions on a local and supra-local scale (Lussignoli 2014). In this sense, the AGP is both an analytic tool for the identification of the qualities and dynamics existing in individual homogeneous contexts and an operational tool through which to define quality objectives and strategic priorities to activate multi-scale landscape planning and regeneration processes, in response to

the specific risks and vulnerabilities in the areas, with reference to local peculiarities and qualities (Arcidiacono et al. 2016b).

The regional subdivision introduced through the AGP can thus outline a reference scenario on a supra-local scale through which to articulate in greater detail the strategies and guidelines defined at a regional level and thus identify a system of site-specific quality objectives for the safeguarding, protection, development, and regeneration of the landscape in the various homogeneous units.

The definition of landscape quality objectives and related operational guidelines to support local planning derives from a careful analysis and understanding of the values and pressure or degradation factors found in each AGP to reveal the landscape's structural elements. Precisely in order to maintain a multi-scale approach that always allows local themes and elements to be framed in terms of the broader regional context, the structural elements of the landscape and the related quality objectives are organised according to thematic territorial macro-systems that have also been used as a reference for other large-scale studies and analyses, including preliminary work for defining the RGI: the hydrological/geological/morphological system, natural ecosystems, rural systems, urbanised areas, and historical and cultural systems.

At the same time, we identify four strategic macro-objectives to guide the definition of more site-specific quality objectives on an AGP scale: (i) safeguarding and promoting the constituent features of the landscape, in terms of perception and culture; (ii) safeguarding and developing the ecological network and biodiversity to protect and strengthen the quality of the ecological functionality of both natural environments and areas affected by intense human activity; (iii) promoting sustainable ways to enjoy the environment and use its resources; and (iv) improving the conditions of quality and landscape/environmental compatibility of built-up areas and transformations.

Therefore, a grid of site-specific landscape quality objectives, organised according to a common regional matrix based on the previous mentioned territorial macro-systems, and on the four strategic macro-objectives listed above, is created for each AGP, defining a system of priorities for landscape protection, planning, or regeneration that overlap coherently with the design and strategic planning of the RGI.

This tool for addressing local planning decisions is organised in a series of summary data sheets for each AGP that also includes specific guidelines for implementing the RGI within the homogeneous landscape unit. It lays the foundations for the definition of planning actions to regenerate areas subjected to degradation, identifying the places that are in priority need of landscape planning strategies. The definition of objectives on a supra-local scale starts from the identification of the structural landscape elements of the AGP and can be a strategic tool to launch operations and projects on a supra-local scale that, grafted onto the strategic design of the RGI, can overcome the fragmentary nature of administrative limits, maximising the positive effects for the landscape and the Natural capital.

6.3 Synergies and Integrations Between the Landscape Quality Objectives and the Planning Actions of the Regional Green Infrastructure

In order to strengthen the connections between regional landscape strategies and local planning guidelines—considering the multi-scale relations and the relationships between large-scale plans and local projects as key principles of landscape planning (Gisotti 2016)—a pilot study has been launched that aims to clarify the correlations between the RGI project and the AGP quality objectives from regional to supra-local scale within the framework defined by the regional planning for the research areas.

The proposed study area is Media and Alta Valtellina, an Alpine area that stretches along the river Adda in the north-east quadrant of the Region, on the border with Switzerland. The context in question corresponds to AGP 2.1 (Alta Valtellina) and 2.2 (Valtellina di Tirano), as well as to the area of application of the 'Regional Plan for the Area of the Media and Alta Valtellina' (*Piano Territoriale Regionale d'Area*—PTRA).[1] The area is strongly affected by the landscape and regional transformations occurring in Alpine territories (Schirpke et al. 2013; Campagnaro et al. 2017; Jiménez-Olivencia et al. 2021); moreover, it assumes particular importance in view of the Milan-Cortina Winter Olympics Games scheduled for 2026, in which the area of Alta Valtellina will be one of the main competition venues, while Media Valtellina will be an important logistical and infrastructural hub and it will therefore undergo significant transformations.

The downscaling of the RGI project according to the AGP guidelines was divided into three main phases: (i) representation of the structural landscape elements in the area concerning the quality objectives identified in the corresponding AGP (Chapter 2) and RGI (Chapter 1) data sheets; (ii) making consistent the objectives of the strategic and directional guidelines contained in the various regional landscape planning tools (i.e. Landscapes of Lombardy, AGP, RGI, and Aggregations of constraints[2]), in the PTR and the main supra-local planning tools in force in the territories in question; iii) synthetic representation of the main strategic actions concerning the structural elements of the landscape, spatially located in the study area and deducible from cross-reading the planning tools examined (Fig. 6.2).

[1] The Regional Territorial Area Plans (PTRA) are strategic regional planning tools for the development of areas affected by regional or supra-regional works, operations, or functional destinations. PTRAs are identified by the Regional Territorial Plan (PTR), the supporting tool for regional governance in Lombardy. The PTR aims to render the strategic vision of general and sectoral planning consistent with the physical, environmental, economic, and social context of Lombardy.

[2] The 'Aggregations of properties and areas of landscape value' constitute one of the outcomes of the research to support the updating of the regional landscape planning tools and group together Lombardy's protected assets into *bellezze d'insieme* (ensemble of attractions), on the basis of homogeneous or significantly connected landscape, regional or geographical features, and into aggregations of *bellezze individue* (individual attractions) on the basis of similar characteristics. The Aggregations are described in detail in special data sheets, which also contain specific guidance and protection objectives.

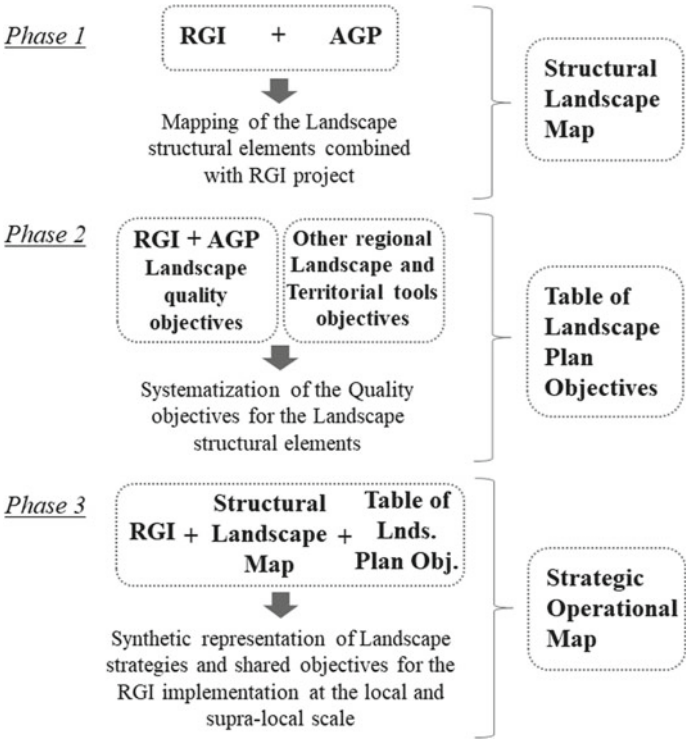

Fig. 6.2 Conceptual scheme of the Regional Green Infrastructure (RGI) downscaling process (*Source* Authors elaboration)

In the first phase of the work, the identification of the study area's structural landscape elements was derived from data sheets AGP 2.1 and AGP 2.2, particularly from the 'Quality Objectives' and the 'Guidelines for the Implementation of the RGI'.

The structural elements are organised following the matrix of the four thematic territorial macro-systems previously used for the AGP objectives, i.e. (i) hydrological, geological, and morphological systems; (ii) ecosystems, environment, and nature; (iii) agrarian and rural systems; (iv) areas affected by human activity and historical and cultural systems.

In the cartographic mapping (named Structural Landscape Map), the structural elements of the AGP are superimposed and combined with the design of the RGI, which, compared to its regional organisation, is developed in greater detail in terms of planning strategy on the scale of the specific AGP. The RGI interacts and is integrated with the structural landscape elements, qualifying as an additional design level that applies to areas of high ecosystem and landscape value. The superimposition of the RGI project on the structural elements of the landscape not only provides indications

of the concentration and distribution of landscape values, but also enables these elements to be scaled to support their local implementation.

The second phase of the work was devoted to the systematisation of the objectives envisaged for the Media and Alta Valtellina included in the several tools developed in support of the Lombardy landscape Plan and in the main regional planning tools (PTR, PTRA of the Media and Alta Valtellina), including in the comparison the main supra-local Plan (PTCP[3] of the Province of Sondrio). The objectives and strategic guidelines resulting from cross-reading these planning tools are set out in a synthetic matrix named 'Table of Landscape Plan Objectives'. The table supplements the 'Structural Landscape Map' enabling the objectives defined by the Plan tools for each structural landscape element to be viewed simultaneously.

The 'Table of Landscape Plan Objectives' first contemplates the quality objectives of the AGP data sheets, listed according to the four thematic territorial macro-systems of reference to which they belong. In addition, there are also the planning objectives associated with the various components of the RGI (i.e., General Objectives; Objectives for the Nature RGI; Objectives for the Rural RGI; Objectives for the Historical and Cultural RGI; Objectives for the Landscapes of Lombardy; Objectives for priority reinforcing projects) and those envisaged by the other tools considered.

The table is intended to guide planners and support policymakers in defining integrated methods of implementation shared among the different scales of action. In particular, concerning the GBI, the simultaneous reading of its objectives for individual landscape elements and the guidelines from other tools provide a coherent and coordinated planning framework among the different levels of planning acting in an area.

The third and final research phases involved the construction of a 'Strategic Operational Map' that defines the main regional areas subjected to thematic strategies common to the various tools of the plan.

The objectives included in the different tools of the plan have been aggregated into a synthetic set of shared planning objectives and mapped with reference to each structural element of the landscape. To maintain coherence with the various components of the Landscape Plan, the mapping of the shared objectives was organised according to the four main strategic macro-objectives that guided the definition of the site-specific quality objectives of the AGP, namely: (i) safeguarding and developing the constituent and identifying features of the landscape; (ii) safeguarding and improving the ecological network and biodiversity; (iii) promoting environmentally friendly exploitation; and (iv) improving the quality and compatibility of the landscape and environment.

[3] The Provincial Territorial Coordination Plan (*Piano Territoriale di Coordinamento Provinciale*—PTCP) defines the general objectives relating to the organization and protection of the territory in relation to provincial or supra-local interests or to the implementation of regional planning.

The ‘Strategic Operational Map’ is the tool that scales and details the project objectives, considering the RGI design. In this sense, the identification of specific thematic elements linked to the quality objectives of the AGP, located within the RGI areas, in itself defines certain procedures of local implementation of the RGI. For example, the location of the high-density conurbations identified by the ‘Strategic Operational Map’ guides the implementation of the green and blue systems envisaged by the RGI to counteract these trends and increase porosity in highly urbanised areas. At the same time, the spatialisation of residual crops or those subjected to trivialisation substantiates the RGI objectives dedicated to maintaining or restoring the landscapes in rural areas; the mapping of areas of typical local agricultural production and of the main historical and cultural sites of interest can, on the other hand, guide the local implementation of the objectives for landscape use and qualification.

In conclusion, the research presented aims to define a methodology that can be replicated in other areas of Lombardy and, more generally, in landscape strategies that include multi-scale integration processes. In this sense, organisation on different scales of the operations of a GBI, such as Lombardy’s GBI, and its interaction with multiple strategic and quality objectives, is a fruitful example for future developments in methodology and application (Fig. 6.3).

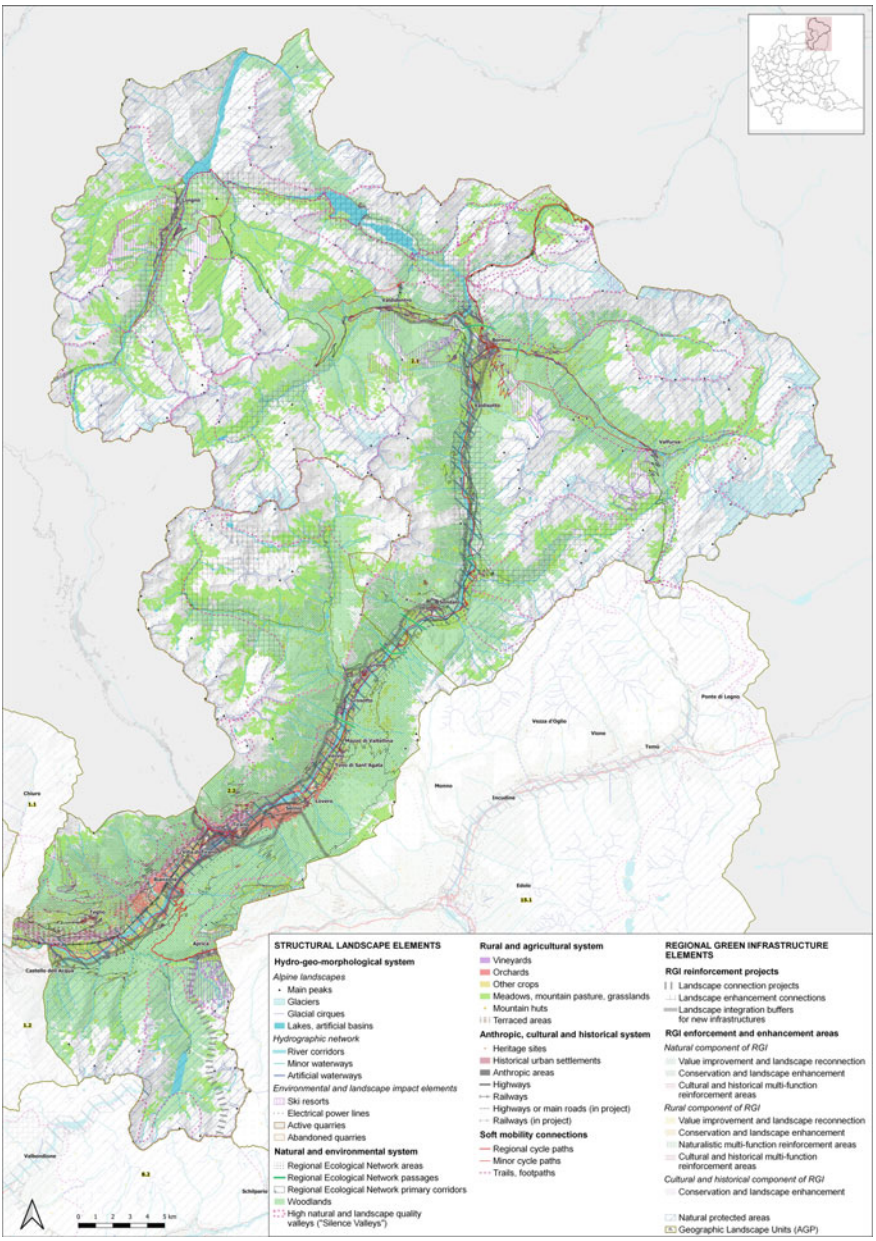

Fig. 6.3 Structural landscape map for the area of Media and Alta Valtellina (*Source* Authors elaboration)

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