

ID 1541 | PARTICIPATIVE APPROACH FOR DEVELOPING NATIONAL LEVEL GREEN INFRASTRUCTURE POLICY: A REFLECTION ON SLOVENIAN SPATIAL DEVELOPMENT STRATEGY

Nadja Penko Seidl¹; Mojca Golobic¹
¹University of Ljubljana, Biotechnical Faculty
nadja.penko@bf.uni-lj.si ; mojca.golobic@bf.uni-lj.si

1 INTRODUCTION

This paper addresses three issues:

1. First, the contents (outcomes), as well as the process of the development of Slovenian spatial development strategy 2030 (SPRS 2030) will be presented. SPRS is the strategic national planning document, which was adopted in 2004 and is currently in the process of revision.
2. Second, green infrastructure planning within the SPRS will be discussed.
3. And third, the findings from the evaluation study, explicitly analyzing the vertical and horizontal integration potential will be presented.

2 THE REVISION OF SLOVENIAN SPATIAL DEVELOPMENT STRATEGY

Slovenian spatial development strategy is a national strategic planning document. The strategy was adopted in 2004 and it's currently under the process of revision. The whole process follows the policy development cycle and can be divided in three basic steps: (1) first, spatial policy is adopted/developed, (2) second, measures and projects are implemented, and (3) third, the implementation of measures and projects is evaluated.



Figure 1 – Three basic steps of SPRS development (Source: Miklavčič et al., 2016, pp. 13)

After SPRS was adopted in 2004, several studies and evaluation reports have been prepared from to evaluate spatial development and the implementation of SPRS: Zero report on the status of spatial planning (Černe and Kušar, 2005), An analysis of current situation, development trends and guidelines for Slovenia spatial development (Pogačnik et al., 2011), SPRS 2030 - An analysis of the implementation of SPRS programmes and measures (Golobič et al., 2014). In 2016 Report on spatial development of Slovenia (Miklavčič et al., 2016) was prepared as a synthesis of all aforementioned reports. It also serves as expert groundwork for the preparation of new spatial development strategy.

The evaluation of spatial development on the basis of selected indexes has shown, the decline of implementation from the strategy's goals. According to SPRS 2030 - An analysis of implementation ... (Golobič et al., 2014) one of the main reasons for the gap between the goals and their implementation was weak vertical and horizontal integration, i.e. the ability of the spatial policy to coordinate other policies influencing the spatial development and weak control over local planning. The necessity that the document

would be accepted as their own among the stakeholders was recognized as an important improvement in this context.

Therefore, the revision of SPRS has been planned as a participatory process, where various sectoral policies and other public interests will be tuned. Different stakeholders are included in the preparatory process, and public debate is encouraged, to ensure that the new SPRS will be adopted as a document, which will be recognized as their own among different stakeholders.

2.1 SPRS 2030 TIMELINE AND PUBLIC PARTICIPATION

Although the Ministry of the environment and spatial planning has initiated the revision of SPRS already in 2013, the first activities have been launched in 2015, when baselines and process plan of the SPRS 2030 have been introduced. Inter-sectoral working group was formed and the first public consultation on the baselines of the SPRS 2030 was organized, followed by the on-line public conference. Later that year, the draft of SPRS 2030 goals and vision has been prepared. In the period from July 2015 to September 2017 several public conferences for different stakeholders and inter-sectoral meetings are being organized. Four thematic groups have been formed, where experts from different fields have been gathered to discuss four main topics: (1) functional urban areas, (2) possibilities for low-carbon society, (3) countryside and green infrastructure, and (4) mountain and border areas.

The results from all four thematic groups will be synthesized in “Spatial development model of Slovenia”, which will be developed in 2017. Later in 2017 and in the beginning of 2018, the draft version of SPRS 2030 will be put into public consultation and sectoral reconciliation. After that, the final document will be revised and adopted.



Figure 2 – The SPRS preparation process and public participation (Source: Prenova Strategije ...)

2.2 SPRS 2030 VISION, GOALS AND FOUR MAIN TOPICS

As it was discussed in previous subchapter, the whole process of SPRS 2030 revision is planned as participatory, where different stakeholders, public bodies, as well as general public are encouraged to cooperate within the process to achieve the common goal: spatial strategy, where various interests will be reconciliated and tuned in order to achieve resilient/sustainable spatial development.

The vision of spatial development is based on the values towards which the Slovenian society is oriented: solidarity, tolerance, cooperation, safety, peace, quality of life, innovative society, trust, knowledge, skills, identity, democracy, equality and efficiency. Slovenia in 2030 is a safe country, which ensures well-being and contentment of its citizens in healthy environment. People are closely connected to nature, cities are green and the process of suburbanization is controlled. Countryside is well-connected with cities, public services are accessible and its traditional cultural landscape is preserved. Natural resources are used sustainably, the country aims towards food and energy self-sufficiency. Citizens are proud on their country and they participate spatial planning policy development and implementation.

The strategy itself is based on the vision and five goals, which have been set in the beginning of SPRS 2030 development:

1. Rational and efficient spatial development.
2. Competitiveness of Slovenian towns.
3. High quality of life in towns and in countryside.
4. Slovenia's spatial identity.
5. Resilience (Vision and goals of the ..., 2016).

Each of the five main goals is divided into more specific sub-goals, which will be further elaborated in the strategy.

In the current strategy (SPRS 2004) guidelines for spatial development are presented within three main chapters: (1) settlement structure/pattern, (2) infrastructure, and (3) landscape, whereas in the revised strategy (SPRS 2030), a slightly different organization of topics is being introduced. Spatial development vision and goals are being elaborated/discussed/implemented within four main topics:

1. Functional urban areas,
2. Possibilities for low-carbon society,
3. Countryside and green infrastructure, and
4. Mountain and border areas.

For each of these topics, a thematic group with stakeholders from different fields has been formed. Four groups of researchers who are experts in the various fields of planning (e.g. spatial, regional and urban planning, landscape architecture, geography, agriculture, forestry) were developing the expert groundwork for each topic, whereas the Ministry of the environment and spatial planning led the whole process. Several meetings with the ministry as well as workshops with stakeholders have been organized. Stakeholders received the material in advance and have been asked to actively participate on the workshops where several questions have been discussed. All the comments and recommendations from the workshops have been discussed and on the basis of these recommendations the reports have been supplemented. A need for a joint workshop has been recognized after the first round of workshops, since especially the topics (1) Functional urban areas, (3a) Countryside and (4) Mountain and border areas have been recognized as overlapping and intertwining. For the purposes of the second workshop, six types of areas have been determined and discussed:

- Urban areas (1),
- Suburban countryside areas (1+3a),
- Suburban border areas (1+4),
- Border countryside areas on lower altitudes (3a+4),
- Border countryside areas on higher altitudes (3a+4), and
- Mountain areas (4).

One of the main emphases of the workshop was the discussion on SPRS 2030 goals and the means/measures for achieving these goals within abovementioned areas as well as within different fields/topics (e.g. (2) low-carbon society, (3b) green infrastructure). The latter have been discussed separately, whereas the goals and measures for their implementation do not necessarily follow the abovementioned typology. The results from each group as well as the results from joint workshop will serve as the expert groundwork for the strategy.

3 GREEN INFRASTRUCTURE (GI) PLANNING

3.1 THEORETICAL BACKGROUND FOR GI DEVELOPMENT

According to Dige et al. (2014, 8), green infrastructure is defined as: "... a tool for providing ecological, economic and social benefits through natural solutions, helping us to understand the advantages nature offers human society and to mobilise investments that sustain and enhance these benefits." Naumann et al. (2011, 1) understand GI as: "...the network of natural and semi-natural areas, features and green spaces in rural and urban, and terrestrial, freshwater, coastal and marine areas, which together enhance ecosystem health and resilience, contribute to biodiversity conservation and benefit human populations through the maintenance and enhancement of ecosystem services. Green infrastructure can be

strengthened through strategic and co-ordinated initiatives that focus on maintaining, restoring, improving and connecting existing areas and features as well as creating new areas and features.”

On the basis of the above mentioned definitions, the main characteristics of GI and the objectives, which guided the development of GI concept within SPRS 2030 have been defined:

1. GI should not be considered just the result of a planning process but also as the process itself. GI planning is a strategic approach to conservation planning (McDonald et al., 2005), combining the planning methodologies from ecological planning (Ndubisi, 2002) with the key principles of landscape ecology (Ahern, 2007). The knowledge of ecological systems’ structure and functioning is derived from landscape ecology, whereas ecological planning methods enable planning and management of landscape changes in a way that various functions of GI are preserved and/or enhanced.
2. GI is a system of interlinked elements and processes, which provide various functions on different levels. Three basic elements of GI can be identified: (a) hubs as the core areas, interlinked with (b) corridors and (c) stepping stones. GI is a dynamic system, where constant flows of energy and material among and within its elements maintains equilibrium of the whole system.
3. Three principles guide the development of GI: (a) heterogeneity among and within its elements, (b) connectivity among different elements of the whole system and (c) multifunctionality of its elements as well as the system as a whole.
4. GI is hierarchical system and all sub-systems need to be in balance in order to the system as a whole functions well. Different functions are emphasized on different levels and within different spatial contexts. On the international (continental) level, GI has a key role in providing ecosystem and ecological functions, whereas on urban level, social and cultural functions are emphasized.
5. Regarding the (wider) spatial context, four different strategies can be applied in GI planning: (a) protective, (b) defensive, (c) offensive and (d) opportunistic (Ahern, 1995). In GI planning several strategies are usually combined in order to achieve the consistency of system.

3.2 GREEN INFRASTRUCTURE CONCEPT WITHIN SPRS 2030

As it was already discussed in the previous chapter, green infrastructure has been recognized as one of the main topics in the SPRS 2030. Although Slovenia is characterized by well-preserved natural environment, deviations from goals, set in the SPRS 2004 often result in negative impact on green infrastructure. Urban sprawl, non-rational land use for industrial zones and adjacent infrastructure, and also forest overgrowth have been recognized to have the biggest negative impact on green infrastructure.

The necessity to address the issue of green infrastructure on the national level, as well as to interlink the national GI concept within international environment, and, to set the guidelines for the development of GI on regional and urban level, has resulted in the inclusion of GI into one of the four main topics of SPRS 2030.

Considering the theoretical background of GI planning and the Slovenian spatial context, the concept of GI planning within SPRS 2030 was based on objectives from the chapter 3.1.

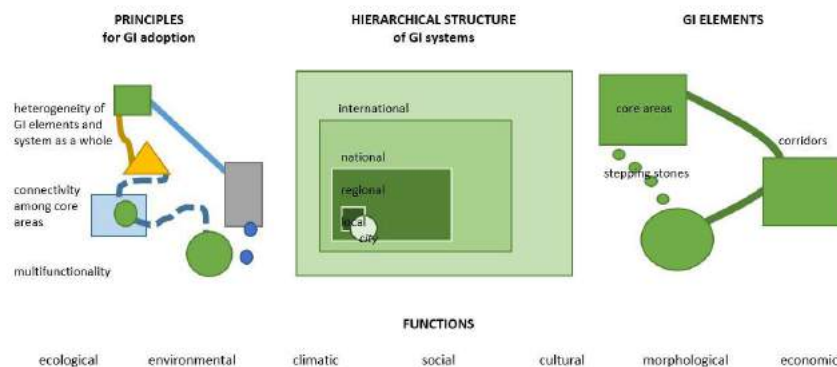


Figure 3 – Different aspects considered in GI planning for SPRS 2030

3.2.1 THE DEVELOPMENT OF GI ON NATIONAL LEVEL

Since SPRS 2030 is a national planning document, GI concept has been based on national level. The connections to international, European level have also been considered, since almost whole Slovene territory is considered as a conservation area within European GI network, while it provides ecosystem services and represents an important habitat area within Europe.

Therefore GI concept on national level (Figure 4) has been developed on two main hubs, which are both a part of important naturally preserved areas in European context: Alpine and Dinaric area. Four main watercourses: Sava, Drava, Mura and Soča are the most important corridors, which interconnect national GI system with neighboring countries, and, stepping stones between two core areas should be defined to enable key ecosystem functions on European level (e.g. migration of big mammals).

Elements, which form a backbone of GI on the national level, the measures for their selection/inclusion, and functions of proposed elements have been proposed and discussed on the final joint workshop with stakeholders.

Furthermore, guidelines for the development of GI on regional and local levels have been set, as well as guidelines for the development of urban GI.

River corridors	Rivers Sava, Drava, Mura and Soča	Corridors	xx	x	x	x	x	xx	0
Landscapes of national importance	Areas which overlay with above mentioned elements; stepping stones within intensively cultivated/densely populated landscape	Core areas/stepping stones: cultural landscape	0	0	0	x	xx	xx	x
Outstanding landscapes									
Forests with important ecological function	All	Core areas: managed natural landscape	xx	xx	xx	xx	x	0	0
Forests with important social function									
Conservation forests			xx	xx	x	0	0	0	0
Forest reserves									
Agricultural land	High nature value farmlands; agricultural land of lower quality and not within larger agricultural complexes	Core areas/stepping stones: cultural landscape	x	0	0	x	x	x	x
National nature conservation areas	Landscape and regional parks which serve as stepping stones and corridors	Core areas: managed natural and cultural landscape	x	x	0	x	x	x	x
Biosphere reserves	Areas within intensively cultivated landscape, stepping stones	Core areas/corridors: biosphere reserves	x	x	0	0	0	0	0
Habitats of large carnivores	Partly included as Natura 2000 areas; migrations	Core areas and corridors	x	x	0	0	0	0	0
* The importance of each function for the national level GI system as a whole is evaluated on 5-stage scale; value 1 means that the function is of no/minor importance on the national level and value 5 means that the function is of major importance on the national level.									
** The importance of individual elements' function is evaluated on three stage scale: xx – function of great importance, x – function of medium importance, 0 – function of minor or no importance.									
E – economic, S – social, P – physical (reference to Figure 6)									

Table 1 – GI elements, functions and measures for inclusion of elements into national GI system (Source: Penko Seidl et al., 2017)

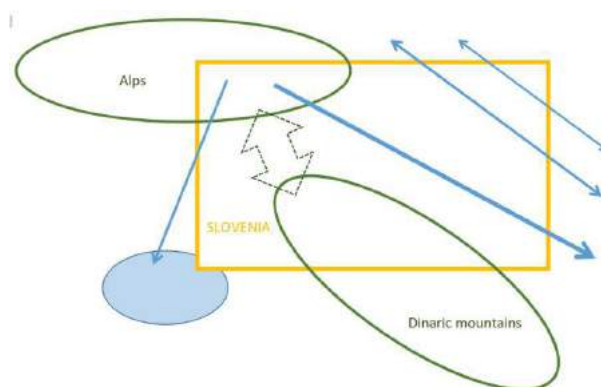


Figure 4 – The concept for GI development on national level

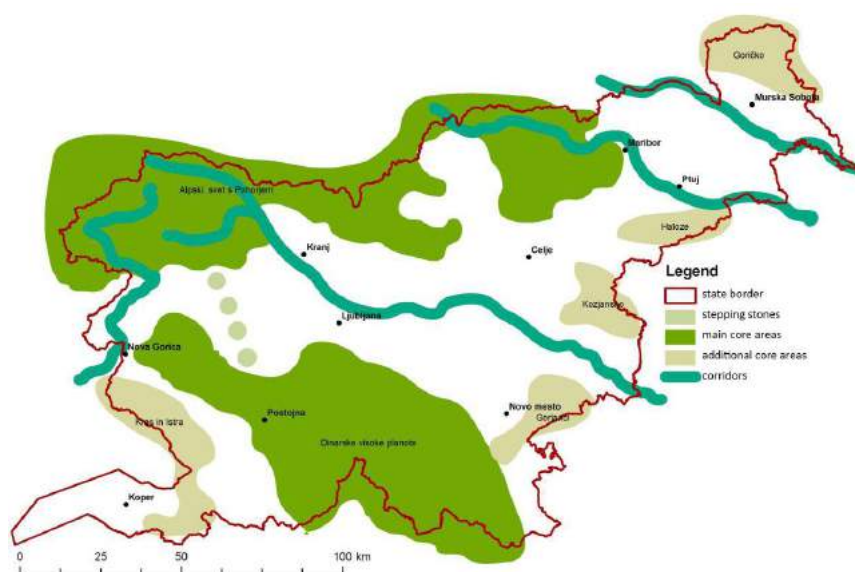


Figure 5 - Green infrastructure on national level

4 STRATEGIC (EX-ANTE) EVALUATION OF SPRS

Strategic evaluation has been commissioned in spring 2016 in parallel to the process of SPRS 2030 development with the aim to support its coherence, relevance and effectiveness in terms of achieving territorial cohesion. The concept of territorial cohesion (Camagni 2007, EATIA 2011) has been chosen as a reference for SPRS 2030 as well as its strategic evaluation (Figure 6). As space is a limited natural resource, the only possibility for an increased efficiency of its use (without overusing and degrading it) is in its multifunctionality, which in parallel brings synergistic effect to its users and increases territorial cohesion (territorial identity, efficiency and quality). The priority should therefore be given to projects and measures according to their overlapping and synergistic function.

The interim report of the strategic evaluation (November 2016) focused on intervention logic of spatial development policy. The findings from the previous research (Pogačnik et al., 2011, Zavodnik Lamovšek et al., 2014, Golobič et al., 2014) indicated that the results of spatial development diverged from the set objectives of spatial policy. The gap between the formal consistence of different sectoral documents with spatial objectives and actual outcomes, indicate serious shortcomings in policy implementation. One of the main reasons is inappropriate intervention logic of the spatial policy. While its objectives underline interdisciplinary and trans-sectorial approaches, the policy measures predominantly rely on normative and top-down implementation. These are too weak in the circumstances of complicated administrative processes, unclear and often changing competences of different administrations and low level of trust among the stakeholders. The new vision, as formulated within SPRS 2050 (Bartol et al., 2016), recognized this problem and promotes change towards more participative and communicative approaches to spatial management. However, the process of SPRS 2030 preparation until now did not succeed to showcase such approach. Despite its declared participativeness, supported by a large number of organized events

and involved persons, the actual stakeholders' contribution and level of commitment is questionable. The competence and formal (political, administrative) power and responsibility of involved representatives was low, and the process was too loosely organized to achieve the communicative process. The evaluation team proposed to adopt a more structured process, which would require (1) for each sector to indicate own priorities, (2) to identify overlapping issues between the spatial and every other relevant sector (as synergistic or conflicting), and (3) to develop the proposals for projects and measures, which would support the synergistic and resolve the conflicting issues. To enable this process and improve the spatial policy implementation, a few measures need to be enforced: electronic evidence on land use and related regimes, land management (financial) instruments, intersectoral body with clear responsibilities and regional planning.

As regards green infrastructure, the multifunctionality and territorial cohesion concept are of key importance. The hierarchy and priority as well as guidelines for planning and management should be defined according to principal and overlapping functions of GI: economic - E, social - S or physical - P (see Table 1); and their contributions to territorial cohesion; i.e. territorial identity (Ti), effectiveness (Te) or quality (Tq). As can be concluded from Table 1; the elements most contributing to territorial cohesion (TC) are: nature conservation areas/national, landscape and regional parks and high nature value farmlands; (contributing to all elements of TC), Natura 2000 and forests with important ecological function (contributing to Tq) and landscapes of national importance (contributing to Ti).

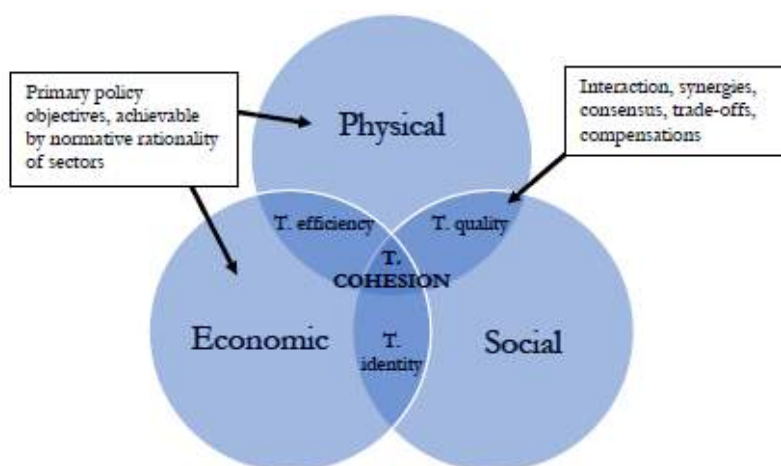


Figure 6 – The concept of territorial cohesion

5 CONCLUSIONS

Three issues have been addressed and discussed in this paper:

1. The process of preparation of Slovenian spatial development strategy,
2. The role of green infrastructure planning within SPRS, and
3. The strategic evaluation of the process as well as the document.

Spatial development in Slovenia since the adoption of SPRS 2004 diverged from the set objectives of spatial policy. According to the strategic evaluation for the policy revision, the main reasons is inappropriate intervention logic of the spatial policy. While its objectives underline interdisciplinary and trans-sectorial approaches, the policy measures predominantly rely on normative and top-down implementation. Accordingly, different stakeholders did not accept the strategy as their own development opportunity. The new vision, as formulated within SPRS 2050 (Bartol et al., 2016), recognized this problem and promotes change towards more participative and communicative approaches to spatial management. Therefore, the process of SPRS revision has been set as a participatory one, where different stakeholders are included in the preparation of the document. But the inclusion of various stakeholders into the process often means the collision of diverse value systems and consequently diverse ends and means for their achievement. Reconciliation of all these interests and appetites has proved to be a challenging process. According to findings of strategic evaluation of the SPRS 2030, this shift was not completely successful. Despite a large number of organized events and involved persons, the actual stakeholders' contribution

and level of commitment is questionable. A more structured process would be required, consisting of the following steps (1) for each sector to indicate own priorities, (2) to identify overlapping issues between the spatial and every other relevant sector (as synergistic or conflicting), and (3) to develop the proposals for projects and measures, which would support the synergistic and resolve the conflicting issues.

The deviation from goals, set in SPRS 2004 has resulted also in negative impacts on natural environment. The development of green infrastructure concept on national level is an attempt to strategically plan and manage (generally well preserved) natural environment in order to implement various functions. The concept was based on the interconnection of different types of naturally preserved areas, which create a backbone of national green infrastructure, provide opportunities for inclusion into international GI system, as well as set guidelines to establish GI on regional and local level.

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ID 1550 | MODELING ECOLOGICAL NETWORKS AND LAND VALUE FOR THE PRIORITIZATION OF NATURAL AREAS CONSERVATION

Laurent Martinez¹

¹IRSTEA Grenoble, UMR PACTE

laurent.martinez@irstea.fr

1 INTRODUCTION

The strategy promoting Green Infrastructure (GI) from European institutions (2013) considers the spatial structuration of (semi) natural areas as a network and resulting environmental features impacting populations. The strength of the GI's approach lies in the effort to integrate the ecological and social values of natural areas in combination with other land development (Laforteza et al. 2013): this strategy encourage an integrated approach of space planning at different scales and promote the multiple services associated with natural areas. From a conservation biologist perspective, it is not a new idea, since it is based on environmental continuity, ecological networks and landscape connectivity. Yet, considering natural landscape as a network that offers a structural frame for the development of the biodiversity of tomorrow (and secure some ESS for our societies) forces to rethink our spatial planning approaches.

Landscapes are seen in this paper as a dynamic and structured spaces with a social dimension where management and planning play a key role. Physically, landscapes are composed of artificialized components (Grey infrastructure) and natural components (Green infrastructures) in interaction.

In France, planning process is historically a top-down process based on technical and professional expertise. After several decades of planning at national scale, French government tends to give more decisional power to regional and local scales (i.e., decentralization). Multiple guidance documents of soft planning such as SCOT (Schéma de Cohérence Territoriale/ territorial coherence program), present a mix between national, regional strategies and the translation of European directives about environment and socio-economy. Town planning regulations are now framed by this soft planning, but local collectivities still have to adapt it, dealing with all the contextual and operational components. Their task is to spatially, legally and institutionally define and regulate urbanistic rules at the finest scale (hard planning; Purkarthofer, 2016). Moreover, the planning process is gently opening to democratic participation with mitigate successes. We will focus on a problem coming from the difficulties to take account of the different values of natural areas. These values correspond to different estimations of natural areas in ecological or socio-economical terms.

Findings some tools that could shed light on the importance of the identified stakes are requested, especially in urban areas with high levels of artificialization and under sprawl dynamic. Several tools have already been developed to assess values of natural areas or values of landscapes but they are poorly transferred together to operational field because of their focus on a single value. From conservation