Mosaic Governance Models in the Creation of Environmental Policies in Slovakian Cities[1]

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Mosaic Governance Models in the Creation of Environmental Policies in Slovakian Cities. Mosaic governance is a concept used in environmental policy, where the basis is the initiation of topics by the civil sector. Active citizens should contribute to creating environmental policies (specifically green infrastructure and waste management in the presented research). The article aims to analyze active citizenship in local environmental policy initiatives using the concept of mosaic governance. Mosaic governance focuses on exchanging resources, discourses, game plans, and experiences between governments and active citizens. Mosaic governance is mainly applied in Western European cities, where the concept originated. In the Central European area, the investigation of mosaic governance is not so strongly widespread. That is why the article's authors investigated the model mentioned in Slovakia. The paper's primary goal is to show the different forms of civic activism involved in environmental policies in selected cities. Since the Slovak Republic has eight self-governing regions, one city was selected from each. The criteria for selecting cities were realized projects in green infrastructure and waste management, a higher rate of the city's transparency index (according to statistical data), the willingness of local government actors to conduct interviews, and financial subsidies used in environmental projects. Each city uses citizen activism differently when creating environmental policies. The authors conclude that several modified versions of mosaic governance and representation of civic activism exist. The basic model, where citizens are involved based on the initiative of self-governing bodies; the optimal model, where citizen activists directly initiate topics; and the adaptive model, where citizen activists are direct decision-makers.

Key words: Mosaic governance; active citizens; green infrastructure; waste management; local government

Introduction

The fundamental role of civil society in governance for sustainable development and climate change mitigation has been widely acknowledged and researched (Falkner 2003; Bansard et al. 2017). For a sustainable environment in the European Union and Europe, cooperation of the smallest units, i.e., municipalities, is essential. Municipalities are most involved in a sustainable

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environment. Therefore, every actor, from the public to the non-public sector, participates in the environmentally sustainable environment of cities and municipalities with their decisions and activities. The paper analyzes how civic activism[4] creates environmental policies in selected cities in Slovakia (the research concerns green infrastructure and waste management). One of the ways to adapt to climate change is green space management in cities, which can be observed over the last decades across the EU together with the increase in citizen involvement in their management (Sturiale – Scuderi 2019; Fors et al. 2015; Apostolopoulou et al. 2014). While national and international institutions still play a crucial role in designing nature policies, the implementation of these policies has increasingly become a process in which a variety of societal actors and local or regional authorities play an essential role, including NGOs, business actors (groups) citizens and governments on various levels of scale which is recognized as the shift from government to governance (Buis et al. 2022; Brescancin et al. 2018; Blondet et al. 2017; Weber – Christophersen 2002). Given this fact, local politics is characterized by the involvement of various initiatives and institutional structures designed to encourage active citizens and communities to participate directly in the design and implementation of local policy with the local government (Lowndes et al. 2006). The quality of governance processes at any level determines the success of the public policy. The requirements of the citizens are addressed to the local governments, which must fulfill these requirements through the functioning of their organizational structures, processes, relations, policies, and programs. The poor functioning of local government can have a significant negative impact on, for example, investment or the quality of the environment at the regional and local levels (Committee of the Regions 2016).

By becoming a member of the European Union, Slovakia has practically committed itself to complying with EU biodiversity and nature policy and increasing the quality of the environment. The decentralization of public administration and the principles of subsidiarity have brought municipalities and cities in Slovakia original competencies and the right to decide on the sustainable development of local governments. Cities and municipalities in Slovakia had to learn how to effectively balance the needs of residents and nature on their territory (Daško 2021). The issue of regional development is not over at all; on the contrary, it is constantly evolving and is increasingly affecting the daily lives of the inhabitants of towns and villages. Environmental policy and sustainable development are dynamic topics for every local Slovakian government. At the local level, the quality of environmental govern-

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[4] The term active citizens and civic activists mean the same thing in the post. The authors associate these terms with a positive connotation, where they are actors who are directly involved in the creation of environmental policies in selected cities. Thus, the terms active citizen and civic activist appear in the article with the same meaning.

ance in green infrastructure and waste management significantly impacts the population's quality of life. The quality of services in these areas is deficient in Slovakia, although we can find positive examples. The authors use mosaic governance (see literature review and Figure 1) to analyze self-governing actors' activity, creating a sustainable environment in selected cities. If Slovakia wants to fulfill the requirements by which it is bound, local governments must actively participate in the creation of high-quality decisions in environmental policy. The concept of mosaic governance helps to understand the functioning processes of policymaking in green infrastructure and waste management in selected cities. Since the authors analyzed environmental policies where mosaic governance is applied and the innovation projects of all selected cities mainly concerned green infrastructure and waste management, these areas were selected. Civic activism is most mobilized in green infrastructure and waste management; therefore, the research follows these two areas of environmental policy.

As mentioned, researchers have studied the issue of green governance and active citizenship in many European countries. The concept of mosaic governance has not been explored as strongly in the Slovak environmental environment as in Europe. In Slovakia, such research is absent. Scholars either analyze selected green infrastructure projects (Vaňo et al. 2021; Belčáková et al. 2019; Tóth 2016), or waste management innovations (Loučanová 2021; Loučanová et al. 2016), but no studies look at the problem from the perspective of citizen involvement in the decision-making positions at the local or regional level. The main question of the contribution is how the public is involved in green infrastructure and waste management in selected cities. What is the level of civic activism according to city representatives (members of environmental commissions)? Interviews with members of environmental commissions helped us to define the models that were created in selected cities. Commissions are advisory bodies of city councils where the public, private, and civil sectors are represented. The representatives of the commissions can explain how citizen involvement in environmental policies works sufficiently. The paper links the results to the concept of mosaic governance, the basic premise of which is precisely active citizenship.

The highly fragmented territorial settlement structure of local government in Slovakia brings several problems for municipalities and cities, but also innovative possibilities for their solutions (Daško 2021). This paper perceives each municipality as a specific entity, an original space ("polity"), in which specific networks of actors ("politics") are formed, and based on their interactions, specific forms of public policy outputs ("policy") take place. Each local government is thus characterized by specific conditions and different types of actors involved in public policymaking. The article aims to analyze active

citizenship in local green governance initiatives using the concept of mosaic governance. We will identify best practices and factors that have enabled the implementation of green infrastructure and waste management projects.

Based on the definition of the research problem and aim, we identified three research questions (more information in the materials and methods subsection) to identify the degree of active citizenship in selected Slovak cities. First, the paper focuses on forms of active citizenship in Slovakia's local green governance. Then, the authors focus on models of mosaic governance applicable to the selected cities. The paper analyzes the strength of the civil sector in creating environmental policies according to representatives of advisory bodies of city councils in selected cities.

Literature review

Green governance (in the presented research, green infrastructure and waste management in selected cities are included here) aims to address environmental challenges related to sustainability, including climate change (Debbarma – Choi 2022). Green governance integrates actors in decisions and actions, from the local to the international level, not limited to states and governments but includes public, private, and non-state actors (Gupta – Sanchez 2012). Local authorities acknowledge the involvement of stakeholders as crucial for sustainable and legitimate governance of green spaces (Suškevičs et al. 2013). Declining local budgets put pressure on the quantity and quality of green areas, which has encouraged the involvement of citizens in managing green space (Perkins 2010). This is reflected in forms of co-governance where citizens and authorities work together as equal partners (Olsson et al. 2004) and in many bottom-up initiatives with varying degrees of autonomy for citizens (Van der Jagt et al. 2016). Current debates on the role of citizens in governance often imply a notion of active citizenship. Active citizenship is a concept that has become increasingly topical as governments seek ways of fostering proactive participation by empowered citizens and communities. Traditional understandings of citizenship focus on individuals' official or legal belonging to national identity. This belonging then results in rights and obligations that regulate the relationship between individuals or social groups and the State. Active citizenship, however, is a broader concept as it regards citizenship as encompassing social, economic, and cultural rights and responsibilities. When people are active citizens, they directly participate in landscape management and decision-making. Active citizenship includes the idea that, from the level of an individual to the level of a community, citizens will play an active role in shaping their rights and responsibilities (Murray et al. 2010).

Mosaic governance is a mode of governance closely related to green spaces and active citizenship, also described as self-governance (Driessen et al. 2012;

Buijs et al. 2016). In this mode of governance, active citizens, social enterprises, community groups, and local NGOs initiate numerous local and small-scale initiatives to deliver public goods, including urban green, cultural and natural landscapes. Mosaic governance focuses on exchanging resources, discourses, and experiences between governments and such active citizens (Buijs et al. 2016; Gopalakrishnan – Chong 2020). A typical feature of this governance form is that while the goals and methods are formulated at a community level, they are embedded within an institutional context of national governmental regulations (Buijs et al. 2019). In this mode of governance, active citizens have autonomy in decision-making to a certain degree, while local and regional governments play an essential role in facilitating, stimulating, and regulating (Mattijssen et al. 2018a; 2018b; de Wilde et al. 2014). Governments use a broad and flexible range of communicative and financial instruments, such as subsidies, legal flexibility, and knowledge exchange platforms, to stimulate or regulate such initiatives (Krasny et al. 2014). Mosaic governance has specific characteristics that can be fully applied to environmental policies in local governments where solid civic engagement is needed to function effectively. This model provides a framework that helps identify forms of civic activism based on typical features such as discourse, actors, sources, and game rules in selected cities.

Figure 1: **A functioning model of mosaic governance (Buijs et al. 2019, p. 56.).**
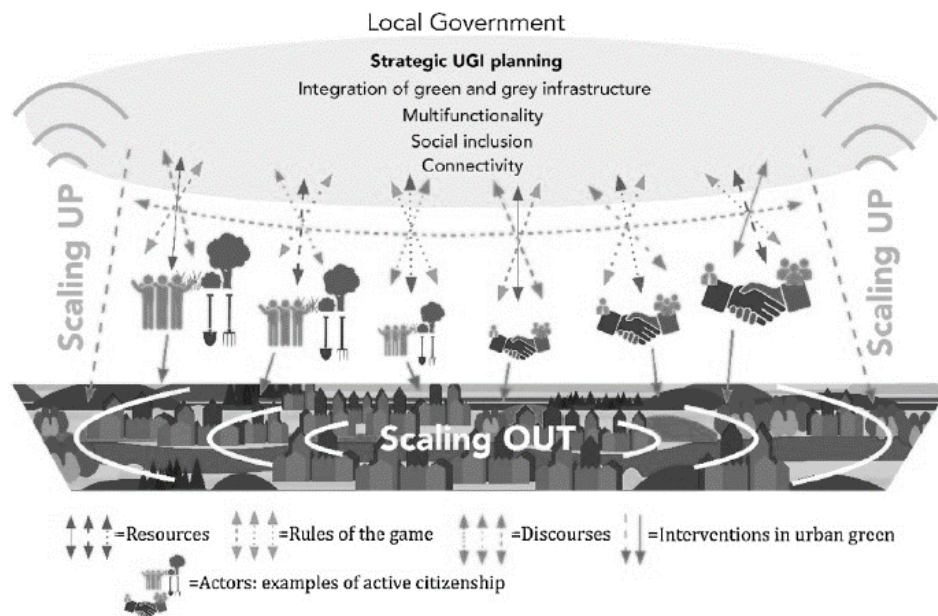
The above scheme is an example of how mosaic governance works in practice. The active participation of local government residents in environmental policy (in the presented research on waste management and green infrastructure) is a prerequisite for effective management aimed at environmental protection. The advantage of mosaic governance is that the public sector (decision-makers) and active citizens direct interventions to improve the environment in municipalities. The above diagram shows the critical aspects of mosaic governance. They are direct actors, resources, rules of the game, and discourse, and together they lead to interventions in environmental policy. The processes take place at the scaling out and scaling up levels. Actors in mosaic governance are a priority component when looking at the above scheme. Their main task consists of initiating the environmental policy agenda and active involvement in projects (whether in the process of preparation or implementation). Active citizenship is an essential condition for the proper functioning of mosaic governance. Another critical aspect of mosaic governance is resources. These include primary self-governing institutions, legal regulations, contracts, land, technical, financial, or human resources. Everything that the municipality has. Training and courses, promotion of new knowledge in the environmental field or allocated subsidies can also be included here. The active participation of the non-public sector in local governments brings about these benefits. The set so-called rules of the game or the functioning system of environmental policy and longer-term strategies in specific municipalities are closely related to the resources. The advantage of well-set rules of the game is a more flexible response to changes that are constantly adopted in environmental policy. Also, adaptation to new regulations, such as, e.g., member states of the European Union bound mainly through subsidy schemes in individual program periods. The last important element is the so-called discourse or changes in environmental policy in municipalities. In short, it is the overall environmental direction of local governments, such as the mechanisms for the functioning of actor mutual relation networks, who is responsible for what, the division of actors' roles in projects, the mechanisms of environmental education, raising awareness in communities, e.g., in the field of waste management or green infrastructure or formal recognition of partners of self-governing bodies. Active citizenship in municipalities in environmental policy helps expand cooperation through projects to all parts of the city and other municipalities (scaling out – scaling/expanding cooperation). In this way, the requirement to learn from the good practices of other municipalities or other urban/municipal parts is supported. The activity of the civil, non-governmental, and private sectors allows resources to be accumulated in the local government to support the population's awareness in the environmental area, the level of information increases, and, finally, the level of social and cultural capital increases (scaling up). The

mentioned processes work independently of each other, and the higher the level of involvement of the population (active citizenship) in self-government, the stronger cooperation with the public sector will be (Buijs et al. 2019).

The paper does not seek to compare cities but explains their specifics in green infrastructure and waste management policies due to the territorial differences and the nature of the actors. Each city is specific and has its way of functioning. Therefore, the authors do not compare but approach each city as an original. The article also identifies different forms of active citizenship that have emerged, modifying the mosaic governance approach in Slovak cities (related to the degree of civic activism). The article tries to investigate whether, in Slovakia, where, at first glance, a strong civic sector engaged in environmental issues is not evident, other forms of participation in formulating environmental policies exist. The paper further opens the discussion about various factors that affect the success of local governments in moving towards a sustainable environment and opens a discussion about the degree of civic engagement using the so-called mosaic governance.

Material and Methods

Methodologically, the research was based on the mixed-method approach (Creswell – Clark 2017). The methods were selected to analyze best practices in local environmental policies in selected Slovak cities regarding green infrastructure and waste management. "Green Infrastructure (GI) can be broadly defined as a strategically planned network of high-quality natural and semi-natural areas with other environmental features, designed and managed to deliver a wide range of ecosystem services and protect biodiversity in rural and urban settings. More specifically, GI, a spatial structure providing benefits from nature to people, aims to enhance nature's ability to deliver multiple valuable ecosystem goods and services, such as clean air or water" (European Union 2013). Based on the interviews we conducted, we also included cycling trails in our investigation, as they serve as a good practice for interconnecting landscape and urban space with citizen needs regarding green space improvement. Waste management refers to the various schemes to manage and dispose of waste. It can be done by discarding, destroying, processing, recycling, reusing, or controlling waste. In our case, in waste management, we focus on all operations that fall within the competence of cities in Slovakia. This includes, e.g., waste separation, removal of illegal landfills, public involvement in cleaning the city surroundings, and autumn and spring cleaning. We asked about involving the public in solving waste policy in the interviews. The members of the commissions were able to sufficiently answer how waste management works in their city and what the civil sector's involvement is.

Figure 1: **Map of selected case study cities in Slovakia.**

The main methods of the research were qualitative and quantitative analysis of documents, semi-structured interviews with experts, and case studies. In research, documents are unintentional sources of information (Silverman 2020). The interview is a technique of gathering information from the field, which requires information obtained from the surveyed persons through targeted questions that are asked to the respondent "face to face", i.e., interpersonal contact (Silverman 2017). We used semi-structured interviews with open-ended questions, allowing the interviewee to answer given questions freely. This resulted in the "snowball" method for respondents' identification. Based on the definition of the research problem and aim, we identified three research questions to identify the degree of active citizenship in selected Slovak cities.

1. In which forms does active citizenship exist in local environmental policy in Slovakia?
2. Which models of mosaic governance are applicable in the selected cities?
3. How strong is the civil sector in creating environmental policies according to representatives of advisory bodies of city councils in selected cities?

The case study intensively studies one problem it explores in depth in its proper context. The point is that by thoroughly examining one case, we can better understand other similar cases (Yin 2009). We applied multi-case studies, where the goal is not directly comparing the selected cities but analyzing specific elements of individual local governments. Therefore, each city is a "best practice" in a different way. Based on interview findings, the authors divided selected cities into the categories that determine the degree of civic

activism within functioning mosaic governance in environmental policies. Commissions are advisory bodies of city councils where the public, private, and civil sectors are represented. The representatives of the commissions are thus able to sufficiently explain how the involvement of citizens in environmental policies works. That's why interviews with members of environmental commissions helped us define the models created in selected cities. Interviews with members of environmental commissions allowed us to formulate answers to research questions. The authors also analysed strategic documents (green infrastructure and waste management), realized projects in the environmental field, used finances (mainly from EU funds), and the transparency of selected cities according to statistical data.

The case study design followed this structure:

– Document analysis on green infrastructure and – waste management;
  o Legislation and strategic documents (waste management plans, programs of economic and social development of cities, spatial plans of cities, community plans of cities, city budgets, project documentation for green infrastructure and urban waste management),
  o Scientific literature review (mainly literature devoted to the concept of mosaic governance - see references),
– Interviews with actors from the local government;
– Content analysis (authors searched for civic involvement in the formulation and adoption of the documents);
– Identification of success/failure factors;
– Synthesis and recommendations.

First, following the logic of mosaic governance (description under Figure 1), we selected active civic sector in environmental policies, such as participation in the formulation of strategic documents, citizens' activities towards decision-makers in green infrastructure and waste management (bottom-up initiatives), or direct representation of environmental activists in local government bodies (mayor, member of parliament).

Next, the case study areas had to be selected. In Slovakia, there are 2 890 municipalities. Mosaic governance was investigated in bigger cities such as Berlin, Amsterdam, Rome, and Copenhagen, so we wanted to keep up with this logic and narrowed the sample to cities that account for 141 (number of municipalities with the status of city) in Slovakia. According to NUTS III, Slovakia is divided into eight self-governed regions. All cities within the regions were considered, but we only included those that had adopted waste management strategies and implemented green infrastructure projects from external funds (mainly EU-funded). Emails were sent to all 141 cities with questions on the existence of green infrastructure and waste management

projects. Using the section mentioned above criteria, considering the willingness of the local government to provide information and data availability, one city was selected for each self-governing district (Figure 1). We eliminated Bratislava and Košice because we wanted to focus on cities having from 20,000 to 100,000 inhabitants. Finally, we selected eight case study areas (Table 1). After selecting the cities, document analysis was performed. We analyzed waste management plans, cities' economic and social development programs, spatial plans, community plans, city budgets, project documentation for green infrastructure, and urban waste management. We searched for civic involvement in the formulation and adoption of the document. The analysis of strategic documents of selected cities served mainly to understand the city's project visions, innovations, and direction in green infrastructure and waste management. Through the documents, the authors identified the visions of the city in the environmental field, and through the budgets and implemented projects, they guided them to the orientation of cities and planning in the given area. After this stage, interviews were conducted with city officials from the committees for the environment to which agendas of green infrastructure and waste management belong. Due to the COVID-19 pandemic, the interviews took place online in March 2021. To ensure the validity of the results, the qualitative research was focused on interviews with representatives of environmental commissions (see Table 1), which are advisory bodies of city councils and can accurately evaluate how the formulation of environmental policies works.

Table 1: **List of interviewees**

Municipality Representatives	Municipality	Position	Date of interview
Respondent 1	Pezinok	Member of the Committee for the Environment, Nature, and Waste	March 2021
Respondent 2	Šaľa	Member of the Committee for the Environment, Public Order and Security	March 2021
Respondent 3	Trnava	Member of the Committee for Environment and Natural Resources	March 2021
Respondent 4	Trenčín	Member of the Committee for the Environment, Transport, Investment, and Spatial Planning	March 2021
Respondent 5	Žilina	Member of the Committee for Environment	March 2021
Respondent 6	Zvolen	Member of the Committee for Environment	March 2021
Respondent 7	Prešov	Member of the Committee for Spatial Planning, Construction, Transport, and the Environment	March 2021
Respondent 8	Rožňava	Member of the Committee for Construction, Spatial Planning, Environment, and Urban Roads	March 2021

Table 1 shows the list of respondents who were interviewed. It was a telephone communication. By gradually collecting contacts through different people, the authors arrived at specific people who could best answer the questions. Environmental commissions in individual cities are advisory bodies of city councils. Their role is advisory, including the public, private, nongovernmental, and civil sectors. The members of the commissions are selected from actors dedicated to the given field (in this case, environmental policy). Respondents could evaluate how civil activists, or the civil sector, participate in creating strategic documents in the environmental field, who and how initiates projects and innovations in green infrastructure and waste management, and how exactly the civil sector is involved in the decision-making process. The respondents themselves worked as civil environmental activists in the past. The commissions are only an advisory body; the cities do not pay them for membership in the commission. Therefore, in the authors' opinion, these were the most qualified respondents who helped formulate the research results.

In the interviews, the selected respondents explained how the creation of environmental policy works in their cities through the involvement of the broadest possible spectrum of actors. They gradually explained the role of active citizenship in creating strategic documents, what projects were implemented and financed, whether the initiation of environmental topics in green infrastructure and waste management comes more from the city or the public, and how they evaluate the involvement of citizenship in environmental policy. Based on in-depth interviews, the authors were able to analyze individual aspects of mosaic governance and evaluated them individually in Table 2 (see results section). Subsequently, the authors summarized the critical aspects of individual cities from the interviews and found similarities. These are presented in the original results in Scheme 1 (see results section). The authors thus defined three models of mosaic governance through knowledge of the character of cities.

Results

To answer the research questions, we first analyzed the elements of mosaic governance. Projects that were mentioned in interviews concerned both green infrastructure and waste management. Green infrastructure projects included mostly urban greenery development and, in one case, urban forests (Zvolen). Waste management projects were aimed at separation and disposal. Trenčín and Prešov cycling trails were identified as areas where active citizenship and mosaic governance are applied in two cases. Through interviewees, document analysis, and environmental projects, the authors identified several groups of actors from public, private, and non-profit sectors participating in local green

governance (Table 2). On the decision-making level, mayors and municipal deputies were the main actors responsible for policy adoption. The stakeholder level was represented by advisory bodies to the municipality, primarily Committees for the Environment and/or Waste Management, which are created in each municipality. The committees have different names and are usually merged with other related areas (see Table 1). Active citizenship/ stakeholders are represented by environmental NGOs, civil associations, "green watchdogs", environmental centers, and individual activists.

The discourse on environmental issues is initiated both from the bottom-up and top-down. As results show, all selected municipalities know the importance of environmental issues for citizens. In three cases (Pezinok, Trnava, Trenčín) where the mayor was a former civic activist, the discourse was shaped mainly top-down, and the municipality conducted various information campaigns on new green infrastructure and waste management initiatives. Activists participated in these activities but did not have to take the initiative. Only in Zvolen, where a strong link between citizens and academic and research organizations was identified, was the discourse initiated from the bottom up. This means the public initiates environmental topics in cooperation with the academic sector towards city representatives. In this case, the principles are directed from the bottom up. However, the academic sector also cooperates with the city authorities, which means it is more of a top-down principle. In both cases, it is interesting in Zvolen that a stronger connection with the academic sector can be seen, which brings a much higher quality to the environmental field in decision-making about creating public policies. In Prešov, activists initiated the discourse on ecological transport, which resulted in local government policy change where the city adopted a strategy towards ecological transport that is currently being implemented. Active citizenship also helps supplement public information campaigns on the necessity of waste separation, keeping public space clean, and building environmental awareness, primarily in waste management. In the field of green infrastructure, a strong coalition of civil activists was formed, who initiated the construction of an extensive network of ecological mobility in the form of cycle routes.

Municipalities allocate funds for environmental issues in their budget. Overall, up to 7 % of the total budget allocation goes to expenditure on environmental issues (see Table 2). From the sum, more than 90% goes to waste management and only up to 10%, but often even less to green infrastructure in all cities. Cities such as Trnava, Trenčín, and Rožňava provide city co-financing through small grant schemes for environmental projects. Activists are also encouraged to submit projects from public funds (state budget or EU), and municipalities participate in co-financing (Trnava, Trenčín, Žilina). Active

citizens offer their capacities by volunteering and mobilizing others in green space development. Several activities were mentioned, such as cleaning river basins, waste disposal, and urban green spaces. All municipalities also provide material and technological resources for grass-cutting or tree planting.

General rules of the game in environmental policy are set by Slovak national legislation, according to which the municipality can adopt its own legally binding municipal acts to regulate different areas where green infrastructure and waste management belong. Any decision taken at the local level about waste management or green infrastructure must be in line with the territorial development plan. This means that the rules of the game of environmental policies in Slovakia are determined by the central government and international conventions to which the Slovak Republic is bound. Each municipality brings its original solutions, which must be in line with national programs, but the implementation is based on the strategic documents of the municipalities.

Scaling out is applied in all municipalities. By implementing environmental projects, the city and all surrounding municipalities benefit. Trnava and Trenčín cities are the best examples of scaling out effect. They were one of the first municipalities to have active citizens in local government and implemented many small projects in urban green space development. Scaling up took place mainly with the involvement of the civic sector, which helped in local policy implementation. Prešov is the best example, where active citizens initially designed and implemented innovative practices in ecological transport (Cycling Coalition) and later incorporated them into formal policies and programs, in this case, the city development program. Furthermore, cycling trail development became the regional government's policy agenda.

Authors can conclude that active citizenship in selected Slovakian cities is integral to decision-making on environmental issues but in different forms. They often supplement or substitute the role of municipal bodies in agenda-setting and project implementation in environmental issues. Based on in-depth interviews, the authors were able to analyze individual aspects of mosaic governance and evaluate them individually. Subsequently, the authors summarized the critical aspects of individual cities from the interviews and found similarities. These are presented in the original results in Scheme 1. The authors thus defined three models of mosaic governance through knowledge of the character of cities. In each investigated city (Pezinok, Rožňava, Zvolen, Prešov, Žilina, Šaľa, Trnava, and Trenčín), the authors defined specific aspects of mosaic governance based on interviews. Table 2 shows the definition of projects, actors, resources, rules of the game, discourse, and principles of scaling out and scaling up for each city. The authors divided environmental projects involving the public into green infrastructure and waste management. Each city

in the given areas dealt with its topics as a priority. The authors divided the actors into three primary groups. Decision-makers were represented by mayors or members of city councils. They directly decide on the creation of environmental policies. Stakeholders - implementers were members of commissions, employees of city offices, and deputies who, in practice, behave as activists (they do environmental campaigns in their spare time, explain to city dwellers how to sort waste, collect the necessary data, and later evaluate them). Civic activists were specific groups of residents who either supervised, directly initiated, or commented on creating environmental policies in cities. The authors divided the resources into material, technical, human, and financial. The contribution does not deal with a specific listing of material and technical resources. Human resources are represented by analysing the actors to which the contribution is devoted. Financial resources in Table 2 represent city expenditures on green infrastructure and waste management for 2020. The authors count them as resources because they are authorized city expenditures covered by balanced budgets (transparency of city financing was one of the criteria for their selection for research). Strategic documents, i.e., local legislation, determine the game's rules. The discourse is divided into bottom-up principles and top-down principles in Table 2. In a bottom-up study, the authors observed who initiates environmental topics from the non-public sector to the greatest extent in a city. Top-down principles were directed directly from local government representatives (public sector) or through participatory budgeting in environmental topics. Scaling out as an essential element of mosaic governance manifested mainly through projects. The whole city benefits from innovative projects financed mainly by European Union funds. As a result, awareness of environmental issues is broadened, and every actor is at least informed about innovative projects that are part of the daily life of city dwellers. The authors defined scaling-up, i.e., increasing actors' cooperation, mainly through the civil sector. In Pezinok, Rožňava, and Zvolen (basic model), scaling up was manifested mainly through participation in strategic documents and commenting on proceedings of active citizenship. In the cities of Žilina and Prešov (optimal model), scaling-up was mainly promoted by the initiative of active citizens, who initiated changes in environmental topics. In Trenčín, Trnava, and Šala (adaptive model), the scaling-up, i.e., increasing the cooperation of the city's actors, manifested in the fact that citizen environmental activists were directly adapted in decision-making positions. In-depth interviews allowed the paper's authors to define critical aspects of mosaic governance in all 8 cities. Table 2 shows the specific values.

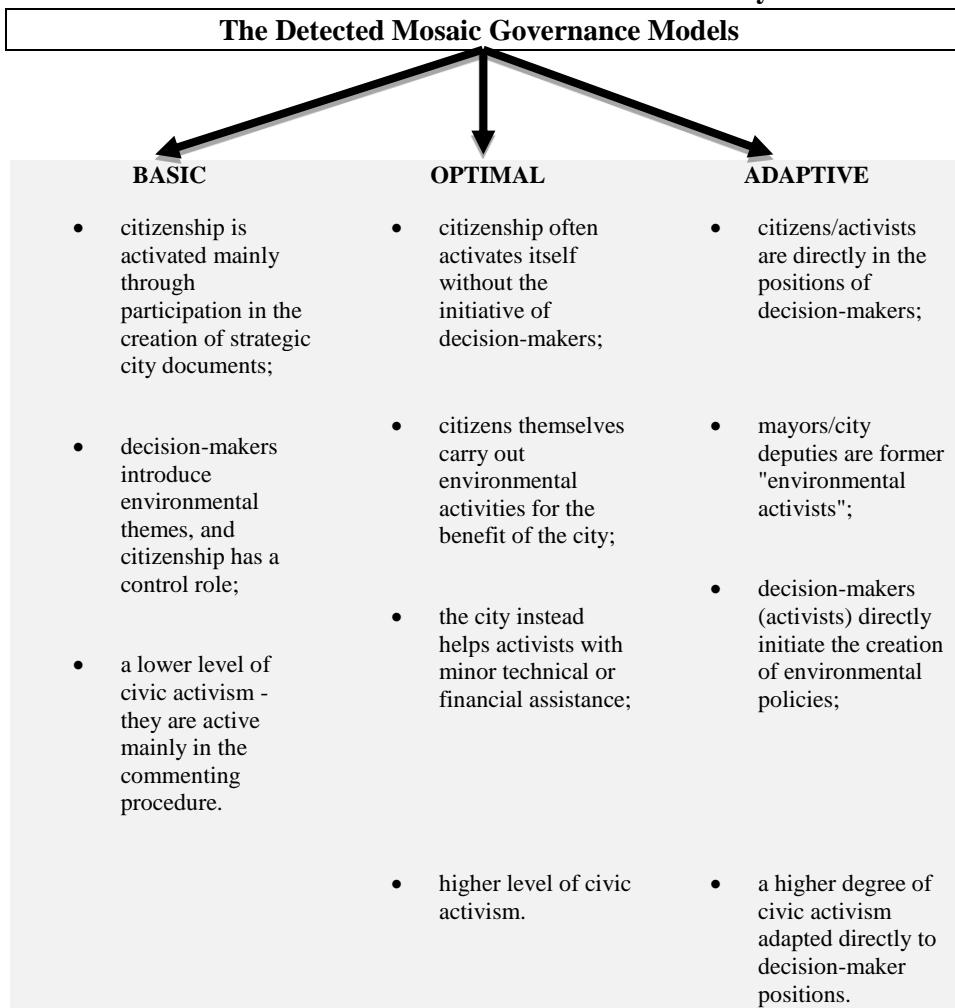Table 2: **Results of elements of mosaic governance in selected cities**

Cities		Pezinok	Rožňava	Zvolen	Prešov	Žilina	Šaľa	Trnava	Trenčín
Projects	*Green Infrastructure*	urban greenery	urban greenery	urban greenery, urban forests	urban greenery	urban greenery	urban greenery	urban greenery, green public spaces	cleaning public spaces
	Waste Management	illegal waste storage elimination	disposal	disposal	disposal	disposal	separation	separation, disposal	separation, elimination
	Cycling Trails	-	-	-	high interventions of stakeholders	-	-	-	high interventions of stakeholders
Actors	*decision-makers*	mayor + members of the city council	mayor + members of the city council	mayor + members of the city council	mayor + members of the city council	mayor + members of the city council	mayor + members of the city council	mayor + members of the city council	mayor + members of the city council
	stakeholders - implementers	advisory commission of environment + city office employees act like activists	advisory commission of environment + municipality parliament	advisory commission of environment + municipality parliament + university	advisory commission of environment + municipality parliament	advisory commission of environment + municipality parliament	advisory commission of environment + city office employees act like activists	advisory commission of environment + city office employees act like activists	advisory commission of environment + city office employees act like activists
	active citizenship	ecological activists	NGOs	individuals (groups)	NGOs	individuals (groups)	NGOs	individuals (groups)	Env. al Activities Centre, Green Watch, Experience Trenčín

Table 2: **Continued**

Cities		Pezinok	Rožňava	Zvolen	Prešov	Žilina	Šaľa	Trnava	Trenčín
Resources	*material*	yes	yes	yes	yes	yes	yes	yes	yes
	technical	yes	yes	yes	yes	yes	yes	yes	yes
	human	yes	yes	yes	yes	yes	yes	yes	yes
	financial	1 369 719 €	1 172 848 €	1 677 994 €	4 927 773 €	5 480 779 €	952 463 €	5 749 813 €	2 442 876 €
Rules of the Game	*municipal*	legislation	legislation	legislation	legislation	legislation	legislation	legislation	legislation
Discourses	*bottom-up*	citizens as members of committees, initiatives	environmental education	activists, academic sector	activists, ecological transport	activists	citizens, campaigns	city council members, mayor	city council members, mayor
	top-down	participatory budget, campaigns	participatory budget	participatory budget	municipality	municipal actors, communication campaigns	municipal actors	municipal actors, communication campaigns	municipal actors, communication campaigns
Scaling-out		projects	projects	projects	projects	projects	projects	projects	projects
Scaling-up		strategic documents, reminder proceedings of active citizenship	strategic documents, reminder proceedings of active citizenship	strategic documents, reminder proceedings of active citizenship	own initiative of active citizenship	own initiative of active citizenship	active citizens = decision-makers	active citizens = decision-makers	active citizens = decision-makers
Detected type of mosaic governance by authors		basic	basic	basic	optimal	optimal	adaptive	adaptive	adaptive

From interviews with members of municipal advisory commissions dealing with environmental issues, several types of actors' participation in local green governance were identified. According to the level of civic sector involvement in local environmental policies based on the long-term experience and knowledge of the respondents, we have modified the concept of mosaic governance and identified three modes of mosaic governance – basic, optimal, and adaptive. Scheme 1 summarizes the main characteristics of the models.

Scheme 1: **Results of modified Mosaic Governance models by authors**

The Detected Mosaic Governance Models		
BASIC	**OPTIMAL**	**ADAPTIVE**
• citizenship is activated mainly through participation in the creation of strategic city documents;	• citizenship often activates itself without the initiative of decision-makers;	• citizens/activists are directly in the positions of decision-makers;
• decision-makers introduce environmental themes, and citizenship has a control role;	• citizens themselves carry out environmental activities for the benefit of the city;	• mayors/city deputies are former "environmental activists";
• a lower level of civic activism - they are active mainly in the commenting procedure.	• the city instead helps activists with minor technical or financial assistance;	• decision-makers (activists) directly initiate the creation of environmental policies;
	• higher level of civic activism.	• a higher degree of civic activism adapted directly to decision-maker positions.

Essential mosaic governance was identified in cities where citizens use traditional forms of public participation in decision-making on the local or regional level. Active citizenship is present mainly in commenting on strategic document proposals, such as Municipality Development Programs or Territorial Development Plans. Citizens do not introduce new environmental topics into the policy agenda, the discourse is shaped top-down by the city council. Active citizenship has a controlling function in overseeing municipal representatives in meeting environmental policy targets. Innovative projects in environmental policy are implemented with public approval. In this model, a smaller civic environmental activism can be seen, which is mainly mobilized during the creation of city goals, plans, and strategies. In research, it appeared in Pezinok, Zvolen, and Rožňava.

Optimal mosaic governance is typical for cities where citizens activate themselves without the influence of the local government and where the decision-makers are not strongly oriented on the environmental agenda. They initiate environmental activities from the bottom up and the city provides them more likely with minor technical or financial assistance. These initiatives cover small-scale projects, such as city streets, parks, or riverbank cleaning activities, and large-scale projects, such as building green paths and the cycling coalition. This model shows a higher level of civil environmental activism, which initiates environmental activities because the decision maker is not strongly oriented towards public environmental policies. In research, it appeared in the cities of Prešov and Žilina.

Adaptive mosaic governance has a strong civic sector, where active citizenship is represented directly in decision-making bodies such as municipal councils or mayors. Our research showed that municipal decision-makers have been civic activists promoting environmental issues for several years and "adapted" into decision-making processes. The best example is Trnava, where the mayor won the election for the environmental agenda after being a long-term environmental activist. Since 2014, he has been the mayor and contributed to the city's greening. The city of Trnava is one of the leading municipalities in Slovakia for implementing green infrastructure due to a robust civic sector that pushes the "green agenda" into decision-making with the help of the local government. The respondents from Trnava, Trenčín, and Šaľa confirmed that they are also members of city councils today, but in practice, they behave more like activists. Thus, civic, environmental activism goes from indirect decision-making (as a citizen activist without decision-making powers) to the position of decision-makers. Therefore, this model is called adaptive. Civic activism is not so visible on the outside. However, civic activism is directly implemented in

the decision-making process. Ultimately, the representation of civic activism is the highest among all models.

The main criterion for including selected cities in the given categories was whether the environmental advisory commissions' representatives at the councils or mayors' offices have civic sector representatives in decision-making positions. Another criterion was the long-term participation, representation, and perception of the council and "colleagues" as environmentally active citizens when the present decision-maker was not politically engaged.

Discussion

Green governance and sustainable development directly respond to mounting calls to address the challenges of the earth's climate problems. The concept of green governance is not limited to states and governments but includes many public, private, and non-state actors (Gupta – Sanchez 2012). Mosaic governance is a model based on a self-governance approach (Driessen et al. 2012), i.e., where citizens play a significant role in realizing, protecting, and managing green public space (Debbarma – Choi 2022). It is a model that can be applied to evaluate the quality of environmental policies in local governments. Based on mosaic governance key aspects, which are the actors (involvement of the broadest possible spectrum of sectors), the rules of the game (which determine the key documents on environmental policies, the establishment of the rules of operation in the creation of environmental policies in local governments), the discourse (the direction that local governments are taking in waste management and green infrastructure) and resources (financial, human, technical, material or other), our research verifies that the concept of mosaic governance is suitable for environmental policy evaluation also in Slovakia. Each local government is a specific bounded territory in which specific actors are formed and create original solutions to environmental policies reflecting the needs of their residents and the territory in which they live.

Mosaic governance presumes the involvement of citizens in environmental policy processes exclusively from the civic sector (Buis et al. 2019). In other words, centralized, top-down steering in the field of nature conservation policy is increasingly supplemented with more regional, networked, and participatory forms of governance, which was also confirmed by our research. Civic activism in selected Slovakian cities does not have only one form but several since each local government is a specific entity that creates the political environment in its own way. The range of civic activism ranged from commenting on local legislation and strategic documents, introducing waste management and green infrastructure projects into political agendas, to direct involvement as decision makers in municipal councils or mayors. Active citizenship in the city not only

impacts the environment but also raises questions on how cities should be governed. Many citizens become active not only to realize direct environmental or societal values and benefits but also to transform existing governance practices by demanding more democracy, urban green spaces, or a more profound transition towards sustainability (Mattijssen et al. 2019). This was visible in cities where optimal and adaptive mosaic governance was applied.

This study confirmed that all critical aspects of mosaic governance in the selected eight cities were represented, and various forms of civic activism were identified in environmental topics. Civic activism is essential for a functioning mosaic governance model (Buis et al. 2019). The research confirmed that the critical element of successful environmental policies is actors. They hold together the rules of the game; they determine the discourse, i.e., the nature of environmental topics, and the actors become ambassadors of environmental topics because they are the bearers of arguments and ideas for solutions, whether waste management or green infrastructure. The research further confirmed that all aspects of mosaic governance depend on the actors' quality, especially in the non-public sector. Various forms of civic activism were confirmed. The original model of mosaic governance perceives civic activism as more likely as a counterpart or collaborator of the public sector (executive bodies of local governments) in environmental policies. The model says that for the quality functioning of environmental policies, it is necessary for the non-public sector, in the form of civic activism, to initiate environmental policy topics constantly or to act as a kind of active "watchdog" in the performance of the functions of self-governing bodies (Buijs et al. 2019). However, the research confirmed that in several cities, civic activism is directly represented in executive bodies, i.e., in the positions of mayors and deputies of city councils. Environmental activists thus understand that they will create more changes in green infrastructure and waste management as decision-makers, not as the non-public sector. They are decision-makers, but practically, they act like environmental activists. In the cities where the adaptive model was confirmed, individual actors said in the interviews that even though they are in the decision-making bodies of the city, they still behave and think like activists. Only from their current position can they implement changes much more effectively. The original mosaic governance model did not count directly with this variant. This points to the modern phenomenon that presents decision-makers who were former civic activists who have already adapted to decision-making processes. The highest degree of civic activism resulted in adapting the activities to direct representation in decision-making positions, which the mosaic governance concept does not account for. Still, the research confirmed that a modified form is fully compatible with the concept. Adaptive governance is defined as the

processes through which institutional arrangements develop to meet the needs and wishes of the community in a changing environment. It involves various actors such as institutions, policymakers, Indigenous peoples, NGOs, and cities. Actors in selected cities adapted to the changes and realized that the most effective way of pursuing their interests in local environmental policy is to participate in decision-making positions.

The existing literature recognizes practically one model of mosaic governance. This model emphasizes bottom-up principles through active citizenship that engages in environmental policies. Citizens, communities, and the non-governmental sector participate in decision-making in green infrastructure and waste management. Other more hierarchical models, where the civil sector is not so heavily involved, are considered different models than mosaic governance. The benefit of the literature and previous knowledge is that even cities/municipalities, where at first glance it may seem that top-down principles are applied without more significant involvement of the public, can also have the character of mosaic governance. The paper confirms that civil activists are adapting to self-governing bodies in cities. Although they appear in environmental policies as the public sector, it can be argued that the decision-maker initiates the issues and acts as an environmental policy activist. However, unlike classic civic activists, they already have decision-making powers because they are directly the mayors or members of the city council. The contribution also shows in the Central European area that civil activism does not only have to be the so-called counterpart of the public sector but can be a direct decision-maker in green infrastructure and waste management. Researchers are not directly oriented to investigating phenomena, whether decision-makers were civil environmental activists in the past. In the cities analysed in the article, it was confirmed that even if citizens are not directly involved in environmental policies, this does not mean that we cannot talk about elements of mosaic governance. On the contrary, decision-makers act directly as environmental activists and initiate projects and innovations from the position of the public sector. It also follows from the interviews that even if the actors are members of parliament/mayors in local governments, they still act as activists. This modern phenomenon of understanding the role of civic activism is the contribution of the presented paper. It opens discussions about the possibility of narrative research and how activists get from the position of observers and commentators to positions that directly decide on environmental policies. The contribution confirmed several modified models of mosaic governance, where citizen activism is visible but in different forms. In the future, more extensive and more profound research should be carried out on the mentioned phenomena because citizen activists understand that they can do more if they are

decision-makers than if they are just public representatives without decision-making powers. In cities where the authors of the contribution defined an adaptive model of mosaic governance, it was found that citizens are not strongly involved in environmental policies. However, in each city (Trnava, Šaľa, and Trenčín), innovative environmental projects were initiated by actors who worked as civic activists in the past. At first glance, it is instead a more hierarchical model, where the public sector determines the creation of environmental policies, and citizens are not strongly involved. After a deeper investigation, however, it was found that these are elements of mosaic governance, where activists from the positions of decision-makers initiate innovations in green infrastructure and waste management. The quality of actors (civic activism) can contribute to innovations in environmental policies and thus determine the discourse, rules of the game, and resources and motivate other actors in the innovations. Elements of mosaic governance were applied in all cities but in modified versions. The paper thus opens a discussion on various forms of civic, environmental activism that impact a sustainable environment in European municipalities.

Limitations

We are aware of the limitations of our study. The first one is the selection of selected cities and the second is the selection of respondents. When selecting cities, emphasis was placed exclusively on quality rather than quantity. The contribution could have followed the path of several case studies. However, the authors opened a new topic, which has not yet been explored in the Slovak environment, so the contribution is focused on one city from each self-governing region (total number of 8). The modified models of mosaic governance could be investigated in other municipalities following the same research design so that the contribution can be a methodological inspiration for similar types of research. One can see the orientation towards fewer case studies, as this is the pilot research. The second limitation is the choice of respondents. The contribution could have gone more in-depth and asked specific actors responsible for waste management and green infrastructure. However, the contribution does not examine the functioning of public policies in depth. Instead, it focuses on the processes of forming relationships and qualifications between individual actors in the creation of environmental policy. Members of advisory representative bodies (commissions of city councils) were able to sufficiently explain how the relationships and ties between the actors in the given policies work, and the authors were able to analyse, based on the collected data and expert knowledge, the kind of mosaic governance applies for the city. Many respondents also worked as civil activists in the past and were

members of the city council's advisory body on environmental policies. Therefore, we start from the assumption, and it has been confirmed in the research that they were adequate assessors of how the non-public sector participates in environmental policy decisions. However, the authors know there could have been more respondents, or the research could have gone more in-depth. The research is the first of its kind in Slovakia. It opens possibilities for more detailed research, addressing more self-governing actors and a larger sample of self-governing governments in the future. This fact can also be limited because it creates many other questions that the article does not address.

Conclusions

There are several models of how mosaic governance can work in practice and in what different ways citizen activism is mobilized in environmental policies in Slovakia. Mosaic governance explains what factors determine the quality of environmental policies in local governments. The fundamental element is an active civic sector, which must be "visible" to municipalities. The results confirm the application of mosaic governance in Slovak cities using three models. Essential mosaic governance occurs when the active civic sector mainly represents the public in creating strategic document adoption and has a more supervising character regarding environmental policies. Environmental topics are pushed by decision-makers top-down. This model was confirmed in Zvolen, Rožňava, and Pezinok. The second model is optimal mosaic governance, where the civic sector is activated without decision-makers initiative. Citizens carry out environmental activities for the benefit of the city without direct cooperation; the municipality offers them minor financial or technical assistance. This model has a higher degree of civic activism, confirmed in the cities of Žilina and Prešov. The last model represents the adaptive mosaic governance. Civic activists in environmental topics are direct members of decision-making bodies, either in the position of mayors or members of city councils. They became public sector members; however, even though they perform executive functions, they still behave as environmental civic activists regarding environmental issues. Decision makers introduce environmental issues in cities; we can say that they adapt to the model, where citizen activism is directly represented in decision-making. This leads to the highest level of civic activism in mosaic governance and was identified in Šaľa, Trnava a Trenčín. Our results point out the need for further research on the role and interests of civic actors in local governments and environmental policies because they directly decide on the discourse, rules of the game, and resources, which are essential for effective and high-quality environmental policies.

Conflict of interests
The authors declare no conflict of interest.

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