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Improving institutional framework and organizational solutions for climate change governance in forestry and related sectors at regional and local levels in Serbia

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Abstract

The implementation of climate change governance strategies at regional and local levels encounters significant challenges, including a complex institutional framework, insufficient competence and limited commitment from various stakeholders to adopt appropriate governance measures. In Serbia, the institutional framework for climate change governance in forestry and related sectors (nature conservation, environment, energy) fails to provide sufficient conditions for stakeholders' involvement in decision-making processes at regional and local levels. This research aims to examine possibilities for improving the institutional framework and organizational solutions for climate change governance at regional and local level in forestry and related sectors in Serbia. Data were collected through interviews with decision-makers and experts from the public and civil sectors in forestry and related sectors, as well as with representatives of examples of good practices of stakeholder collaboration in climate change governance. Respondents emphasized the need to prioritize climate change as a main objective within the mandates of organizations at lower governance levels in forestry and related sectors. All respondents support the proposal to establish a regional bridging organization to facilitate stakeholders' coordination. Such an organization would serve as a platform for continuous education, training and knowledge exchange through seminars and workshops and would assist stakeholders in defining and implementing climate change governance measures at regional and local levels.

Keywords: bridging organization; climate change; forestry; governance; institutional framework

Introduction

Climate change is recognized as a significant global challenge, adding pressure on various aspects of society and the environment. Rising global temperatures, along with the increasing frequency of storms, floods, droughts, forest fires, and other natural disasters, are having negative impacts on sectors such as agriculture, the environment (Braunschweiger, 2022), energy (Santos *et al.*, 2022) and forestry (Stanišić and Nedeljković,

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2020; Cooper and MacFarlane, 2023). The involvement of social, economic and political actors from sectors such as energy, transportation, agriculture and natural resource management increases the complexity of the climate change governance process (Ørsted Nielsen, 2022). Furthermore, the issue of climate change touches different governance levels. While national governments formulate strategies and policies to mitigate and adapt to climate change, the responsibility for implementing these goals largely falls on local self-governments (Nagel and Kammerer, 2023). Over recent decades, climate governance has shifted from a top-down approach to a decentralized, polycentric system involving stakeholders across different levels (Stehle, 2021). In this sense, the state's ability to control governance is decreasing and, on the other hand, opportunities are opening up for the distribution of power from the national to lower levels, such as the regional and local administrative level (Hay, 2004). Such approaches are essential, as the participation of stakeholders from different sectors in the fight against climate change requires a certain degree of autonomy in decision-making, especially at the regional and local governance levels, but also the sharing of responsibility (Louman *et al.*, 2019).

A regional approach¹ to climate change governance offers several advantages. One key benefit is improved access to local data (on the environment, vulnerability to climate change, occurrence of risks, etc.), which allows policy decisions taken at higher levels of governance (international, national) to be adapted to local needs, i.e. the local context. For instance, an analysis of climate change policy implementation across 61 regions worldwide shows that the national level policies are implemented at the regional governance level according to assigned responsibilities in climate change-related areas such as environment, agriculture and transportation (Gadani et al., 2020). However, local communities often face challenges, including difficulties in implementing climate change governance frameworks at this level (Hossain et al., 2022). The research by Meiklejohn et al. (2021) points to insufficient public participation in decision-making processes related to climate change and emphasizes the need for greater involvement of local self-government in adaptation measures and mitigating the negative impacts of climate change. When examining the role of public participation in climate change governance, it was found that although regional and local climate change mitigation and adaptation strategies exist, the contribution of the public to the implementation of the strategy through the planning and implementation of climate-related projects is insufficient (Mendonça et al., 2023). The uneven distribution of responsibilities between institutions and organizations at the regional and local governance level has a negative impact on the exchange of knowledge between stakeholders (Moote and Lowe, 2008). The weak networking of stakeholders and the lack of cross-sectoral coordination in the implementation of climate change adaptation and mitigation measures are a constraint to the realization of national climate change governance priorities (Louman et al., 2019).

The complexity in the relationships and interactions among stakeholders at multiple governance levels and from different sectors often leads to the creation of different organizational forms, such as "bridging organizations". These intermediaries facilitate knowledge and information sharing, conflict resolution (Stewart and Taylor, 2019), and link science and policy (Graham and Mitchell, 2016). Civil and private sector organizations, whether international or national, also play a mediating role, as they promote transparency, which can have an indirect impact on reducing the influence of other actors in the governance and use of natural resources (Mwangi and Wardel, 2012).

Institutional frameworks determine the responsibilities and competencies of different public and private authorities as well as their interaction across different political levels (Lange *et al.*, 2013). The institutional framework for climate change governance is a complex system shaped by numerous external and internal factors that influence decision-making process and the effectiveness of the established governance mechanism (Zhang and Bai, 2023). Previous research in selected countries in Southeast Europe (SEE) shows

¹ The regional approach to governance refers to the distribution of power between different levels of administration, i.e. vertically (international, national, regional, local), and horizontally (between different institutions and organizations within the same administrative level), with the involvement of the private and civil sectors (Bache and Flinders, 2005).

that the primary goal² for climate change governance is assigned to institutions and organizations at the national level (Nedeljkovic *et al.*, 2019). In this sense, it is necessary to clearly define the responsibilities of key organizations and institutions in forestry as well as in other relevant sectors (Abrudan *et al.*, 2009; Nonić *et al.*, 2020).

Previous research in Serbia has shown that the institutional framework of forestry and nature conservation in relation to climate change governance consists of "the public administration (ministries responsible for forestry and environmental protection), public services (institutes and agencies) and public companies for the management of state forests and the management of national parks" (Nonić et al., 2020). The need for greater collaboration between the institutions and organizations of the forest sector with other sectors in the field of climate change in Serbia (Nonić et al., 2017) underlines the importance of creating new organizational forms, i.e. organizations that have the function of intermediaries in connecting institutions and organizations of different sectors and levels of governance (Nedeljković et al., 2019). In addition, these organizations would play a key role in coordinating activities and sharing knowledge and skills between participants (Stanišić, 2023). However, in Serbia there is currently "no specific cross-sectoral body that comprehensively addresses the issue of climate change and connects and coordinates the work of organizations from different sectors" (Stanišić, 2023).

The institutional framework for climate change governance faces several challenges in Serbia, including its complexity and the inadequate prioritization of climate change within organizations at the regional and local levels. There is also the insufficient cooperation and coordination between sectors in the implementation of various climate change governance activities (Nedeljković *et al.*, 2019; Nonić *et al.*, 2020). All this suggests that the cross-sectoral approach to climate change governance needs to be improved in order to create the conditions for more effective connection and involvement of stakeholders at regional and local levels in the decision-making process.

Findings from previous studies related on selected SEE countries (Stevanov *et al.*, 2019; Pezdevšek-Malovrh *et al.*, 2019; Nedeljković *et al.*, 2019; Živojinović *et al.*, 2023; Đurić *et al.*, 2024; Barudanović *et al.*, 2024) confirm that similar challenges exist in improving institutional frameworks, aligning sectoral policies and enhancing stakeholder involvement in decision-making process in forestry and related sectors, and in addressing challenges associated to climate change. Unlike the previous studies, this study provides a deeper insight into possible organizational solutions to improve the institutional framework of forestry and related sectors for climate change governance.

This research aims to examine the possibilities for improving institutional frameworks and organizational solutions for climate change governance at regional and local levels in forestry and related sectors. In line with this aim, the main research question is: "What institutional and organizational changes are needed to improve climate change governance at regional and local levels in Serbia?". The research would provide insight into existing problems and propose solutions to improve the institutional framework for climate change governance.

Materials and Methods

Data on stakeholders' views on improvements to the climate change governance framework were collected through interviews. A judgmental sample was employed to select the interviewees. The sample

² In this study, the primary goal indicates that the institution or organization is directly addressing climate change governance issues in the course of achieving its fundamental purpose and in accordance with its vision and mission (Drucker, 2006).

consisted of decision makers and experts³ from the public and civil sectors of forestry and related sectors (nature conservation, environment) from all three governance levels (national, regional, and local).

In addition, the interviewees were also representatives of "best practices" in the field of climate change governance, selected on the basis of the following characteristics:

- sector affiliation
 - public sector: public enterprise (PE) "Srbijašume"⁴, local self-government (LS);
 - civil sector: non-governmental organizations (NGOs);
- lower influence compared to perceived interest in climate change governance⁵ (Stanišić *et al.*, 2022);
- general impression of the researcher based on the conducted first phase of research (Stanišić, 2023) and
- prominent "best practice" examples of stakeholder collaboration in climate change governance⁶ on the territory of forestry areas and national parks (NPs).

A total of 23 interviews were conducted in the period May-June 2022 (Table 1). Of these, 17 interviewees were representatives of institutions and organizations at national and regional governance level, including 8 decision-makers and 9 experts. At local governance level, 6 interviewees were selected. These are representatives of organizations that have been highlighted as "best practice" examples of stakeholder collaboration in climate change governance in forestry and related sectors.

Code	Institution/organization	Date					
Decision makers							
MEP1	Ministry of Environmental Protection	18.05.2022					
DF1	Ministry of Agriculture, Forestry and Water Management–Directorate of Forests	27.05.2022					
DF2	(MAFWM-DF) 24.05.2022						
INC1	Institute for Nature Conservation	20.05.2022					
IF1	Institute of Forestry 27.05.2022						
PENPÐ	PE "NP Đerdap" 25.05.2022						
PENPK	PE "NP Kopaonik" 03.06.2022						
SŠD1	PE "Srbijašume" – General directorate	19.05.2022					
Experts							
MEP2	Ministry of Environmental Protection	03.06.2022					
INC2	Institute for Nature Conservation	18.05.2022					
IF2	Institute of Forestry	27.05.2022					
SŠD2		19.05.2022					
SŠD3	PE "Srbijašume" – General directorate 19.05.2022						
SŠD4		19.05.2022					
VŠD	PE "Vojvodinašume" – General directorate	14.05.2022					
NGO1	Standing Conference of Towns and Municipalities (SCTM) 22.05.2022						
NGO2	WWF program in Serbia 21.05.2022						
Examples of "best practice"							
FMUZA	PE "Srbijašume", FE "Timočke šume"	25.05.2022					
FEB	PE "Srbijašume", FE "Timočke šume" (main office) 25.05.2022						
FMUKU	PE "Srbijašume" FE "Severni Kučaj", FMU "Kučevo"	26.05.2022					
LSKU	Local self-administration Kučevo	26.05.2022					
NGO3	NGO "Entuzijasti Kučeva"	26.05.2022					
NG4	NGO "Timočki omladinski centar"	25.05.2022					

Table 1. List of respondents

³ Decision-makers are representatives of institutions and organizations involved in the processes of adopting and implementing strategic and binding decisions (Rakić *et al.*, 2016)) in forestry and related sectors in the field of climate change governance, while experts are understood as independent professional staff, consultants, project managers, etc.

⁴ In accordance with the territorial framework of the research, the PE "Vojvodinašume" was not included in the collection of primary data.

⁵ Stakeholders at the national level have a pronounced interest and influence on climate change governance, while the influence of stakeholders at the regional and local level is significantly lower (Stanišić *et al.*, 2022).

Two questionnaires were used in the research (one for decision-makers and the other for experts and examples of "best practice"). The questionnaire for decision-makers consisted of 22 questions divided into 4 parts, one of which related to the climate change governance framework. For this study, questions 10-13, related to the institutional framework, were analyzed. The questionnaire for experts and examples of "best practice" consisted of 18 questions divided into 4 parts, while questions 6-9, also related to the institutional framework, were analyzed.

Within each question, the results of the first round of research were presented along with suggestions for improvement, with respondents expressing their opinions on the following points:

- strengthening the competence of stakeholders at regional and local level in relation to climate change governance (question 10, i.e. 6)

- creating conditions for the involvement of stakeholders at regional and local level in the decisionmaking process on climate change governance and for strengthening their influence (questions 11-13, i.e. 7-9).

Data processing was carried out using content analysis. After summarizing and analyzing the responses, respondents were grouped according to their attitude ("Supporters", "Non-supporters", "Neutral") for each thematic question. "Advocate - opponents" matrix was used to present the responses (EFI, 2011).

Results and Discussion

Improving the institutional framework

The existing institutional framework of the forestry and related sectors for climate change governance provides a clear division of responsibilities between institutions and organizations. The formulation of policies, strategies and laws is exclusive responsibility of public administration institutions (Ministry of Agriculture, Forestry and Water Management (MAFWM), Ministry of Environmental Protection (MEP), Ministry of Mining and Energy etc.) at the national governance level. The implementation of policies and laws at all governance levels, as well as data collection, forest management and other sectoral tasks (education, research work, dissemination of information, etc.) are carried out by various institutions, services and organizations, public enterprises (PE) from the public sector and NGOs and associations from the civil sector according to their competencies. PE "Srbijašume", PE "Vojvodina šume" and PE National Parks (PE NP) are responsible for the management of state forests and protected areas.

Climate change governance in forestry and related sectors involves various institutions and organizations based on governance levels and responsibilities. At the national level, these include public administration bodies, public services, agencies, institutes, and educational and research organizations. At the regional level, key entities include PE "Srbijašume" – forest estates (FEs) and PE NP, while at the local level, governance involves PE "Srbijašume" – forest management units (FMUs), city and municipal administrations, local municipalities, local NGOs, and other PEs from related sectors.

While climate change governance is a primary objective of public administration institutions within their respective competencies, a lack of responsibility in this area is evident among organizations in the forestry and related sectors. This gap is particularly noticeable at the regional level, where FEs under the PEs for state forest management and PE NP operate. At the local level, this issue extends to FMUs within the PEs for state forest management, partially to LS, and other PEs in related sectors.

For these organizations, climate change governance remains a secondary objective, and in most cases, there is a lack of dedicated organizational units dealing with climate change. Consequently, employees in these bodies do not have clearly assigned responsibilities or mandates for climate governance. As a result, their influence on climate change governance is significantly lower compared to national-level institutions and public sector organizations. This reduced influence means that regional and local needs critical for combating climate change are often overlooked in decision-making processes and support measures due to the limited

competence and authority of lower-level public, civil, and private sector organizations (Nedeljković *et al.*, 2019; Stanišić, 2023).

Problems with the institutional framework for climate change governance have been identified through both analytical studies (Nedeljković *et al.*, 2019; Nonić *et al.*, 2020) and respondents' attitudes (Nedeljković *et al.*, 2019; Stanišić, 2023). These issues include:

- the lack of competence among stakeholders at regional and local levels in climate change governance;
- insufficient conditions for the involvement of regional and local stakeholders in decision-making process on climate change governance.

In response, proposals have been developed to improve the institutional framework at regional and local levels in Serbia, aiming to expand stakeholder responsibilities. This research examines these proposed solutions and the necessary steps for their implementation.

Table 2 presents a qualitative analysis matrix reflecting attitudes of the respondents from key institutions and organizations in forestry and related sectors towards the proposed improvements of the institutional framework for climate change governance.

Proposed solutions			Increase of stakeholder's competence at regional and local level in climate change governance	Creating conditions for the involvement of stakeholders at regional and local level in the decision-making process on climate change governance
Public Sector	PA	DF	+ (2)	+ (2)
		MEP	+ (2)	+ (2)
	LS	LS	+(1)	+(1)
	PS	IF	+ (2)	+ (2)
		ICN	+ (2)	+ (2)
	PE	PENP	+ (2)	+ (2)
		SŠD	+ (4)	+ (4)
		VŠD	+(1)	+(1)
		FE	+(1)	+(1)
		FMU	+ (2)	+/- (2)
Civil sector	NGO	NGO	+ (4)	+ (4)

Table 2. Matrix of respondent's attitudes towards the proposed solutions

Legend: + support; - do not support; +/- neutral attitude; () – number of respondents

PA	PE	FE
Public administration	Public Enterprise	Forest estate
DF Ministry of Agriculture, Forestry and Water Management	PENP PE national park	FMU Forest management unit
MEP	SŠD	NGO
Ministry of Environmental Protection LS	PE "Srbijašume" – General directorate VŠD	Non-governmental organization
Local self-administration PS	PE "Vojvodinašume" – general directorate	
Public service IF		
Institute of Forestry ICN		
Institute for Nature Conservation		

The matrix analyzes respondents' attitudes ("I support", "I do not support", "Neutral") regarding selected thematic questions. All respondents support the proposed solutions, except for two who are neutral on the work organization within the proposed network organization. This broad support reflects both the recognition of the problem and the need for action.

Table 3 presents the proposed activities required to implement these solutions and improve the institutional framework.

Table 5. Troposed solutions and activities for institutional framework improvement				
Proposed solutions	Proposed activities			
	-To integrate climate change as a primary goal within the			
	responsibility of organizations at the lower governance			
Increase of organizational competence at regional and	levels in forestry and related sectors			
local level in climate change governance	-To assign clear roles and responsibilities to staff at			
	regional and local level in forestry and related sectors for			
	defining and implementing support measures in climate			
	change governance			
Creating conditions for greater stakeholder involvement	-Establishment of bridging organization			
at regional and local levels in climate change governance	-Organization of work, and selection of stakeholder from			
decision-making process and enhancing their influence	public, civil and private sector			
Source: original				

Table 3. Proposed solutions and activities for institutional framework improvement

Including climate change as a primary goal within the responsibilities of organizations at lower governance levels in forestry and related sectors is essential for increasing their competence at regional and local levels. Therefore, it is proposed to prioritize climate change in the mandates of state forest management organizations, PE NP, and LS units. Similar practices have been observed in Croatia and Slovenia (Nedeljković *et al.*, 2019; Nonić *et al.*, 2020; Stanišić, 2023).

It is also essential to assign roles and responsibilities to personnel in forestry and related sectors at the regional and local levels to ensure their participation in defining and implementing support measures for climate change governance. A mandate should be given to one or more staff members within PE "Srbijašume" - FEs and FMUs and LS to participate in the proposed bridging organization. This proposal is based on "best practice" examples of good practice from Croatia (Hrvatske šume, 2022; Dubrovačko-neretvanska županija, 2022), Niš⁷ (Stanišić, 2023) and suggestions of the interviewees (Stanišić, 2023).

Respondents' views on proposed solutions for improving the institutional framework and discussion

All representatives from the public and civil sectors support the proposed solution to enhance the competence of regional and local organizations in climate change governance. State administration representatives emphasize that "...*it is necessary to define the proposed solution through legislation*" (MEP1), whereby "...*the Climate Change Adaptation Program, which is currently being developed, would provide a good basis for the proposed solution and activities*" (MEP2). A public service representative suggests assigning clear competences within each sector (INC2), while a PE representative argues that "... *the responsibilities should be aligned with the daily tasks and way of working in order to achieve the desired effect*" (VŠD). Civil sector representatives highlight the need to assign roles and responsibilities at the local level "...*because the actual implementation of various activities takes place at the local level*" (NGO2). Also, it is necessary to "...*enable the recruitment of new employees, as there is a lack of staff, especially in local self-governments*" (NGO1).

All interviewees expressed support for making climate change a primary goal within state forest management organizations, PE NP, and LS. PE representatives noted that this approach would benefit private sector stakeholders (FEB), but emphasized the importance of securing support from national governance level institutions (SŠD4).

All respondents support the proposal to define roles and responsibilities for determining necessary support measures in climate change governance. Civil service representatives believe that "...*it is necessary that more employees at the level of LS, FE and FMU have defined roles and responsibilities in determining the necessary and service representation of the s*

⁷ Within the city administration in Niš, there is the Department for Monitoring, Strategic Planning and Climate Change, which, as the name suggests, deals directly with the issue of climate change (Stanišić, 2023).

support measures for climate change governance" (INC2, IF2). The PE representatives stressed that "...*it is not about specific working titles, but about defining roles and responsibilities*" (VŠD), not only at regional and local level, but also at national level (SŠD4). The LS representative noted that additional staff are required at the local level, as the current workload is extensive and demanding (LSKU). NGO representatives added that, alongside assigning responsibilities, staff training is also essential (NGO1, NGO2).

Previous research has identified a variety of institutions and organizations from the public, civil, and private sectors involved in climate change governance across different levels in forestry and related sectors (Nonić *et al.*, 2017; Nedeljković and Stanišić, 2020). A cross-sectoral approach to climate change governance is crucial, as policies in sectors such as forestry, nature conservation, environment, and energy often have uncoordinated or even conflicting objectives (Ranković *et al.*, 2016). In selected SEE countries, there is a clear division of responsibilities between public administration in forestry and nature conservation regarding climate change governance (Nedeljković *et al.*, 2019). However, studies focusing on stakeholder collaboration in climate change governance in Serbia highlight a lack of responsibilities, particularly among civil and public sector organizations at regional and local levels in forestry and related sectors (Stanišić *et al.*, 2021). This research underscores the growing recognition of the need for greater competence at regional and local levels, where these organizations are becoming increasingly important in addressing climate change (Stoddart and Yang, 2023).

The report on the implementation of the Law on Climate Change in Serbia highlights the need to define stakeholder roles and responsibilities and to strengthen human capacities for climate change governance, particularly at the local level (Božanić *et al.*, 2024). This finding aligns with the results of this research. Enhancing these capacities can harmonize activities across governance levels, leading to more effective implementation of climate-related policies, such as energy efficiency, carbon dioxide reduction, and reduction of climate change risk, etc. Aligning regional and local stakeholders' needs with national policies can further strengthen efforts to combat climate change (Stoddart and Yang, 2023).

Proposed organizational solutions

As an activity to implement solutions related to the creation of conditions for the participation of stakeholders at regional and local level in decision-making process in the field of climate change governance, the creation of a bridging organization is proposed. This organization would assume the role of a coordinator in establishing contacts between stakeholders at all governance levels, aiming to define and implement climate change support measures by exchanging information on challenges, needs and ongoing activities of common importance.

The tasks of the bridging organization should include:

- coordinating stakeholders in identifying current challenges and needs in the fight against climate change;
- implementing support measures for climate change governance;
- initiating and facilitating the continuous information exchange and promoting the dissemination of knowledge on climate change to the general public at regional and local level;
- initiating and developing activities that promote inter-municipal and regional cooperation;
- providing relevant information to institutions and organizations at national level in relation to the stakeholder needs at regional/local level.

An interdisciplinary work structure is required to carry out these activities, involving individuals within teams and working groups to address complex problems. The primary task of these interdisciplinary groups is to facilitate information exchange and assess the actual, potential, and negative impacts of climate change from various perspectives. These teams (working groups) should include stakeholders from the public, civil, and private sectors at regional and local levels, focusing on sector-specific issues and having a vested interest in climate change governance. For this research, the teams should involve representatives from PE "Srbijašume" -

FE and PE NP at the regional level, as well as PE "Srbijašume" - FMU, LS, NGOs, public utility companies, private forest owners and small and medium enterprises at the local level, all of whom have a high interest in climate change governance.

Given the diverse composition of the teams, key issues of common concern in terms of education, training, preventive measures, etc. could include:

- the frequent occurrence of natural disasters (icebreakers, windbreakers, floods);
- the impact of climate change on forest ecosystems, the environment, etc.

If necessary, the bridging organization would engage experts to support the teams in defining the existing challenges and formulating solutions and support measures. Team activities could be organized through workshops, dialogs, seminars, and similar formats.

In addition to the teams, i.e. the working groups, a sector committee should be established. Those would consist of selected representatives from sensitive sectors such as forestry, agriculture, and water management, drawn from the public, civil, and private sectors. The committee's tasks would include:

- consulting with experts and educational organizations to propose support measures for addressing climate change, based on the results of the teams' work;
- monitoring and evaluating the success of implemented activities, etc.

In addition, the bridging organization should facilitate learning, knowledge development, training and consultations by organizing various seminars, round tables, forums, workshops and other forms of information dissemination and skill-building.

A visual representation of the proposed solution for improving the institutional framework is provided in Figure 1.



Figure 1. Proposal for the improvement of institutional framework

The proposed solution draws on the principles of multi-level governance theory and theory of network governance (Jones *et al.*, 1997; Peters and Pierre, 2001; Jänicke, 2017) to achieve horizontal and vertical connection of stakeholders from the public, civil and private sectors, facilitating their engagement in climate change governance through "networking".

A good example of the proposed solution is the establishment of a bridging organization at a regional level in Sweden. Each of the 21 regions coordinates climate change governance through county administrative committees, working with municipalities to develop local action plans and provide support for implementing necessary measures (Kristianssen and Granberg, 2021). A similar approach is used in Croatia, where responsibilities for coordination and joint work with local self-government were assigned to counties at the regional level (Stanišić, 2023). The proposed approach can be supported by findings from previous research dealing with the issue in Serbia (Stanišić, 2023).

In Serbia, the bridging organization may be established either as a public agency or state administrative body in accordance with the existing regulations and competencies of organizations dealing with forestry and related sectors in climate change governance. The establishment of such an organization, be it a public agency or a directorate, would require infrastructure development, financial investment and time for building links with other stakeholders.

Another option that could be implemented in a relatively short time compared to the previous one is to set up a bridging organization as a separate department within an existing agency. For example, by expanding the competencies of the current Regional Development Agencies (RDA)⁸. In this way, it would be possible to utilize the personnel capacities of the existing RDAs that have been established throughout Serbia. In addition, the existing links of RDAs with stakeholders from the public and especially the civil and private sectors would be utilized, which can certainly facilitate the development of new forms of cooperation. Strengthening the administrative districts as regional centers of state administration would also be one of the possible solutions. However, this solution would require a change in the previous role and competence, which focused on resolving administrative and other complaints and conducting inspection controls, with limited cooperation with stakeholders from the public sector.

Respondents' views on proposed organizational solutions and discussion

In terms of territorial organization, and following the examples of aforementioned "best practices", it is proposed to establish a bridging organization at regional level. All representatives of the public and civil sectors are in favor of this proposal. A state administration representative points out that there is a need for "...systematic reorganization of existing institutions and their interconnection, both vertically and horizontally" (DF1). Civil service, PE and NGOs representatives stressed the importance of better connecting national and local governance levels (SŠD4, NGO2). However, the PE representative highlighted the priority of improving horizontal connections "... within the same governance level" (SŠD4), which was also confirmed by the LS representative, who also stressed the need for "... requires the commitment of human resources, which can be a challenge when forming different teams and the sector board" (LSKU).

All respondents support the establishment of a regional-level bridging organization to coordinate stakeholder engagement and provide a platform for learning and sharing experiences on climate change. A public service representative emphasized that "...setting up a stakeholder network is a better approach than a centralized governance approach" (IF1). Representatives of PE, LS and NGOs agree that a regional bridging organization is essential, as organizations at the local governance level often struggle with challenges like personnel shortages and insufficient knowledge of climate change and awareness of the problem, etc. (VŠD, LSKU, NGO2, NGO4). An NGO representative added that this organization would enhance the ability to influence decision-making at local and regional levels (NGO3).

Most public and civil sector representatives support the proposals, while two representatives of the PE for the management of state forests remain neutral regarding the organization of work within the proposed

⁸ There are 12 RRAs in Serbia, spread over 5 regions (Vojvodina region; Belgrade region; Šumadija and Western Serbia region; Southern and Eastern Serbia region; Kosovo and Metohija region). Within their competencies, the RRAs cooperate with the LS in the elaboration and implementation of development plans at the regional level, as well as in the implementation of various projects and programs in cooperation with NGOs and the private sector.

bridging organization. State administration representatives view the proposal favorably, because "...a similar approach to teamwork has also been observed in the work of the local departments for emergency management of the Ministry of Interior, which provide very good results" (MZŽS1). Representatives from PE "Srbijašume" and PE NP noted that "...a similar organizational example exists in the forest sector in Austria, which has proven to be successful" (SŠD2), whereby team organization "...enables saving of financial resources" (PENPK), but also "...requires the commitment of human resources, which can be a challenge when forming different teams and the sector board" (VŠD). An NGO emphasized the importance of "...good strategic planning and selection of experts who will be involved in the work of the sector board is required, as expertise in the field of climate change is limited" (NGO2).

Most respondents believe that representatives of LS, FE, FMU, PENP and NGOs should be involved in the teams. Some respondents consider it necessary to involve various local associations as well as the emergency departments of the Ministry of Interior (DF2, MEP1, DF1), protected area managers (INC1, INC2, VŠD) and VPŠ (INC1). Additionally, the representatives of PE, LS and NGOs believe that it is necessary to involve representatives of the energy sector (PENPĐ), tourism organizations (PENPĐ, NGO2, LSKU) and local communities that have a lot of influence on the local population in terms of information exchange (LSKU). Selected representatives of LS, FE, FMU, PENP, NGO should be involved in the work of the sector board (ŠU1, MEP2, LS, PENPĐ, PENPK, SŠD1, SŠD3, SŠD4, IF2, INC1, INC2, NGO2, NGO4). Some also advocate for experts from educational and research institutions like the the Faculty of Forestry, the Institute of Forestry (INC1, INC2, IF1, MEPS1), but also experts from the MEP and MAFWM-DF (DF2, MEP1, MEP2, SŠD1).

The largest number of respondents support the creation of a separate department within the existing RDAs as an organizational form for the bridging organization. This approach is seen as an efficient use of the existing infrastructure and systems within the RDAs. At the same time, state administration and civil service representatives point out that this would utilize the developed working system and current infrastructure of the RRA (DF2), which would contribute to an efficient exchange of information within the already existing management system at the regional level (DF1, IF2). PE and NGO representatives also emphasize the advantage of using the RDAs' existing connections to the business community (PENPD; NGO2) as well as tapping into available financial resources (SŠD1; PENPD; VŠD).

Some representatives of the state administration and PE suggest that a special department within the state administration, especially within the Ministry of Interior - Sector for Emergency Management, would be more effective. They argue that this approach would improve access to financial resources (SŠD2; SŠD3; SŠD4) and utilize the sector's experience with similar operations (MEP2).

The lack of competence of public and civil society organizations at the regional and local level in Serbia in terms of climate change governance (Stanišić *et al.*, 2021) may reduce their influence in this area (Pezdevšek Malovrh *et al.*, 2019; Stanišić *et al.*, 2021). To address this, the existing institutions and organizations dealing with climate change issues need to "bridge" the gap between higher and lower governance levels, enabling equal participation of different stakeholders in decision-making (Mwangi and Wardell, 2012). At the same time, the organizational structure of the above institutions and organizations should effectively support the implementation of all sectoral and climate policy measures, with a clear definition of their responsibilities and competencies (Nonić *et al.*, 2017).

Research on the forms and roles of different organizations for climate change governance in selected EU countries points to the need to create more "flexible and open" organizational forms (Hoppe *et al.*, 2017). The forms and roles of such organizations may vary, depending on the issues they address as well as the governance type. Previous research has shown that creating a cross-sector partnership between civil and public sector organizations has positive effects on their mutual cooperation and knowledge sharing (Babiak and Thibault, 2009). Connecting municipalities by organizing regional councils at the level of two (Bates *et al.*, 2013) or more

regions (Kristianssen and Granberg, 2021) has a positive impact on improving the implementation of climate change adaptation activities.

Previous research has shown that the regional level is best suited to improve the cross-sectoral approach to climate change governance, as it allows for more efficient strategic planning and decision-making (Bauriedl, 2011), which was also confirmed by the interviewees in this study. Assigning responsibility for climate change governance at the regional level creates the opportunity for knowledge sharing between public sector organizations and expert organizations and better planning of necessary activities (Dannevig and Aal, 2015).

Research on stakeholder cooperation in climate change adaptation in Switzerland has shown that the role of institutions and organizations at the federal administrative level is mainly focused on creating crosssectoral links, but not links between the different levels of governance (Braunschewiger, 2022). Consequently, establishing a network organization at a lower administrative level, e.g. at the regional level, is very important for connecting different organizations from the public and civil sectors at the local level, as it enables the exchange of information and the joint solution of similar challenges (Kristianssen and Granberg, 2021). This is particularly important to recognize the importance and local risks, but also the necessary support measures for climate change management (Mees *et al.*, 2018). In terms of natural resource management, the establishment of a network organization promotes transparency and the reduction of the influence of other stakeholders on the management and use of natural resources (Mwangi and Wardel, 2012), especially with regard to the transition from a centralized management approach to a "bottom-up" approach (Petee and Ribot, 2011).

Conclusions

To improve the institutional framework for climate change governance, the following solutions are proposed:

- strengthen the competence of stakeholders at regional and local level in climate change governance;
- creating conditions for stakeholder involvement at regional and local level in decision-making
 process on climate change governance;
- interdisciplinary organization of work (formation of teams and sectoral committees) within the proposed bridging organization.

These findings underline the urgent need to improve the competencies of stakeholders at regional and local level in order to strengthen the institutional framework for climate change governance. There is a broad consensus among public and civil sector representatives on the importance of integrating climate change as a primary objective in the mandates of organizations at lower governance levels, particularly in forestry and related sectors. Effective collaboration between the PEs for the management of state forests, the PENP and the LS with institutions at the national level is expected to lead to significant achievements. However, at the lower levels, there are different views on the allocation of responsibilities required for supporting measures. Many respondents are in favor of allocating responsibilities for support measures at departmental level rather than to individuals in order to increase efficiency and overall impact. The results point to the need for coordination in a multi-level approach, where stakeholders at each level are empowered to take action on climate change governance. However, the lack of flexibility in reassigning tasks and responsibilities of current staff and in finding new knowledgeable staff is an obstacle, especially at local and regional level.

The results showed that representatives from both the public and civil sectors fully support the establishment of a regional bridging organization to improve stakeholder participation in climate change governance at regional and local levels. According to respondents from both sectors, such an organization would improve links between the various governance levels and the networking of organizations would increase their influence on climate change governance. In addition, the establishment of an organization at the regional

level would be very important to "bridge" staff shortages in some municipalities and increase the overall capacity for climate governance. However, this approach would require investment in building links between stakeholders, complex strategic planning and the creation of appropriate financing mechanisms, all of which could present significant challenge.

The proposed solution of establishing interdisciplinary teams and sectoral committees within the regional bridging organization to facilitate cross-sectoral information exchange and formulate support measures received broad support from respondents. Public sector representatives recommended that the structure and existence of these teams and committees be legally defined to ensure their effectiveness. Both public and civil sector participants emphasized the importance of involving stakeholders from the public, private, and civil sectors, alongside experts from state administration, education and research institutions. This integrative approach is seen as essential for the creation of comprehensive and effective climate change governance.

The majority of respondents support the establishment of the bridging organization as a separate department within the existing RDAs in Serbia. This preference is justified by the existing infrastructure of the RDAs, the established mechanisms for information exchange and the strong links with civil and private sector stakeholders. Interviewees also emphasized that using the current RDA framework would lead to greater work efficiency compared to other proposed solutions, making it a practical and effective option for promoting climate change governance.

Respondents emphasized the need to prioritize climate change as a main objective within the mandates of organizations at lower governance levels in forestry and related sectors. All respondents support the proposal to establish a regional bridging organization to facilitate stakeholders' coordination. Such an organization would serve as a platform for continuous education, training and knowledge exchange through seminars and workshops and would assist stakeholders in defining and implementing climate change governance measures at regional and local levels.

There are limiting aspects of this research that should be considered. The research focuses on a limited number of selected interviewees at national, regional and local governance level in forestry and selected sectors. Expanding the selected interviewees by including the ones from current RDAs, and their stakeholder network, could contribute to a better understanding of the proposed institutional improvements and organizational solutions.

The results of this study could help to inform all stakeholders involved in climate change governance in forestry and related sectors about the need for greater involvement of stakeholders at regional and local level in the decision-making process in climate change governance and possible solutions. It could also provide useful insights for further research to identify organizational solutions for the institutional framework of climate change governance in countries facing similar challenges, especially in the SEE region.

Authors' Contributions

Conceptualization: MS, DN and JN; Data curation: MS and JN; Formal analysis: MS; Methodology: MS, DN and JN; Supervision: DN and ZP; Visualization: MS; Writing - original draft: MS and JN; Writing - review and editing: DN, ZP and JN. All authors read and approved the final manuscript.

Ethical approval (for researches involving animals or humans)

Not applicable.

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Conflict of Interests

The authors declare that there are no conflicts of interest related to this article.

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