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Chapter 4

Models of Implementation of Spatial Plans: Theoretical Approach and Case Studies for Spatial Plans for the Special Purpose Area

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Additional information is available at the end of the chapter

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Abstract

The implementation of spatial plans is the weakest link of planning; it is insufficiently theoretically explored, methodologically unpositioned and in practice only partially carried out. The main direction in considering improvements in the implementation of plans is that it must be viewed and focused by means of spatial plans in order to as much as possible reduce the impact of all those factors outside the planning system. The study points to the need for and offers the definition of a model of implementation for spatial plans rooted in the theory of planning. The elements and contents of the proposed model of implementation suggest a logical, functional and temporal coherence of all planning decisions covered by the plan. The process of implementing the plan depends directly on the type and method of planning. Four basic models of implementation are defined. The results of research on the application of the implementation model in spatial planning practice in the Republic of Serbia are presented. These are obtained on the basis of multicriteria comparative analysis carried out on a case study of 11 spatial plans. The chapter suggests possible directions for further study, primarily in terms of applying the model of implementation in practice.

Keywords: implementation, model, element, spatial plan, special purpose, planning solution

1. Introduction

Implementation in spatial planning can be defined in several ways. Bearing in mind the basic axiom of planning that making plans is only meaningful if they are going to be realized, it is

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expected from spatial planning that plans include and consider their realization. This axiom is acceptable, provided that at the very beginning the difference is clearly made between the terms "realization" and "implementation." The term "realization" refers to actual physical functioning in the space, while the term "implementation" has a wider meaning and includes not only the realization but also the whole range of conduct in accordance with and on the basis of the plan. It is therefore more acceptable to use "realization" for the construction of individual systems and facilities, which is the planning solution, or in the design and construction of a building, like in urban planning. "Implementation" is essentially more related to the spatial plans and the set of planning solutions that may include construction, policy and the strategy of behavior in space, as well as protection of space, the possibility of applying a rule, and so on, and it is therefore justifiable and necessary to use it for the purposes of spatial planning.

In recent years, as the traditionalist (strictly expert) approach to planning has weakened, implementation has become perhaps the most important question of the theory and practice of planning. From the moment when planning began to be seen from the standpoint of the connection between the development of planning decisions (solutions) and carrying them out, planning implementation, together with planning evaluation, has become of central importance in relation to the other phases of the planning process, which is emphasized in the rational planning approach [1, 2]. The view is taken that executing planning decisions is the least developed field of planning, that is, the most complex and the weakest link in the chain of planning. It has been observed that implementation should not be just part of the plan and the mechanical completion of the plan, but that the overall logic of the planning interaction must be subordinate to the possibilities and means for the planning implementation. The progress so far is largely linked to the theoretical understanding of the problem of implementation, as well as improved access to organizational aspects, while some progress has also been made in terms of implementational methods and techniques.

This chapter focuses on the theoretical assumptions of a model of implementation for spatial plans and possible types of models, with consideration of the possibilities and dependencies of applying particular models of types and methods of planning, as well as ownership relationships.

The basic theoretical assumptions regarding the recognition and application of the implementation model for spatial plans were verified on actual examples from practice, through comparative analysis in a case study of 11 spatial plans for special purpose areas that have been prepared in recent years for priority development areas in the Republic of Serbia.

2. Implementation in the theory of planning

The theory of planning offers many planning concepts and ways to classify them. Each of the modalities of planning includes different views on implementation with different criteria for evaluating success:

- Control (regulative) planning is the responsibility of state institutions and it has distinct attributes of centralization. The planning authorities are usually institutionalized and have

an apparatus of legislative and administrative control and sanctions. Implementation comes down to the obligation of all participants in the planning process to comply with regulations. Institutions for planning secure mechanisms for carrying out planning solutions and those who violate the regulations are sanctioned. In the theory of planning, this kind of implementation model is characterized as "freedom of action, but on a short lead" [3].

- Initiative (project) planning is the responsibility of public and private institutions which have the means of implementation. This modality of planning relies on the creation of new projects (construction, engineering, social, etc.). Implementation is in this model most clearly understood in comparison with other modalities of planning. The institution for planning initiates the process, allocates the resources and has significant control in terms of the duration and dynamics of the realization of the project. It depends on the other institutions and plans in the process of obtaining the necessary permits for the realization, but control over implementation is less direct compared to other forms of planning. Implementation in this model is mainly shaped by organizational questions, the enterprise of the institution and the characteristics of the space for which the plan is made [4].

- Planning through policies (indicative planning in France) means planning policies that are formulated as positions on the wishes and ideas of planning institutions, with the aim of influencing their decision-making, and the policies should be a recommendation or guide to other institutions or individuals. In terms of implementation, there is a reduced level of strictness and obligation compared to control planning. Full compliance with planning policy is not expected, and noncompliance with the actions and policies from the plan is not considered to be the failure of implementation. The implementation process actually represents an attempt to formulate policies that could connect and coordinate with the different interests in the space. The role of the planner in the implementation process is based on coordination between institutions, promoting the formulated policies and engagement in obtaining political and economic support. In France, a variation of this concept has been developed known as "indicative planning" [5]. Policies are published periodically by the state, and it can be expected that private individuals, if they adhere to them, gain certain benefits.

- Transactive and advocacy planning is a process of exchange between semiautonomous groups, each of which formulates its own goals and policies. In this process, it can happen that there is no longer a body that regulates the process of exchange [6]. In the classical conception of this kind of planning, alternative plans are presented to a planning institution that plays the role of a judge [7]. The success or failure of implementation in the framework of these modalities is not easy to formulate because it depends on the viewpoint and interests of each interested party. The role of planners in this is to promote their own interests or the interests of their group, through negotiation, settlement, finding support, giving opinions, and so on.

- Radical planning is least known in the theory of planning. It is characterized by a large number of subpatterns and perceptions but they have in common the tendency toward a radical restructuring of the social and economic institutions in the system [8]. As with the previously mentioned modalities of planning, the process of implementation here can be considered to have a strong reliance on the tendency toward significant policy changes.

- Utopian planning is a traditional modality with a marked aspiration for a better quality of life. It does not imply the existence of any kind of institution for implementation. Utopian planning is by definition against all implementations or it is better to say that with this kind of planning, implementation is expressed by means of offering much needed ideas and valuable judgments to the planning [3].

McLoughlin gave a close description of implementation in planning practice by means of his cybernetic approach and viewpoint, in which he defines implementation as a process of leadership and control, that is, "error-controlled regulation" [9]. This kind of approach considers the planner to be the manager of the town or space for which the plan is being produced, whose attention is focused on the plan, or the planned pathway for the future state through which the town needs to pass, as well as observations which show its actual state. In order to focus the definition of the concept of implementation on the target area of spatial and urban planning, it is essential to give an explanation of implementation as microorganizational behavior which explains "the manner of defining and using policy, the spatial allocation of resources and revenue from operations" [4]. If we identify the way, we define policy with the way we define planning solutions (which to a certain extent are in themselves a form of policy), and identify the use of policy with instruments of implementation from planning practice (organizational, legal, financial, etc.) and if we consider the spatial allocation of resources as planning solutions that influence the space, and revenue as one of the objectives of planning, we can conclude that this definition reflects implementation in planning.

Implementation in spatial planning specifically includes planning solutions and instruments which should ensure their realization. In other words, the implementation of the plan should include answers to the questions: how should something be done?; who should do it?; when should it be completed?; with what means should it be done?; and so on. Because of this, some planners have begun to classify the instruments of implementation, for example, as legal, financial, economic, organizational and technical [10], which has found its application in practice.

The theory of planning is so complex, with a very complicated subject of study and a large number of definitions, that every attempt at systematization is a demanding and serious undertaking. One of the most practical ways of systematizing the features of planning which is of significance to implementation was given by Lewis and Flynn [11]. According to these authors, it is particularly important to point out the mixture of modalities of implementation, based on the assumption that in an actual planning situation, there will be a number of the given modalities of implementation present parallelly at the same time. However, the mechanisms of planning and mixtures of modalities of implementation in practice have not been tested. Also, Lewis and Flynn suggest that the success of the implementation will largely depend on the knowledge, experience and conscience of the planner, as well as on the extent to which the planning institution succeeds in identifying the actual spatial interests of the population, companies and other entities. Ensuring adequate public participation in the planning process should help the implementation of plans. The success of implementation at all levels of planning will largely depend on the ability of the state and planners to reconcile public and private interests in the space in an effective manner.

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For successful implementation, it is crucial that the planning objectives are suitably structured, from general orientation, through relatively firm target propositions, to very definite statements in terms of content, time and space [12]. This is understood to include a large number of individual requirements, which if fulfilled facilitate the implementation of planning decisions. According to Johansen, plans must have internal consistency, which includes the following: individual parts of the plan are not allowed to be contradictory toward each other, that is, evaluation of the status and objectives must be compatible with the structure of what is being planned; its parts must be consistent with each other; and the objectives must be compatible with the measures and instruments [13]. According to Barras and Broadbent, a plan must meet the following requirements: specific stipulations; avoid excessive complexity and detail; avoid fragmentation and be directed toward the whole plan; give attention to those problems that can be solved; structure the objectives within the framework of a coherent set of general, specific and detailed planning decisions; and connection with the measures and instruments from other fields [14].

When considering the problem of implementation, some authors have connected and observed it alongside the process of evaluation [1, 2, 15, 16]. At the time when the rationalist approach to planning dominated, it was observed that sometimes planning actions did not target the achievement of planning decisions, but rather something else. At the same time, growing significance in the theory and practice of planning is being given to the institutional and organizational aspects of implementing planning decisions.

The main conclusion of the majority of authors researching the implementation of plans is that the role of implementation is basically dependent on the planning approach (method) used. The implementation of planning decisions basically depends on the role, or idea of what the plan should be, and the quality of the plan directly affects the success of implementation [17]. In practice, regardless of the school (type) of planning, plans may be visionary plans; detailed plans; plans as a set of guidelines (e.g., for using land, managing development, etc.); plans as a means of solving specific problems; plans as a means of attracting investment; plans for communication and interaction; plans as policies; and so on [18]. Except for visionary plans, for the majority of other planning approaches, that is, models, it is important to achieve the objectives of the planning venture; so they most often include their own instructions and guidelines for implementation. In addition, the combination of different approaches in planning, such as planning through visions and scenarios of development and planning through definite models of land use, transport and others, can give best results, especially in terms of harmonizing the interests of different subjects of planning [19].

When it comes to the type of plan (theoretically speaking), there is an interesting proposal by Elmore on planning (mapping) backwards [20]. Instead of the conventional way of planning ahead in which the goals are determined first of all, followed by defining the steps that need to be taken in order to achieve them, this approach first assesses the possibility of achieving the goals and implementing the planning decisions on the basis of insight into the possibilities and means available from the potential actors of implementation, and only after that is the construction of goals and planning concepts approached.

Regardless of the direction in which the planning theory progresses, there is no doubt that the study of implementation will always be an integral part of it. Therefore, systematic research into implementation has become more and more common, with the goal of identifying and understanding all relevant factors that may affect the success or failure of the implementation of planning policies. At the same time, the implementation of plans will not only be a subject of interest for professional planners but also for all those who participate in the implementation of policies because the implementation of plans is not carried out by making other plans, a fact which a serious society should not forget.

A good way to finish these considerations on the mainly theoretical postulates of implementation in spatial planning is by quoting Allmendinger, who says that even when a plan is done well, its implementation is a constantly moving target [21].

3. The hypothetical assumptions of implementing spatial plans

The basic hypothetical position is that the link in the procedure called adoption of the plan is neither the end of planning nor the beginning of implementation. From the moment of adopting the plan, the implementation process is underway and can only be fictitiously divided into the "planning" part that preceded it and the "post-planning" that is just beginning. It is necessary to consider implementation as a unique process that begins with producing a plan (or even earlier during the preparations for developing the plan) and does not finish with the plan's adoption, but rather continuously focuses on the development of the plan [22].

From the moment when planning came to be seen from the viewpoint of the connection between the development of planning decisions (solutions) and carrying them out, Vujošević points out that the implementation of plans, together with their evaluation, has become of central importance in relation to the second phase of the planning process [1], which is emphatic in the process of rational planning [2]. The position was taken that the exercise of planning decisions is the least developed field of planning, that is, the most complex and weakest link in the chain of planning. It was noted that implementation must not only be part of the plan and the mechanical completion of the plan but rather that the overall logic of the planning interaction must be subordinate to the possibilities and means of planning implementation. In this way, the progress so far is largely linked to a theoretical understanding of the problem of implementation, as well as to improved access to organizational aspects, while certain progress has been made in terms of implementation methods and techniques.

Boisier highlights that for successful implementation, it is of key importance that planning objectives are suitably structured, starting from general decisions, through relatively firm target propositions, to very definite statements in terms of content, time and space, that is, the emphasis is placed on the mentioned "planning" elements of implementation [12].

Johansen has the striking attitude that implementation is constantly interacting with the planning conception and policies, and he emphasizes that plans must have internal consistency, which includes the following: individual parts of the plan are not allowed to contradict

each other, that is, the evaluation of the status and goals must be compatible with the structure of what is planned; the parts must be consistent with each other; and the objectives must be consistent with the measures and instruments [13]. Barras and Broadbent hold a similar position on the requirements that a plan needs to meet: to have specific stipulations; avoid excessive complexity and detail; avoid fragmentation and be directed toward the whole plan; give attention to those problems that can be solved; structure the objectives within the framework of a coherent set of general, special and detailed planning decisions; and connect with the measures and instruments from other fields [14].

These authors confirm that in the planning community, there must be a genuine determination that the objectives and policies will be carried out, which excludes "pseudo" and "quasi" plans. Funds for putting plans into practice must really be available, which should lead to a direct relationship with defining the necessary strategies and appropriate policies. In other words, the whole system must be logical, functional and time-coherent.

These positions support the claim that implementation is more than a merely detailed realization, that is, that the category in itself includes both the plan and all its elements, and everything that happens after the plan. It can even be said that in terms of time and content, implementation is "something more" than just plans and the realization of a larger or smaller set of concrete solutions. Implementation is determined by the whole planning process and in direct relationship (interaction, correlation) with the methodology and elements of the planning system. Strongholds for the attitudes mentioned earlier exist in the theory of planning and in the research of individual authors.

The concluding remarks are obtained from the authors' key standpoints that the implementation of plans is methodologically unclear and unpositioned, that implementation should be considered as a unique continuous process that begins with creating a plan and that implementation includes "planning" and "post-planning" elements as well as monitoring, evaluation and institutional and organizational aspects.

4. Model of implementation of spatial plan

There are different starting points for analyzing the model of implementation for spatial plans, from those that are based on the need to consider interests (state and/or private) as a priority and their mutual correlation in the planning area [23] to integral planning in which different models of planning are offered which are defined depending on the functions and attributes of the space [24].

Bearing in mind what has been presented, we can conclude at the same time that planning and implementation directly depend on the type of land ownership on the one hand, and the type, that is, the subject, of planning on the other hand. Most authors who have studied the theory of implementation have a similar conclusion, stating that the role of implementation is basically dependent on the planning approach (method) applied, that is, on the role and idea of what the plan should be. So Baer distinguishes visionary plans; detailed plans; plans as a set of guidelines (e.g., for using land, managing development, etc.); plans as a means of solving specific problems;

plans as a means of attracting investment; plans for communication and interaction; plans as policies; and so on [18]. Except for visionary plans, for the majority of other planning approaches, that is, models, it is important to achieve the objectives of the planning venture; so they most often include their own instructions and guidelines for implementation. Vujošević poses the elementary question of what implementation actually is (its role, character, object, etc.) and what it depends on in relation to the types and methods of planning [1].

The views stated so far lead to the basic conclusion of the authors of this chapter that it is necessary to define and develop a theoretical model of implementation for spatial planning and determine the basic types of models of implementation for plans.

Bearing in mind all these theoretical assumptions and arguments, the definition of a model of implementation, according to the authors of this work, should be based on:

- the definition of the model as (1) the basic pattern by which something is made or (2) an approximate description of an occurrence or construction in the real world, with the help of mathematical symbols;
- the definition of planning as a process of preparing a set of decisions on actions in the future, which is focused on the achievement of objectives using preferred means [25];
- the position that implementation is a unique continuous process that begins with creating a plan and which includes "planning" and "post-planning" elements, as well as monitoring, evaluation and institutional and organizational aspects, that is, that implementation is not a process that begins only after the adoption of a plan;
- the necessity for the whole planning system to be logical, functional and time-coherent (for successful implementation, it is crucial that the planning objectives are suitably structured, from general decisions, through relatively firm target propositions, to very definite statements in terms of content, time and space) and
- the fact that implementation directly depends on what we are planning, that is, on the types and methods of planning.

Accordingly, a model of implementation of spatial and urban plans should be defined in the following way: "A model of implementation of a spatial plan is a simplified representation of a set of related planning decisions on actions in the future, which reflects logical, functional and time-coherent planning action, depending on the type and methods of planning" [26].

As such, a model of implementation has its own elements, which are determined by a set of planning actions in the broadest possible sense, starting from general decisions, through relatively firm target propositions, to very definite statements in terms of content, time and space. The elements of the model go beyond the plan itself as a document (phase of the planning process) and in addition to the mentioned planning elements, they also include "postplanning elements" defined by the plan (carried out later) and all the necessary elements of monitoring [27] (**Table 1**).

The proposed definition and consideration of the elements of the model make up a basic theoretical model of implementation. However, in order to facilitate further research regarding

Model of implementation of spatial plan
Part I: Planning elements
1. Strategic framework (guidelines) for development
2. General goals of development
3. Specific goals of development
4. Planning solutions (measures, rules, etc.)
Part II: Post-planning elements
5. Dynamic framework of implementation
5.1. Priority planning solutions (first stage of implementation—4 yrs)
5.2. Medium-term and long-term stages
6. Measures and instruments of implementation
6.1. Planning/programming
6.2. Organizational
6.3. Normative and legal
6.4. Financial
7. The participants (subjects) of implementation
Part III: Elements of monitoring
8. Monitoring system
9. Evaluation (indicators)
10. Institutional and organizational aspects

Table 1. Elements of the implementation model.

the application of the implementation model in practice, it is necessary to define the basic types of models, depending on the type and methods of planning.

Bearing in mind the different issues and methodology of developing plans, it is necessary to separate the various types of models of implementation, which can be assumed hypothetically to be applied in practice. These are as follows:

- model of implementation for the strategies and policies of spatial development;
- model of implementation for the protection of space;
- model of implementation for technical planning solutions;
- model of implementation for the use, design and construction of space.

Since space, as the main subject of spatial and urban planning, is a complex and heterogenous category, it is a real assumption that models of implementation are not mutually exclusive, but rather are combined when producing a plan, whereby one of them dominates and determines the character of planning and the plan, and therefore later the implementation.

5. Case studies: comparative multicriteria analysis of the application of elements and models of implementation models in practice: a case study of 11 spatial plans for special purpose areas

In order to verify the theoretical considerations presented, the authors of this chapter have chosen to investigate the latest practice of spatial planning in the Republic of Serbia on a sample of 11 spatial plans for special purpose areas. For this type of spatial plans, it is characteristic that they are prepared for spatial units whose specialty is determined by one or more defining purposes, activities or functions in the space which are of national interest.

Research and comparative analyses were carried out on four spatial plans for protected natural areas (Kopaonik [28], Djerdap [29], Stara Planina Mountain [30] and Radan Mountain [31]), three spatial plans for highway infrastructure corridors (sections: Belgrade-Niš [32], Niš-Republic of Macedonia [33], Niš-Merdare [34]) and four spatial plans for water accumulation basins—water sources (Rzav [35], Stuborovni [36], Ćelije [37], Grlište [38]).

The comparative analysis of the application of elements and implementation models of the spatial plans is based on the following starting points:

- the implementation model elements correspond to and reflect the structure of the spatial plan;
- the assessment of the application of the implementation model is in no way an assessment of the quality of the plan but only the assessment of the object and character of the plan, that is, which models and elements within the model are recognized, which dominate and which mutually combine;
- a comparative analysis of the application of elements and implementation of models in selected plans encompasses a qualitative and quantitative assessment of numerous textual, numerical and graphic elements of the plans, whereby only the conclusions of the analysis are made (in relation to the results of the analysis presented in **Tables 2–6**);
- to assess the implementation model applied in the spatial plan, the criterion was used that the majority of the model's elements were recognized (50% or more);
- to assess the rules in the model of implementation, the design and construction of the space, the criterion was used that there are enough definite rules recognized in the plan, since this model of implementation is not fully coherent and does not include all foreseen elements of the model, but rather it is based exclusively on the existence of rules in the plan.

The basic conclusion of the comparative analysis (**Table 6**) is that: in one spatial plan, all four implementation models were applied; in three spatial plans, three implementation models were applied; and in seven spatial plans, two implementation models were applied. In addition, in the spatial plans for protected natural areas, the most number of implementation models were applied, while in the spatial plans for highway infrastructure corridors and protected water accumulation basins, two models of implementation were applied.

Spatial plans for the special purpose area	I Planning elements				II Post-planning elements							III Monitoring			Representation of elements in model (%)
	Strategic framework	General goals	Specific goals	Planning solutions	Dynamic fram.		Measures and instruments				Participants (subjects)	Monitoring system	Evaluation (indicators)	Institutional and organizational	
					Priority planning solutions	Medium-long-term stages	Planning-programming	Organizational	Normative-legal	Financial					
1. Stara planina	✓	✓	✓		✓	✓	✓	✓	✓		✓				64
2. Kopaonik	✓	✓	✓				✓				✓				36
3. Djerdap		✓	✓	✓			✓	✓			✓				43
4. Radan planina		✓	✓					✓			✓				29
5. IK Belgrade-Nis	✓	✓	✓		✓	✓					✓				43
6. IK Nis-Maced.		✓									✓				14
7. IK Nis-Merdare		✓		✓							✓				21
8. Rzav			✓	✓			✓				✓				29
9. Stuborovni				✓				✓			✓				21
10. Celije			✓	✓				✓			✓				29
11. Grliste			✓	✓				✓			✓				29
Representation of elem. in plan (%)	27	64	73	55	18	18	36	55	9	0	100	0	0	0	

Table 2. Elements of the model of implementation for the strategies and policies of spatial development in spatial plans.

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Spatial plans for the special purpose area	I Planning elements				II Post-planning elements							III Monitoring			Representation of elements in model (%)
	Strategic framework	General goals	Specific goals	Planning solutions	Dynamic fram.		Measures and instruments				Participants (subjects)	Monitoring system	Evaluation (indicators)	Institutional and organizational	
					Priority planning solutions	Medium-long-term stages	Planning-programming	Organizational	Normative-legal	Financial					
1. Stara planina	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	**93**
2. Kopaonik	✓	✓	✓	✓	✓		✓	✓			✓				**57**
3. Djerdap	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓		✓	**79**
4. Radan planina	✓	✓	✓	✓	✓		✓	✓			✓	✓		✓	**71**
5. IK Belgrade-Nis				✓											**7**
6. IK Nis-Maced.				✓											**7**
7. IK Nis-Merdare		✓	✓	✓							✓				**29**
8. Rzav		✓	✓	✓	✓		✓	✓			✓	✓		✓	**64**
9. Stuborovni		✓		✓	✓			✓			✓	✓		✓	**50**
10. Celije		✓	✓	✓	✓		✓	✓			✓				**50**
11. Grliste		✓	✓	✓	✓		✓	✓			✓				**50**
Representation of elem. in plan (%)	36	82	73	100	73	9	64	73	18	9	82	45	0	45	

Table 3. Elements of the model of implementation for the protection of space in spatial plans.

Spatial Plans for the Special Purpose Area	I Planning elements				II Post-planning elements							III Monitoring			Representation of elements in model (%)
	Strategic framework	General goals	Specific goals	Planning solutions	Dynamic fram.		Measures and instruments				Participants (subjects)	Monitoring system	Evaluation (indicators)	Institutional & organizational	
					Priority planning solutions	Medium-long-term stages	Planning-programming	Organizational	Normative-legal	Financial					
1. Stara planina	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			✓	**79**
2. Kopaonik			✓	✓	✓	✓	✓	✓			✓				**50**
3. Djerdap	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓	**79**
4. Radan planina	✓	✓	✓	✓	✓		✓	✓			✓				**57**
5. IK Belgrade-Nis	✓	✓	✓	✓	✓	✓	✓	✓			✓				**64**
6. IK Nis-Maced.	✓	✓		✓	✓	✓	✓		✓		✓				**57**
7. IK Nis-Merdare	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓				**71**
8. Rzav	✓	✓	✓	✓	✓	✓	✓				✓				**57**
9. Stuborovni	✓	✓		✓	✓	✓	✓	✓			✓				**57**
10. Celije	✓	✓	✓	✓	✓		✓				✓				**50**
11. Grliste	✓	✓	✓	✓	✓		✓				✓				**50**
Representation of elem. in plan (%)	91	91	82	100	100	73	100	64	18	9	100	9	0	18	

Table 4. Elements of the model of implementation for technical planning solutions in spatial plans.

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Spatial plans for the special purpose area	I Planning elements				II Post-planning elements							III Monitoring			Representation of elements in model (%)
	Strategic framework	General goals	Specific goals	Planning solutions	Dynamic fram.		Measures and instruments				Participants (subjects)	Monitoring system	Evaluation (indicators)	Institutional and organizational	
					Priority planning solutions	Medium-long-term stages	Planning-programming	Organizational	Normative-legal	Financial					
1. Stara planina			✓	✓			✓	✓			✓				**36**
2. Kopaonik			✓	✓			✓				✓				**29**
3. Djerdap				✓			✓	✓			✓				**29**
4. Radan planina				✓							✓				**14**
5. IK Belgrade-Nis			✓	✓	✓	✓	✓	✓			✓				**50**
6. IK Nis-Maced.			✓	✓	✓	✓	✓		✓		✓				**50**
7. IK Nis-Merdare		✓	✓	✓	✓	✓	✓	✓	✓		✓				**64**
8. Rzav	✓														**7**
9. Stuborovni	✓														**7**
10. Celije	✓						✓				✓				**21**
11. Grliste	✓						✓				✓				**21**
Representation of elem. in plan (%)	36	9	45	64	27	27	73	36	18	0	82	0	0	0	

Table 5. Elements of the model of implementation for the rules of the use, design and construction of space in spatial plans.

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	Spatial plans for the special purpose area	Model of implementation			
		For the strategies and policies of spatial development	For the protection of space	For technical planning solutions	For the use, design and construction of space
1.	Stara planina	✓	✓	✓	✓
2.	Kopaonik		✓	✓	✓
3.	Djerdap		✓	✓	✓
4.	Radan planina		✓	✓	✓
5.	IK Belgrade-Nis			✓	✓
6.	IK Nis-Macedonia			✓	✓
7.	IK Nis-Merdare			✓	✓
8.	Rzav		✓	✓	
9.	Stuborovni		✓	✓	
10.	Celije		✓	✓	
11.	Grliste		✓	✓	

Table 6. Representation of the models of implementation in spatial plans.

The spatial plan for the area of the Nature Park and Tourist Region of Stara Planina Mountain is characteristic in that it is the only one of the plans analyzed in which all four implementation models are applied. The model of implementation for the protection of space is dominant, which in this plan has the highest percentage of elements from this model in relation to all of the spatial plans and implementation models analyzed (**Table 3**). Additionally, a high percentage of the model of implementation for technical planning solutions was applied, the elements of which mostly relate to tourist accommodation capacities. This includes tourist infrastructure such as cableways and ski tracks, communal infrastructure, and so on. Such planned contents are supported by a series of rules of use, design and construction, which are quite detailed regardless of the fact that they are indirectly implemented through the development of urban plans. It is also characteristic only in this spatial plan, in these two implementation models, that there are precisely stated financial measures and implementation instruments, which besides the sources of financing also include the estimated costs according to individual planning solutions.

The spatial plan for the special purpose area of Kopaonik National Park belongs to the group of spatial plans for protected natural areas in which three implementation models are applied. The model of implementation for the protection of space is dominant, which refers to a whole series of objectives, planning solutions and other elements of the plan which have the purpose of protecting natural heritage and prescribing the regime of usage for space covering areas with a I, II or II level of protection. As is the case with other spatial plans for protected natural areas, the model of implementation for planning solutions of a technical nature refers to tourist accommodation capacities, tourist infrastructure and communal infrastructure, while the model of implementation for the use, design and construction of space includes a series of rules for the construction of tourist facilities and accompanying infrastructure.

The spatial plan for the special purpose area of Djerdap National Park and the Spatial Plan for the Special Purpose Area of Radan Mountain belong to the mentioned group of spatial plans with three models of implementation applied. The specificity of these spatial plans is that only they contain the elements of the implementation model that also refer to overseeing the general definition of the monitoring system, as well as the institutional-organizational aspect of the implementation through the dominant model of implementation for the protection of space (**Table 3**).

The Spatial Plan for the Special Purpose Area of Djerdap National Park is a special specific case in terms of the application of the implementation model in spatial plans for protected natural areas, in which the model of implementation for the protection of space and the model of implementation for technical planning solutions are equally represented, which is a consequence of the subject and special purpose in this plan being the protection of natural areas and the water management and energy aspect of the Djerdap system. In addition, only this spatial plan is characterized by a generally defined system of monitoring and the institutional-organizational aspect of implementation through the implementation model for technical planning solutions (**Table 4**).

In all three spatial plans for special purposes analyzed for the infrastructure corridors of highways, the model of implementation for technical planning solutions and the model of implementation for the rules of use, design and construction of space were applied. For these types of spatial plans, in addition to the above fact, it is characteristic that a very small percentage of elements of the other models is represented, in particular models of implementation for the protection of space (**Table 3**), which are recognized only in a part of the planning solutions, that is, in determining the regime in the belts of protection of the highway corridors.

In the Spatial Plan for the Infrastructure Corridor of the Belgrade-Niš section of the E-75 highway, elements of the implementation model for planning solutions of a technical nature and the rules of use, design and protection of space refer to the accompanying facilities for the highway corridor, their spatial distribution, content, and so on. In the spatial plan for the area of the Infrastructure Corridor Niš-Republic of Macedonia and the spatial plan for the Special Purpose Area of the Infrastructure Corridor for the Niš-Merdare section of the E-80 highway, which contain more detailed urban development at a scale of 1:1000, the elements of these two models also refer to the corridor (route) of the highway with all of its facilities. The spatial plan for the Niš-Merdare section is distinguished as specific since it has the largest number of recognized elements of both models of implementation, which is understandable considering that it was prepared more recently, thereby following the development of conceptual solutions and elements of the conceptual project, and it also contains all analytical and other technical elements necessary for resolving property relations and direct (immediate) implementation of all highway constructions and accompanying facilities. At the same time, these spatial plans are characterized by the highest number of recognized elements of the implementation model for the rules of use, design and construction of space, which, in addition to the rules themselves, relates to the stages of realization (the method and deadline for developing urban plans in the surroundings) and almost all of the measures and instruments of implementation. Also, only in these plans are the normative-legal measures and instruments defined as the basis for settling property relations (expropriation) based on the spatial plan (**Table 5**).

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In all four spatial plans analyzed for water accumulation basins, the model of implementation for the protection of space and the model of implementation for planning solutions of a technical nature were equally applied. The special purpose of these spatial plans is to protect the water accumulation basins, and therefore the water supply, and to secure the conditions for the construction of technical systems for water treatment, processing and distribution. This is in connection with the fact that the implementation models are applied equally, that is, their elements relate to both the protection of water sources and planning solutions of a technical nature. In addition, the elements of the model for planning solutions of a technical nature define the framework for the development of tourism as a core activity, the development of which is planned in the water accumulation basin. In this way, these types of plans and the results of the analysis of the elements of the implementation models applied are close to the previously mentioned spatial plans for protected natural areas.

The spatial plan for the water supply source area of the Rzav regional subsystem and the spatial plan for the Stuborovni water accumulation basin were made for the planned water accumulations and systems, while the spatial plan for the special purpose area of Ćelija water accumulation basin and the spatial plan for the special purpose area of Grlište water accumulation basin were made for the existing water accumulations.

The specificity of all the mentioned spatial plans for the reservoir basins is their lack of detailed rules for the design and construction of the space, that is, the fact that none of the plans applies the implementation model for the rules of use, design and construction of space (**Table 5**). It is only in the case of these spatial plans that there is no rule that the implementation model for planning solutions of a technical nature must follow the implementation model of the rules of use, design and construction of space. However, the reason for that is that not one of the spatial plans analyzed for water accumulation was prepared for direct implementation, but rather in parallel to or immediately after the development of the plans, special urban plans were prepared with detailed rules for resolving property relations (expropriation), construction or reconstruction of the water supply systems, tourist facilities, settlements, and so on.

Regarding the application of the implementation model in spatial plans for special purpose areas and the representation of elements in the models, the comparative analysis points to the following basic conclusions:

1. The model of implementation for the strategies and policies of spatial development (**Table 2**) was applied only in one spatial plan, indicating that spatial plans for special purpose areas on the whole do not include general issues and planning aspects inherent to the integral method, that is, the general planning of particular administrative spatial units. By establishing a full hierarchy of the spatial plans in practice, the elements of this model of implementation have found their place in regional spatial plans and in the spatial plans of local government units [27], that is, in general planning which, by its character, approach and method, differs from the planning of special purpose areas;

2. The model of implementation for the protection of space (**Table 3**) was applied in eight of the spatial plans analyzed, that is, in all plans for protected natural areas and for water accumulation basins. The impression given is that this model of implementation is complemented by the model for planning solutions of a technical nature and it completes

the planning for special purpose areas, that is, the planning framework for the protection of specific natural heritage and the realization (construction) in space. Except in the case of spatial plans for the infrastructure corridors of highways in which this model is not applied, this model of implementation is always applied in combination with the abovementioned model of implementation for planning solutions of a technical nature;

3. The model of implementation for technical planning solutions (**Table 4**) is the most common implementation model and is the only one applied in all the spatial plans analyzed. Since spatial plans for special purpose areas are adopted for areas requiring special organization, design, use and protection of the space, like for projects and objects of national importance, the dominance of this model of implementation and its elements in the plans is justified. It also indicates a developed planning system at the national level, in which the institution of the spatial plan for special purpose areas is used as the basic instrument for the protection of public and national interest in the domain of spatial development. However, this model of implementation indicates an effective thematic approach to planning, which raises the issue of measures and relationships with local interests and planning levels subordinate to the planning of a specific area by the state. As the number and scope of spatial plans for special purpose areas grows, the problem of coordinating the level of planning becomes more important, and the problem of the relationship between planning special purpose areas and planning at the local level comes to the fore;

4. The implementation model for the rules of use, design and construction of space (**Table 5**) is applied in seven of the spatial plans analyzed, that is, in all plans for protected natural areas and infrastructure corridors of highways. The fact that it is not applied only in those spatial plans for which the implementation of a series of urban plans has been initiated or envisaged, and that it is applied in all recent spatial plans, points to the necessity of applying this implementation model. The need to quickly produce spatial plans that can be applied directly (necessary permission and conditions in the location, property relations, design frameworks, etc.) indicates that this model of implementation will continue to be applied in practice. However, since the elements of this implementation model are limited to detailed rules rather than a coherent set of elements, as in the case of other implementation models, the model of implementation for the rules of use, design and construction of space can only be a complementary model in the plan, which should be applied with some of the other implementation models.

6. Discussion and conclusions

The basic conclusion of the study is that models of implementation can be recognized in the practice of developing spatial plans, that is, that a large number of elements of the implementation model are recognized in the plans. Noting that the installation of an implementation model is grounded in the theory of planning, it can be concluded that the basic hypothetical assumptions about the application of the implementation model have been proven in practice. However, at the same time, one should not lose sight of the fact that these are the first research results on a limited scientific sample from a single planning system and, therefore, research on implementation models needs to be continued.

These results of the comparative analysis for the application of elements and implementation models in the recent practice of developing spatial plans for special purpose areas clearly indicate that implementation models do not exclude each other, but rather they combine in the development of a spatial plan. Therefore, it is noticeable that the implementation models can be equally combined, and that one implementation model can dominate over another implementation model, and as such it determines the nature of the plan and its implementation.

In order to further research the implementation process, it is important to point out that these conclusions correlate with the previously stated theoretical aspects of implementation, and especially with Lewis and Flynn, who explain the mix of modalities of implementation [11]. It is precisely the results of this comparative analysis that prove the theoretical assumption that in the actual planning there will be more than one of the mentioned modalities of implementation, at the same time and in parallel, which do not have to exclude each other. In addition to the distinctive use of the term "modalities of implementation," the authors mentioned emphasize that the implementation process has not been fully theoretically studied and that the planning mechanisms and mixed modalities of implementation have not been tested.

Looking at the implementation of spatial plans through models of implementation gives an adequate idea of how implementation is guided by plans. The model elements, determined in a way to reflect the logical, functional and temporal coherence of planning actions, or the structure of the plan, are largely recognized in the plans analyzed. However, at the same time, the issue is raised as to the lack of certain elements and the fact that the implementation models do not contain all the foreseen elements, which should be corrected in future practice.

In this regard, it is of utmost importance to see the elements of monitoring implementation as an underdeveloped aspect of planning. The elements of monitoring in the implementation model are the monitoring system (in the narrow sense), evaluation (indicators) and the institutional-organizational aspect of implementation. The nature of the monitoring and evaluation process, as well as the institutional organization, go beyond plans and are connected to the continuity of the planning itself. They can be considered as the "strategic bases for managing the implementation of plans."

Monitoring the implementation of spatial plans in recent years has become more and more topical because many changes in terms of evaluation, flexibility and institutional-organizational aspects of implementation are increasingly reflected in the monitoring system. In previous approaches, tracking the achievement of goals was the basis for and the majority of the monitoring content. However, with the development of planning approaches that are based on a more elaborate structure of planning propositions, the expansion of communicative-interactive planning and establishment of the continuous evaluation of the realization of planning decisions, the understanding of monitoring as merely monitoring the degree of achieving final planning decisions has lost most of the original sense.

Significant findings on which it is necessary to base further research and suggestions for improving the monitoring (models) of implementation indicate that, in addition to determining whether planning decisions/policies are being carried out (monitoring the implementation), it is of particular importance to assess whether by establishing policies the planned objectives are being met (monitoring the impact), as well as assessing whether the planning

objectives are still current (strategic monitoring) [1]. In doing so, the key finding is that monitoring is formed from the very beginning of the planning process (preparation of decisions), that it is organized as a process that provides constant feedback for obtaining and interpreting information and that during implementation the focus is on the monitoring and evaluation of changes in the positions of basic target groups, that is, actors [39].

These theoretical considerations, definitions of models of implementation and classification of models into their basic types are an attempt to indicate directions for further research, which could and should be carried out according to different systems and levels of planning.

In addition to research on the issue of recognizing and applying models of implementation in planning practice so far, special attention should be paid to: (1) the research and definition of other types and subtypes of models of implementation within the framework of the proposed model of implementation; (2) research into the application of models of implementation depending on the national systems of planning and planning levels; (3) research into methods of combining models of implementation in individual plans and depending on the type applied, the method of planning; (4) research and review of the proposed elements of the model of implementation, in order to achieve greater logical, functional and temporal coherence of the planning actions and (5) research into the monitoring of implementation, indicators and evaluation of implementation.

In further research, it is necessary to bear in mind two basic groups of factors that affect implementation. The factors in the first group are those involved in drafting the plan, which can be affected qualitatively, such as the available data, the methodology used, different techniques, the competence of the working team, cooperation of the planning subjects, their ability to lead the synthesis of the process, the way of defining the planning solutions, and so on. In the second group of factors are all of those that are crucial after the adoption of the plan, which are difficult to perceive and even more difficult to influence, and they have a key role in the implementation of the plan. They are conditioned by the socio-political system, level of economic, social and cultural development, financial possibilities, institutional organization and others.

The use of an appropriate model of implementation and its combination with other models when developing a spatial plan, depending on the type of plan, makes it possible to largely overcome an unfavorable environment, develop the plan in a recognizable and desired style of planning and focus the process of implementation in an organized and systematic manner.

Implementation models for spatial plans can theoretically clarify and position implementation in the methodology of planning and in the practice of improving the implementation of plans, although one should not lose sight of the fact that its fate ultimately depends on the actual willingness of the community to carry out planning objectives and policies.

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