2024

VOLUNTARY LOCAL REVIEW

THE CITY OF NIŠ
REPUBLIC OF SERBIA

VOLUNTARY LOCAL REVIEW OF THE CITY OF NIŠ, REPUBLIC OF SERBIA, 2024

The Implementation of the UN Sustainable Development Goals in the City of Niš

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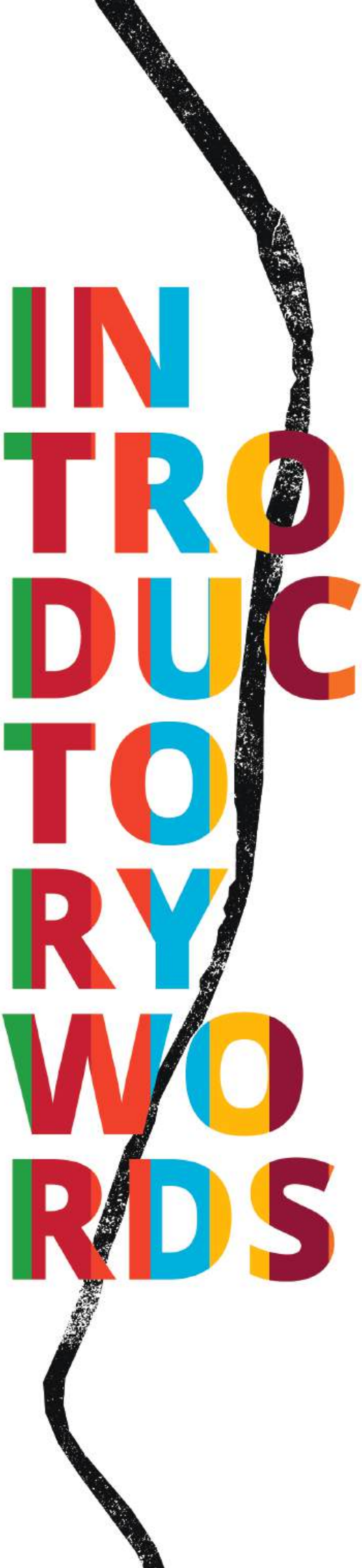

INTRODUCTORY WORDS

Message from the Mayor of the City of Niš

As one of the key urban centers in the southeastern part of Serbia, the City of Niš faces challenges and opportunities emerging from dynamic urbanization and social processes. In the light of ubiquitous global challenges such as climate change and sustainable development, there is a need for a comprehensive approach to the planning and development of urban areas. The Voluntary Local Report (VLR) aims to provide a comprehensive overview of the current relationship of the City of Niš with an integrated approach in the preparation of planning documents, as well as to analyze the way in which the implementation of Sustainable Development Goals affects the preparation of the new General Urban Plan (GUP).

An integrated approach in the preparation of planning documents seeks to connect different sectoral plans and strategies, ensuring that all aspects of urban development – infrastructure, social needs, environmental protection, etc. – are coordinated and harmonized. In this context, the aim of the VLR is to investigate the way in which the valid planning documents and strategies in Niš reflect this integrity and to what extent they contribute to the achievement of Sustainable Development Goals.

The Sustainable Development Goals and the 2030 Agenda play a key role in directing global efforts towards sustainable development and inequality reduction. These goals provide clear guidelines and standards for improving the economic, social and environmental aspects of development. In the context of data collection, information provision and monitoring, SDGs and 2030 Agenda are the foundation for the establishment of relevant indicators, monitoring and evaluation methods. They enable alignment of local strategies with global standards, ensuring that development activities in Niš are measured and evaluated according to international criteria.

The implementation of the Global Urban Monitoring Framework is a key component of the Voluntary Local Report of the City of Niš. Monitoring urban change requires precise measurement and analysis of various elements of urban life, including air quality, access to basic services, socio-

economic conditions and land use. These data are necessary for determining trends, assessing the impact of urban policies and plans, as well as for timely adjustment of strategies to achieve the Sustainable Development Goals.

Developed monitoring systems enable continuous monitoring and evaluation of progress in achieving the Sustainable Development Goals, providing important information for decision-making and improvement of urban planning. Also, the application of the methodology of the Global Urban Monitoring Framework contributes to transparency and accountability in the decision-making process, allowing citizens and other interested parties to be informed about the state and progress in their community.

By founding the Monitoring Unit, the City of Niš showed its commitment to continuous monitoring and improvement of the quality of planning documents. This initiative aims to increase transparency, improve the decision-making process and other aspects. As a basic point for data collection and localization of specific goals, as well as for their measurement, the Unit has the potential to grow into a center that will deal with this issue even more seriously and that will improve the practice of planning in future. The aforementioned includes the preparation of analyzes of the existing situation for the purposes of identifying problems and finding adequate solutions.

The preparation of a new general urban plan is a turning point for the future of the City. As a document that defines long-term directions for the development of urban area, the GUP must be based on the principles of sustainability, efficiency and citizen participation. This report is focused on the analysis of the connection between the current plans and strategies with the Sustainable Development Goals, as well as recommendations for improving the integrated approach in the process of drafting the new GUP.

Dragoslav Pavlović, Mayor of the City of Niš

Message from the Interim Director of the Agency for Spatial and Urban Planning of the Republic of Serbia

The Agency for Spatial and Urban Planning of the Republic of Serbia is responsible for establishing a single system of spatial planning indicators, as well as for monitoring spatial development. The first Voluntary Local Report in the Republic of Serbia prepared for the City of Niš contributes to the activities arising from the aforementioned competencies of the Agency. Thanks to this report, three principles of spatial and urban planning will be improved:

- Integrated approach – various topics related to the 17 sustainable development goals, the monitoring of which is the responsibility of the Statistical Office of the Republic of Serbia, contribute to horizontal cooperation at the national level reflecting on the local level, where the Voluntary Local Report of the City of Niš shows the values of the indicators for 12 objectives;

- Multi-level governance - the harmonization of the Voluntary Local Report of the City of Niš with the Voluntary National Report of the Republic of Serbia 2019 contributes to the compliance of the local, national and global, bearing in mind that the sustainable development goals are part of the United Nations Agenda 2030;

- Stakeholders' participation – indicators of sustainable development goals from voluntary local reviews, contain data on the state of development and the implementation of plans that give evidence to all actors in the achievement of development goals and the implementation of planning documents.

Reporting in the field of spatial and urban planning based on the monitoring of spatial development was established at the national and regional level in Serbia after 2010. The Spatial Plan of the Republic of Serbia 2010-2020 defined 106 spatial development indicators, the values of which were

calculated in the annual reports from 2011 to 2014 and in the biennial reports from 2014 to 2018. Starting with 24 indicators in the Implementation Report of the Spatial Plan of the Republic of Serbia 2010-2020 in the period 2011-2018 a total of 75 spatial development indicators were processed in one or more reports. In addition to regular reports on the implementation of the Regional Spatial Plan of the Autonomous Province of Vojvodina in the period 2013-2019, two reports on the implementation of regional spatial plans for the Region of Eastern and Southern Serbia and for the Region of Šumadija and Western Serbia were prepared in 2016. Sustainable Urban Development Strategy of the Republic of Serbia 2030, adopted in 2019, defined 43 indicators, of which the values for 37 are shown in the Action Plan adopted in 2021. Systematic monitoring at local level has not been set up yet in Serbia.

In April 2024, the National Urban Forum was organized in Niš, where the activities during the preparation of the first Voluntary Local Report in Serbia were presented in the plenary session. The City of Niš has shown its commitment to the preparation of this document, which represents an example for the establishment of development monitoring at the local level with the aim of improved planning and the better quality of life for citizens. Reporting on the state of local development will, among other things, contribute to better implementation, monitoring and evaluation of spatial and urban plans in the Republic of Serbia.

Đorđe Milić, Interim Director of the Agency for Spatial and Urban Planning of the Republic of Serbia

Message from the supporting partners

We congratulate the city of Niš for marking a significant milestone in Serbia's journey towards sustainable development by developing the first Voluntary Local Review(VLR) in the country. This review is the result of a collaborative process led by the city of Niš, involving numerous stakeholders including the national government and community members, and supported by the United Nations Human Settlements Programme (UN-Habitat), the United Nations Department of Economic and Social Affairs (UN DESA), the United Nations Economic Commission for Europe (UNECE) and United Cities and Local Governments (UCLG).

The city of Niš has now joined the VLR global movement along with over 300 VLRs published as of 2024 representing the realities of more than 460 million people. VLRs have proven to be a powerful process for accelerating SDG localization, enhancing country wide capacities and awareness of the SDGs and sustainable development. The VLR of Niš analysed 12 SDGs highlighting areas where the city excels and those where further action is needed thereby providing a roadmap for more strategic planning and budgeting in line with realities on the ground.

The VLR process in Niš was conducted in line with the Action-Oriented VLR Methodology developed by UN-Habitat and UCLG. The VLR goes beyond diagnostics and analysis and provides specific actions and project recommendations to be undertaken per SDG and in line with the goals set out in the Development Plan of the City of Niš, Spatial Plan of the City of Niš Administrative Area and other local plans. For example, policy recommendations are made for enhancing local employment policies, with a particular focus on the employment of young professionals and vulnerable groups.

The VLR process in Niš is unique. Under the leadership of the city administration, a dedicated SDG monitoring unit was created, an innovative development poised to become an inspiring best practice in the country and region. This unit promises to build lasting capacities within the local government, ensuring continued monitoring and action on the SDGs.

We extend our heartfelt gratitude to the municipal authorities of Niš, local stakeholders, and community members whose collaboration and dedication have been instrumental in the development of this review. The VLR process adopted a highly participatory structure including consultation forums for stakeholders to input, validate and truly own the VLR of their city. Their insights and efforts have ensured that the VLR is a true reflection of the city's aspirations and commitments to sustainable development. Additionally, support from the Ministry of Construction, Transportation, and Infrastructure at the national level enhanced multilevel coordination, opened new channels of dialogue, and resulted in more effective national delivery of the SDGs.

We are proud to support Niš in this endeavour and we look forward to scaling-up this experience to other self-government units across Serbia and the region. The lessons learned and best practices identified through this review will serve as valuable resources not only for Niš but also for other cities striving for sustainable urban futures.

Sincerely,

Shipra Narang Suri, Chief of the Urban Practices Branch, United Nations Human Settlements Programme (UN-Habitat)

Amson Sibanda, Chief, National Strategies and Capacity Building Branch, United Nations Department of Economic and Social Affairs (UN DESA)

Paola Deda, Director, Forests, Land and Housing Division, United Nations Economic Commission for Europe (UNECE)

Emilia Sáiz, Secretary-General, United Cities and Local Governments (UCLG)

ABBREVIATIONS AND ACRONYMS

SDG	Sustainable Development Goal
UN-Habitat	United Nations Human Settlements Programme
UNECE	United Nations Economic Commission for Europe
UNDESA	United Nations Department for Economic and Social Affairs
UCLG	United Cities Local Governments
UMF	Global Urban Monitoring Framework
VNR	Voluntary National Review
VLR	Voluntary Local Review
SORS	Statistical Office of the Republic of Serbia
UNEP	United Nations Environment Programme
UN RCO	United Nations Resident Coordinator Office in Serbia
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
OHCHR	Office of the United Nations High Commissioner for Human Rights
OSCE	Organization for Security and Co-operation in Europe
ODIHR	Office for Democratic Institutions and Human Rights
SPRS	Spatial Plan of the Republic of Serbia
SUDS	Sustainable Urban Development Strategy
LSG	Local Self-Government Unit
LC	Local Consultant
NC	National Coordinator
LRC	Local-Regional Coordinator
MU	Monitoring Unit
RSD	Republic of Serbia's Dinar
NIVOS	Water supply system of the City of Niš
NIKAS	Sewage system of the City of Niš
SUMP	Sustainable Urban Mobility Plan
SEPA	Serbian Environmental Protection Agency
PM	Particulate Matter
MSW	Municipal Solid Waste
RePOS	Reclaiming Public Open Space
LID	Low Impact Development
BMP	Best Management Practices
WSUD	Water-Sensitive Urban Design

SUMMARY

The City of Niš is continuously investing efforts in advancing sustainable development, while navigating various challenges along the path to sustainability. The Voluntary Local Review of the twelve selected SDGs undertaken by the City of Niš resulted in the following main findings:

Niš faces challenges in communal infrastructure, including sanitation and water supply issues in rural areas, insufficient heat energy supply and mobility concerns. Inefficient performance of city institutions exacerbates these challenges. Planned initiatives include a regional water supply system, biomass-based heat plants, gas supply expansions and waste management improvements. Gender inequality in agricultural land ownership persists. Limited awareness of women's ownership rights, coupled with low interest in economic empowerment, requires collaborative efforts. Amendments to laws have increased women's property ownership, by fostering gender equality and empowering women in agriculture.

Niš faces challenges in agriculture due to land fragmentation and poor irrigation practices, while complex property relations complicate land management. Organic farming struggles with high costs and limited market. Improving human resources and institutional cooperation is crucial for local agricultural development. Efforts to consolidate land and improve irrigation are ongoing.

Issues leading to traffic accidents in Niš include mobile phone use while driving, lack of seatbelt use and insufficient infrastructure for sustainable mobility. Efforts focus on improving roads, educating adults on child safety and implementing new measures for safer roads. Initiatives like distributing car seats aim to enhance safety, while the Sustainable Urban Mobility Plan improves transportation. Main air quality challenges involve incomplete pollution data, solid fuel use in household furnaces, low environmental awareness of citizens and inadequate urban greenery. Measures like switching heating plants to natural gas and promoting energy efficiency in buildings are underway to reduce emissions.

Niš excels in education completion rates but faces challenges in providing adequate educational infrastructure, particularly in rapidly growing urban areas. Efforts include plans for new schools, use of information system and support for dual education. The city is also working on inclusivity, supporting children with disabilities, refugees and migrants. A youth NGO is promoting non-formal education and raising awareness of SDGs among youth.

Women's representation in rural areas of Niš's local government remains insufficient, and there's often a lack of cooperation between institutions and NGOs on gender issues. Efforts like the Women's Councillor Network and the Council for Gender Equality aim to boost female participation in politics and public life. NGOs and institutions conduct activities to empower rural women, focusing on entrepreneurship and providing support through training and grants.

The lack of a water supply system in parts of Niš is a major challenge. Existing rural water systems face issues like legal registration, dilapidation and insufficient capacity. Efforts, including campaigns, aim to ensure access to clean water for all residents, with a focus on rural areas. Niš lacks wastewater infrastructure in certain areas, posing flooding risks, which calls for coordinated city efforts. Niš also needs a Wastewater Treatment Plant to meet EU standards and support urban development by enhancing public health, water quality, wildlife habitats and economic growth. The "Construction of Wastewater Treatment Plant and Collection System" project, funded by the EU and the Ministry of Environmental Protection, aims to address these issues, and demonstrates the city's ongoing commitment to addressing wastewater management and treatment. Construction of collectors has begun, with the plant expected to follow soon. Plans are underway for a plant near Popovac.

Challenges in efficiently utilizing renewable energy sources are associated with poor planning and implementation practices. Initiatives include plans for solar power plants and increased biomass use in the heating system. Good practices include a thermosolar plant at a preschool institution, a photovoltaic plant at a residential complex, and use of a geothermal well at the City Heating Plant.

SDG 8

SDG 11

SDG 13

SDG 15

Niš grapples with high unemployment rates, especially among youth and older individuals, aggravated by low wages and informal work. Challenges include outdated youth policies and inadequate data on young employees. Initiatives like the “My First Salary” and “Youth Guarantee” programs aim to alleviate youth unemployment. Improved coordination between sectors and institutions is needed to address unemployment effectively.

Niš struggles with informal settlements and slums, particularly impacting the Roma community. Despite efforts, illegal construction persists. Challenges include ownership disputes and resistance to resettlement, along with limited funding. Efforts include housing support programs, but implementation delays persist. Streamlined legalization processes aim to address these issues. Niš values community feedback on public transport, addressing issues like overcrowding, delays and accessibility. Modernization efforts aim to improve real-time information and accommodate passengers with disabilities. Plans include transitioning to low-floor and electric buses, enhancing stops for better accessibility and relocating transportation hubs to optimize traffic flow. Funding constraints hinder the preservation and promotion of Niš’s cultural heritage, limiting its tourism potential. Despite recent investments, overall preservation efforts remain insufficient, with some areas of architectural heritage left unexplored. Disputes over jurisdiction and funding halt archaeological excavations. Niš struggles with waste management due to outdated landfill facilities, hampering environmentally friendly disposal. Financial constraints and insufficient efforts impede progress. The project to rehabilitate Bubanj landfill marks a shift towards sustainable waste practices, along with the plan for a regional landfill. To combat illegal landfills, Recycling Yards are established, stressing the importance of collection services and citizen awareness. Niš faces severe air quality issues due to high levels of PM10 and PM2.5 particles, primarily from inefficient household furnaces. Efforts by the city and the heating plant have been insufficient, with citizens’ lack of responsibility and resources exacerbating the problem. To address this, a joint project of the city and the state aims to connect households to the city heating system, but results are still pending due to the large number of households with furnaces. Intensive urbanization in Niš after socialism led to the loss of public spaces, particularly in multi-family housing areas, impacting urban landscape, environment and health. Challenges stem from national legislation, financial constraints and citizen awareness. Efforts to reclaim public open spaces include mapping and joint projects with academic institutions, aiming to reshape urban planning paradigms and enhance urban resilience. Limited control over urban expansion in Niš increases disaster risks, particularly in flood-prone and landslide-affected areas. Informal settlements lack proper regulation and building permits, exacerbating these risks. Challenges include insufficient data analysis and poor intersectoral cooperation in planning. Efforts to address these issues involve issuing approvals for disaster risk assessment and protection plans, as well as launching a digital platform for disaster risk management.

Urgent action is needed to address the active Maramor-Krušce landslide, including prohibiting construction, stabilizing the terrain and reviewing land use. Flood protection efforts require additional work on watercourse stability and cleaning. Small urban streams are neglected due to pollution and illegal developments, with the citizens’ low awareness exacerbating flood risks. Plans for an early warning system are underway at the national and local levels.

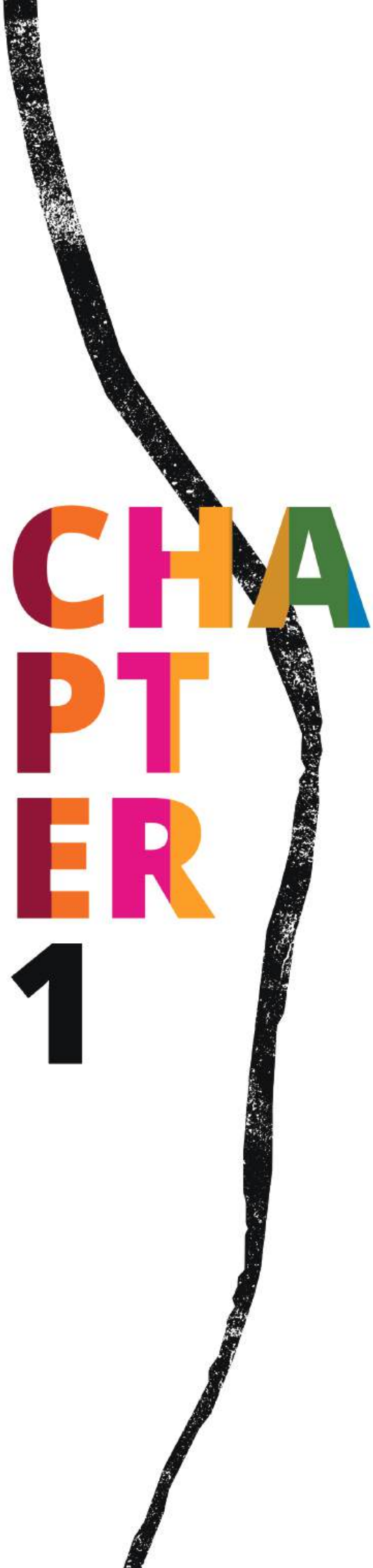
The City of Niš faces challenges due to uneven forest distribution and limited urban greenery. Problems include uncontrolled logging and construction, insufficient reforestation efforts, data exchange, staffing and funding shortages. Rehabilitation efforts were undertaken in 2022 on Suva Mountain, and afforestation projects have been initiated in the city. Precise spatial data is a strength in forest management. Niš’s natural assets are underutilized for tourism and economic development due to spatial, regulatory and socioeconomic constraints. Efforts to manage protected areas and biodiversity are acknowledged. Some areas in Niš are recognized internationally for nature protection, but further efforts are required for forest ecosystems, micro-locations and freshwater biodiversity. The quarry in Sićevo gorge is a major environmental issue needing rehabilitation. Plans propose closure for restoration, but the quarry remains operational. Challenges are related

to the poor cross-departmental cooperation and limited funds for environmental protection. The remediation of a factory site in Niš in 2014 halted pollution and ensured environmental safety. Climate change poses a threat to Niš, increasing the risk for endangered species. Pollution and illegal construction exacerbate the challenges. Efforts at the national level involve preparing Red Books and a Red List for various flora and fauna. Locally, preservation efforts are proposed in the Environmental Protection Programme, focusing on establishing protected areas for endangered species.

Domestic violence in rural areas is often unnoticed due to patriarchal norms. Encouraging victims to report incidents and strengthening institutions for investigation and support are crucial. There's also a need to address peer violence, especially in the digital age. Niš has initiatives like a Safe House and a School Policeman project to combat violence and support victims. Niš lacked effective monitoring of public policies due to a lack of indicators. New laws in 2018 and 2019 helped establish a planning framework, but challenges remain in strategic planning and budget alignment. Efforts to enhance transparency include making the budget accessible online since 2013. Improved planning, responsible budgeting and transparency in government expenditures are needed.

Action-oriented recommendations are developed in the VLR to address the challenges and guide the sustainability development of Niš in the forthcoming years, with the proposed actions and project focussed on accelerating SDG progress.

The VLR of the City of Niš is structured in three chapters. Chapter 1 introduces the study area, explores Niš's geographical, spatial, socioeconomic and administrative context, elaborates on the local strategic development plans and highlights the city's key initiatives for achieving sustainable development. It also emphasizes Serbia's accomplishments in aligning its policy context with the 2030 Agenda for Sustainable Development, as well as the efforts invested in monitoring of indicators at the national and local level. The actors, timeline and key activities of the VLR process are outlined in the methodological part of the report, along with elaboration on data sources. Chapter 2 evaluates Niš's performance on SDG 1, SDG 2, SDG 3, SDG 4, SDG 5, SDG 6, SDG 7, SDG 8, SDG 11, SDG 13, SDG 15 and SDG 16, with 26 selected indicators across these SDGs. Each section presents the overview and analysis of data on the selected indicator, discusses the main challenges and local efforts, and establishes the links with the national level and the Voluntary National Review of the Republic of Serbia. Chapter 3 develops action-oriented recommendations to guide the sustainable development of Niš in the forthcoming years based on comprehensive research findings, by proposing actions and projects to accelerate SDG progress. Finally, conclusions are presented.


CHAPTER
1

CONTEXT

INTRODUCTION

The City of Niš on the Pathway of Sustainable Development

The City of Niš, Serbia is committed to sustainable development, striving to balance economic growth, environmental protection and social inclusion, and improve living conditions for all its citizens. Through various initiatives, Niš has invested significant efforts to enhance the overall urban development while minimizing environmental impact. While tracing the path to sustainability, the city is facing a range of economic, environmental and social challenges stemming from post-socialist urbanization, with evidence-based policy formulation, planning and decision-making emerging as the focal point of sustainable urban development.

Over the past decade, the city has devised policies and plans aligned with one or multiple Sustainable Development Goals (SDGs), and forged partnerships, projects and programmes directed towards reinforcing the city's resilience and sustainability. Niš aims to become an environmentally friendly city through initiatives such as improving infrastructure and transportation[1], preserving biodiversity and natural potentials, and developing a roadmap for the energy transition to achieve carbon neutrality[2]. The city enhances economic growth by actively supporting industrial sectors that are dynamically developing in the city and becoming a successful part of the local community, the most prominent being the electronics, automotive, textile and tobacco industries[3]. Niš also prioritizes heritage preservation and cultural diversity, recognizing their importance in sustainable urban development. In addition, the local government participates in programmes and projects that strengthen mechanisms for gender equality and integrate specific measures

1 https://sump-nis.info/en/index.php
2 https://www.citiesoftomorrow.eu/resources/toolbox/roadmaps/nis-energy-transition-roadmap/
3 Office for Local Economic Development, 2023.

for vulnerable groups into local policies, budgets and the provision of public services[4], thereby reinforcing the principle of "leaving no one behind". To ensure that local authorities and decision makers are placing investment and prioritizing policies to serve the well-being and quality of life of the citizens, Niš joined the Quality of Life Initiative in 2023[5]. Efforts of the City of Niš also include engaging in initiatives for the responsible management of public finances and strengthening the partnership between local self-government and civil society[6]. By aligning public policy and strategic planning documents with global sustainability frameworks and actively involving stakeholders, Niš endeavours to create a resilient and thriving city for future generations.

Building on these efforts and aiming to reinforce the city's strategic orientation towards sustainable development, the City of Niš is the inaugural city in Serbia to undergo the Voluntary Local Review (VLR) process. The first VLR in the country and the third in the region of South-East Europe[7] was developed within the project "Voluntary Local Reviews: Evidence for Greener, Resilient and Sustainable Urban Recovery in Eastern European and Central Asian Countries in Transition", implemented by international partners and with coordination of the United Nations Human Settlements Programme (UN-Habitat)[8].

The significance of the VLR process for the City of Niš is manifold. Aside from enabling transparency and providing accountability to its residents by showcasing the advancements and challenges in sustainable development, the city is fostering community engagement in decision-making and increasing investment prospects through international recognition. Additionally, the VLR aims to help in enhancing the implementation of existing strategic documents, by establishing the mechanisms for monitoring and evaluating progress towards the goals outlined in these documents, and to inspire regular evaluations of key performance indicators at the local level. Finally, the VLR is expected to be a guiding document in the refinement of local policies and the development of new strategic plans.

The 2030 Agenda's Goals in the National Context

The Republic of Serbia is very committed to the 2030 Agenda and is continuously investing efforts to align its national development plans, strategies and policies with the 2030 Agenda's goals and targets. Serbian government has directly participated in the development and writing of the 2030 Agenda for Sustainable Development, by involving citizens in the process and by direct participation of the state representatives in the global forums where sustainable development goals were defined[9]. Furthermore, Serbia will continue with its efforts to advance the SDGs outlined in the 2030 Agenda, by implementing various measures and initiatives aimed at enhancing the well-being of all its citizens across the economic, environmental and social spheres of sustainable development.

The Inter-Ministerial Working Group for the Implementation of the 2030 Agenda was established in December 2015, and it was composed of high representatives of 27 ministries and other organizations. The main role of the Group on SDGs is to follow the implementation of the 2030 Agenda, coordinate positions of competent ministries aimed at the achievement of the goals and targets of the Agenda, and prepare periodic reports on its implementation[10]. The national statistical office is committed to contribute its expertise to measuring SDGs in a professional, independent

4 https://www.ni.rs/category/medjunarodna-saradnja/#
5 https://unhabitat.org/quality-of-life-initiative
6 https://www.ni.rs/category/medjunarodna-saradnja/#
7 So far, VLRs have been produced for cities of Bijeljina, Bosnia and Herzegovina, and Shkodra, Albania.
8 Aside from the UN-Habitat, partners on project implementation are: United Nations Economic Commission for Europe (UNECE), United Nations Department for Economic and Social Affairs (UNDESA) and United Cities Local Governments (UCLG). The project involves the following cities: Tbilisi (Georgia), Bishkek (Kyrgyzstan), Niš (Serbia) and Dushanbe (Tajikistan).
9 https://sdg.indikatori.rs/en-US/o-ciljevima
10 https://sdg.indikatori.rs/en-US/o-ciljevima

and impartial way. So far, the Statistical Office of the Republic of Serbia (SORS) has managed to calculate 145 SDG indicators at the national level[11].

Serbia submitted its first Voluntary National Review (VNR) in 2019, and presented it at the High-level Political Forum on Sustainable Development in 2019. As outlined in the document, the reforms implemented in the Republic of Serbia until then have fostered sustainability, and were led by the commitment to enable equality of sustainable opportunities for all, in all parts of Serbia[12]. The VNR of Serbia highlights the commitment of the society as a whole to the values and principles of 2030 Agenda, including the local level. The City of Niš plays a pivotal role in advancing sustainability efforts in Serbia with the launch of the first Serbian VLR. The Government of Serbia, supported by the UNCT in Serbia, is considering the preparation the second edition of the VNR[13].

Serbia has also been mainstreaming SDGs within its policy context. For the last five consecutive years, the country has been performing the mapping of the national planning framework in relation to the 17 SDGs of the 2030 Agenda, grouped according to clusters and negotiationchapters within the European integration process[14]. The latest report "Serbia and the 2030 Agenda – Mapping the National Strategic Framework in Relation to the Sustainable Development Goals" for 2023 has recently been published by the Public Policy Secretariat of the Republic of Serbia[15]. The report provides a comprehensive overview and analysis of more than 100 planning documents by December 2023, and the findings indicate that the coverage of the SDGs and targets by the planning framework of the Republic of Serbia is 82.7%, which is an increase of 4.7% compared to the previous year[16]. The country's sustainable development index of 77.3 ranks Serbia 36th out of 166 countries according to the global Sustainable Development Report 2023[17].

In 2021, Serbia presented research results relating to the environmental dimension of the 2030 Agenda, within the publication "Progress in Monitoring of Environment related SDG Indicators in the Republic of Serbia"[18]. The efforts continued with the 2023 publication focused on urban development, entitled "Progress in Monitoring SDG Indicators in the Field of Sustainable Urban Development in the Republic of Serbia"[19], which aims to contribute to an improved quality of life in Serbia by monitoring global trends at national and local levels.

In addition, the national government has established plans and strategies reinforcing the implementation of sustainability principles in the national planning framework, particularly concerning urban development. The initial document to include a segment dedicated to urban development was the Spatial Plan of the Republic of Serbia 2010-2020 (SPRS 2010-2020), which also introduced the monitoring of spatial development of the Republic of Serbia via context-specific indicators. Out of 106 established indicators, the calculations were performed for 75[20].

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11 https://sdg.indikatori.rs/en-US/

12 Voluntary National Review of the Republic of Serbia, 2019.

13 SORS, UN-Habitat and UN RCO. (2023). Progress in Monitoring SDG Indicators in the Field of Sustainable Urban Development in the Republic of Serbia.

14 https://germancooperation.rs/national-strategic-framework-of-serbia-in-relation-to-the-sustainable-development-goals/

15 The preparation of the report has been supported by the "*Public Finance Reform – 2030 Agenda"* project, which is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, and financed by the governments of Germany and Switzerland.

16 Public Policy Secretariat. (2024). Serbia and the 2030 Agenda – Mapping the National Strategic Framework vis-a-vis Sustainable Development Goals.

17 https://dashboards.sdgindex.org/profiles/serbia

18 Publication prepared by SORS, the United Nations Environment Programme (UNEP), and the United Nations Resident Coordinator Office in Serbia (UN RCO).

19 Publication prepared by SORS, UN RCO and UN-Habitat.

20 SORS, UN-Habitat and UN RCO. (2023). Progress in Monitoring SDG Indicators in the Field of Sustainable Urban Development in the Republic of Serbia.

In 2019, the national government introduced the **Sustainable Urban Development Strategy** until 2030 (SUDS 2030), thereby marking the creation of the National Urban Policy that is aligned with the global and regional urban development frameworks[21]. Out of the 43 urban development indicators outlined in the SUDS 2030, 37 were calculated and featured in the Action Plan[22]. When it comes to the alignment of SUDS 2030 indicators with the SDGs, twelve indicators are planned to be monitored according to the SDG methodology, out of which ten for SDG 11 and two for SDG 6[23].

The Draft of the new SPRS 2021-2035 is also related to the achievement of the SDGs, and includes a section that focuses on urban development. The Draft of the SPRS 2021-2035 established a model of 46 indicators to monitor plan implementation, with the model elaborated further through SPRS implementation programs.

Urban Brief of the City of Niš

The City of Niš is a second-tier city in Serbia with a population of 249,501 people[24], which has been transforming its size from medium to large in the last two decades. Located in the Region of South-East Serbia, it is a regional hub with gravitating population of approximately one million people, and the administrative centre of Nišavski District (Figure 1). As the third largest city in Serbia and one of the most developed ones, Niš is a modern university city and an educational, industrial, economic and tourist centre of national importance, as well as one of the largest health, cultural and sports centres in Serbia. With the Science and Technology Park and the University of Niš, the city represents the centre of information technologies.

Geographically, Niš is located between 43°15′ and 43°30′ north latitude and 21°49′ and 22°13′ east longitude[25]. It is situated in the Niš basin, between the slopes of Svrljiške Mountains, Suva Mountain and Mountain Jastrebac, and by the confluence of rivers Nišava and South Morava. Niš has a moderately continental climate, with warm summers and moderately cold winters.

Niš is one of the oldest cities in the Balkans, strategically located at the crossroads of the most important Balkan and European traffic routes that connect Europe with the Middle East. Since ancient times, roads in Niš territory have been used as pathways for the flow of people and goods, and were a segment of the "Via Militaris" in the period of Rome and Byzantium, and the "Constantinople Road" during the Ottoman Empire. Nowadays, as a traffic hub of road, rail and air traffic routes, Niš is easily accessible. The international airport "Konstantin the Great" for passenger and cargo air traffic is the second largest airport in Serbia.

Because of its rich history, abundant urban heritage and lavish natural assets, Niš is an important regional tourist destination. Natural and cultural heritage include diverse natural landscape with Niška Banja spa, many natural assets and rich biodiversity, as well as architectural heritage, monuments, landmarks, traditional manifestations and cultural events.

Administratively, the City of Niš is a local self-government unit (LSG), whose area covers 596.78 km^2 of territory. Administrative area of the City of Niš, as a former municipality[26], consists of five city

21 SORS, UN-Habitat and UN RCO. (2023). Progress in Monitoring SDG Indicators in the Field of Sustainable Urban Development in the Republic of Serbia.

22 SORS, UN-Habitat and UN RCO. (2023). Progress in Monitoring SDG Indicators in the Field of Sustainable Urban Development in the Republic of Serbia.

23 https://www.mgsi.gov.rs/cir/dokumenti/urbani-razvoj

24 SORS. (2023). 2022 Census of Population, Households and Dwellings - Age and Sex.

25 Development Plan of the City of Niš 2021-2027.

26 It is important to note that in Serbia the term "municipality", that is an LSG unit with its administrative centre, differs from the term "city municipality" that represents an administrative unit within the city. City municipality is defined by the City Statute, but the Law on Local Self-Government does not apply to it. Article 25 of this Law states that the City Statute may enable the creation of two or more city municipalities

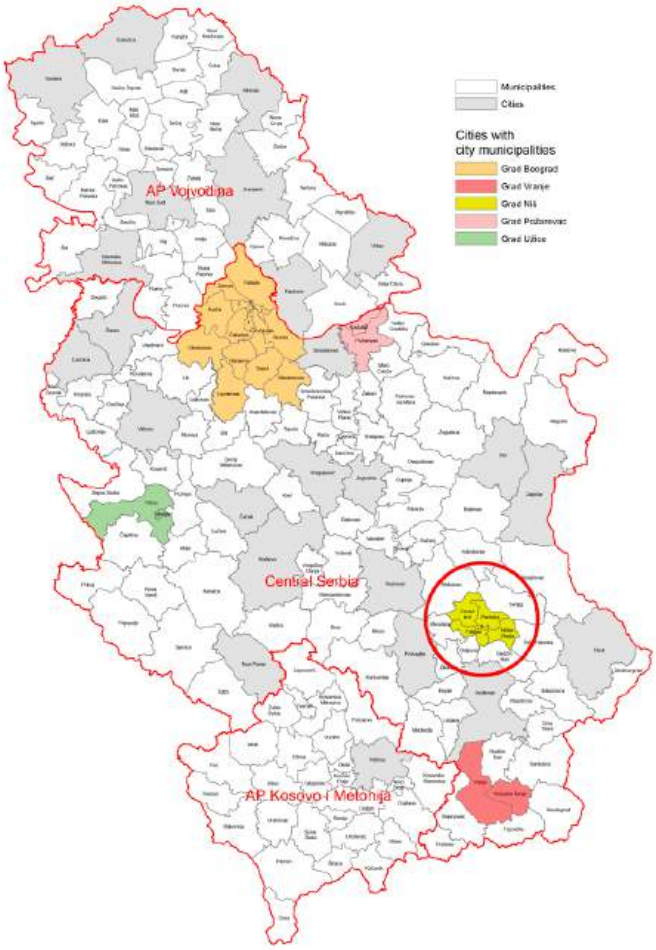

Figure 1: Cities and municipalities in the Republic of Serbia with the position of the City of Niš.
Source: Municipalities and Regions in the Republic of Serbia, 2023.

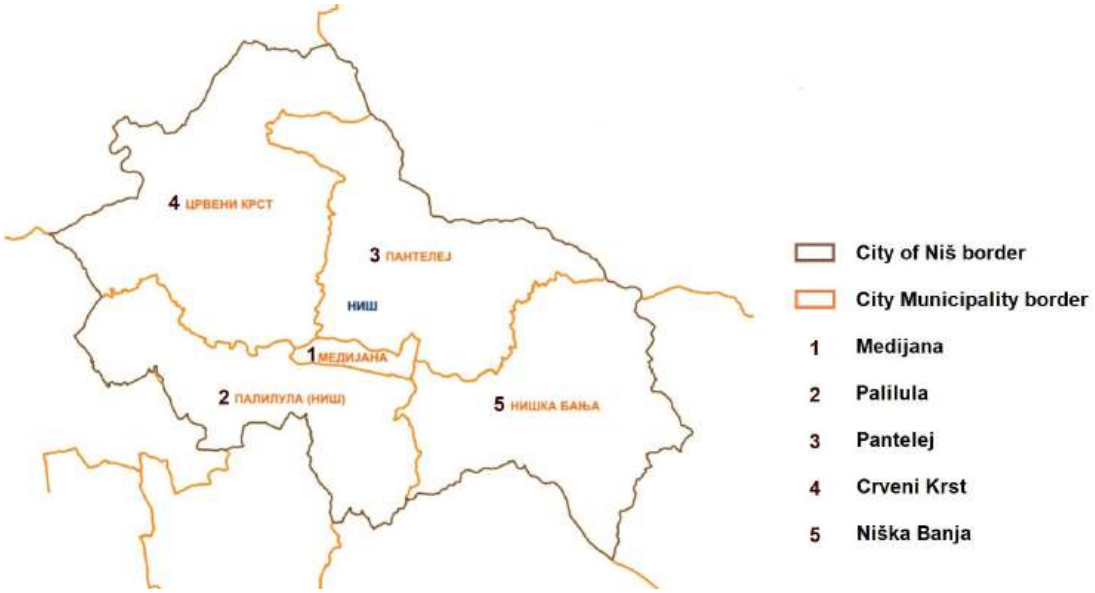

Figure 2: Administrative area of the City of Niš as a local self-government unit, with the five associated city municipalities.
Source: https://gis.ni.rs/smartPortal/gunisPublic

municipalities: Medijana, Palilula, Pantelej, Crveni Krst and Niška Banja (Figures 1 and 2). Each of the five city municipalities covers a part of urban area and a portion of rural hinterland. The City of Niš territory includes Niš urban area[27], Niška Banja urban settlement, and 69 suburban and rural settlements located in the remaining area of all of city municipalities (Table 1). Although located in the most underdeveloped region in Serbia, all city municipalities of the City of Niš are in the first group of local LSGs according to the level of development, with a value above the national average[28].

Regarding the demographics, Niš has relatively aged population and a balanced share of man and women in the population structure (Table 2, Figure 3).

Niš is a typical former socialist city of the South-East Europe region. During the period of former Yugoslavia[29], Niš was the centre of the electronic industry. After the fall of the socialist system and the industry crash, the city underwent a period of transition, resulting in an economic downturn, high unemployment rate and political crisis. Despite significant industrial zones as a socialist legacy and the potential for the development of complex industrial technologies, Niš industry has not yet been able to fully recover from the collapse of socialism. Nevertheless, the City of Niš is a favourable investing environment for both domestic and international investors, and is acknowledged as a champion of local economic development. The journal Financial Times fDi ranked highly the City of Niš, placing it 5th among small European cities of the future 2020/2021 in the category of attracting direct foreign investments[30]. The service sector is dominant in Niš, followed by industry, agriculture and construction industry.

In the post-socialist period, extensive spatial, functional and socio-economic transformations unfolded throughout urban fabric, adding an additional layer to the complex identity of the City of Niš. The shift to market-oriented economy in the 1990s led to major changes in urban planning, which was no longer driven by public interest. The delicate balance between planning and market forces is one of the major challenges for Niš that is yet to be established[31]. Some implications of post-socialist development upon the urban landscape involve deindustrialization (coupled with underused land), suburbanization and spontaneous expansion of construction land, illegal construction, urban densification in central areas, traffic congestion and the decrease of public open and green space. These urban phenomena raised some important and topical environmental issues, including ecological footprint, pollution, noise, urban heat and stormwater management.

Local Strategic Development Plans

The area of the City of Niš as a local self-government unit is covered by the "Development Plan of the City of Niš 2021-2027" (2021), and the "Spatial Plan of the City of Niš Administrative Area 2021" (2011, with modifications and additions adopted in 2022). For the urban area of the City of Niš, which encompasses 44.7% territory of the total administrative area[32], the standing plan is the "General Urban Plan of Niš 2010-2025" (2011). This plan has undergone four subsequent modifications and additions, which were adopted in 2016, 2018, 2021 and 2024.

on the city's territory. The city's statute regulates the affairs of the city that are carried out by the city's municipalities.

27 Niš urban area consists of urban settlements: Niš-Medijana, Niš-Palilula, Niš-Pantelej and Niš-Crveni Krst.

28 Regulation on Establishing a Unified List of the Development of Regions and Local Self-Government Units for 2014 ("Official Gazette of the Republic of Serbia", No. 104/2014).

29 The Socialist Federal Republic of Yugoslavia existed in the period of 1945-1992, and constituted of six republics that made up the federation: Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia.

30 https://investnis.rs/en/

31 Dinic Brankovic, M. et al. (2018). Postsocialist restructuring of city subcenters and the role of shopping centers in Nis, Serbia.

32 General Urban Plan of Niš 2010-2025.

Table 1. Number of settlements in the administrative area of the City of Niš.

City municipality	Number of settlements		
	TOTAL	URBAN	SUBURBAN/RURAL
Medijana	2	1	1
Palilula	16	1	15
Pantelej	14	1	13
Crveni Krst	24	1	23
Niška Banja	18	1	17

Source: Spatial Plan of the City of Niš Administrative Area 2021.

Table 2. The City of Niš factsheet.

City of Niš	
Population	249,501 people
Area	596.78 km^2
Population density	418 inhabitants/km^2
Average age of the population	43.37 years
Average number of household members	2.5

Sources: Municipalities and Regions in the Republic of Serbia, 2023; Spatial Plan of the City of Niš Administrative Area 2021.

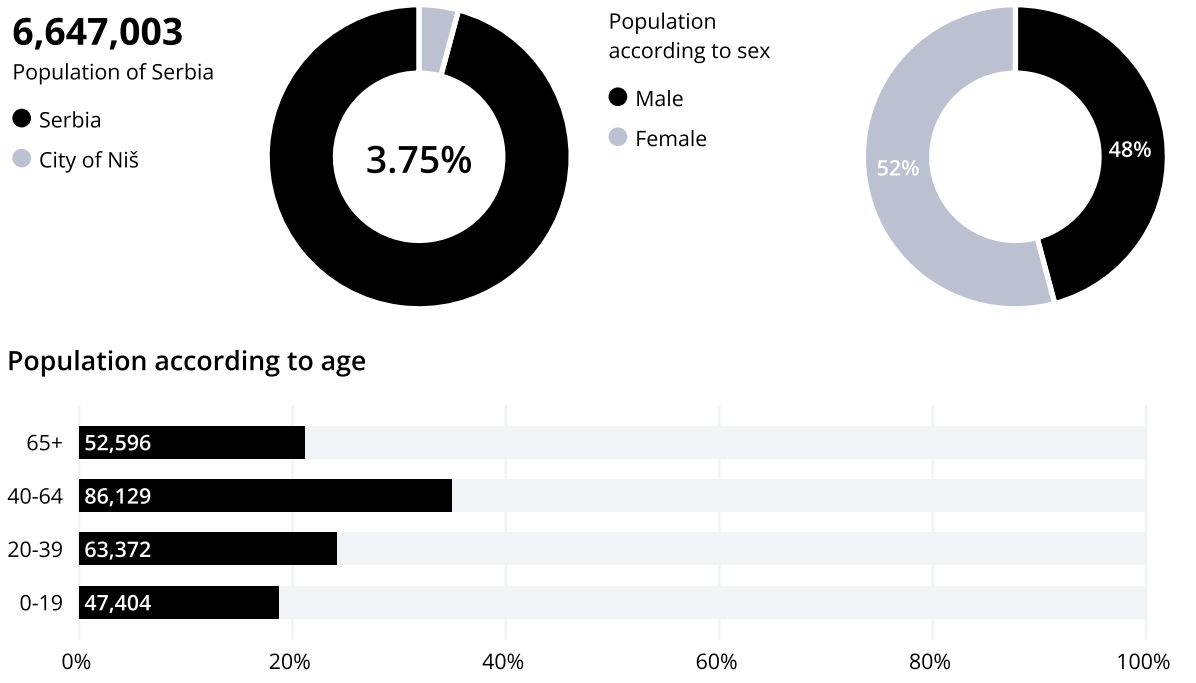

Figure 3. Demographic profile of the City of Niš.
Source: Municipalities and Regions in the Republic of Serbia, 2023.

Development Plan of the City of Niš 2021-2027[33]. The Plan establishes a comprehensive vision for the City of Niš: "New Niš is the regional centre of the Republic of Serbia, recognized as an engineering centre where advanced technologies are developed and the logistics centre of the Balkans, which develops dynamically and attracts young and talented people to live and work in the university town, which bases its development on a knowledge-based economy and advanced technologies, sustainable use of resources, logistics facilities that valorise position, geographical connection, existing and future traffic infrastructure, but also tourism development and rich quality of life. New Niš is a modern and inclusive city, which provides equal opportunities for development and education and a dynamic social life, which with its quality of life, large and well-organized parks, the riverside, lively public spaces, a unique spa within the city, the valorised potential of protected assets, clean air and organized cultural and historical monuments, dynamic and innovative manifestations and efficient, inclusive and user-oriented institutions, enables the realization of the rights of all citizens and the cooperation of the public, private, civil and scientific research sectors."

Four priority development directions are established in line with the SDGs, tailored to the local context:
1) Improving the business environment and competitiveness of the economy based on knowledge and innovation;
2) Improving territorial development while preserving the environment;
3) Balanced and comprehensive improvement of the quality of life;
4) Development of efficient, inclusive and user-oriented administration in a digital environment that enables the realization of the rights of all citizens.

For each development direction priority goals are defined, with a set of measures to enable actions, which should help to accomplish the set vision of the City of Niš.

Spatial Plan of the City of Niš Administrative Area 2021[34]**.** The Plan establishes the following vision: "The City of Niš should, along with identifying, determining and operationally engaging all regional and spatial potentials, institutionalize and develop: 1) the rank of a regional centre of international importance, with an area of nine districts (Podunavski, Braničevski, Borski, Zaječarski, Toplički, Nišavski, Pirotski, Jablanički and Pčinjski), and 2) the rank of an urban hub of a functional urban area of national and European importance, directed towards the processes of European integration."

Based on the analysis and assessment of the area's spatial development, and taking into account the potentials, ecological and spatial capacity, expected external influences and internal needs, eight general objectives of spatial development are determined in the Plan:
1) Affirmation of Niš metropolitan area as a future "gateway" in the south of Serbia;
2) Balanced territorial development and improved social cohesion;
3) Sustainable economic development;
4) Neutralization of development conflicts between Niš and surrounding settlements;
5) Preservation of the quality and improvement of the environment and raising the quality of life;
6) Spatial-functional integration into the environment;
7) Intra-regional integration;
8) Sustainable use of natural resources and protection of natural and cultural assets.

General Urban Plan of Niš 2010-2025[35]**.** The Plan includes urban settlements Niš and Niška Banja and 35 suburban and rural settlements, thus covering a total area of 266.77 km^2. The Plan applied the growth scenario, with the increase in the number of inhabitants expected in the planning period. However, the scope of the current Plan is significantly larger compared to the size of actual

33 "Official Gazette of the City of Niš", No. 36/2021.
34 "Official Gazette of the City of Niš", No. 45/2011 and 85/2022.
35 "Official Gazette of the City of Niš", No. 43/2011.

built-up area. In fact, the General Urban Plan has zoned 9.2 times more land for construction than the built-up area of the city really occupies (29 km^2)[36].

The proposed planning solutions for spatial organization and settlement development are based on the following objectives and elements:
1) Achieving a uniform level of urbanization and arrangement of the area in the scope of the Plan, by raising the level of quality of life and work in the entire area, with appropriate arrangement of construction area and reconstruction of building stock;
2) Construction of bypass corridors and the highway Niš - Bulgarian border;
3) Moderate and controlled raising of the city silhouette with densification of the urban fabric;
4) Dislocating freight traffic from the urban fabric and directing it towards the industrial zone and city's outskirts, without disrupting the city core and residential zone;
5) Development, arrangement and revitalization of tourist, green, sports and recreational areas;
6) Continuous planned development in line with the positive guidelines of previous planning activities;
7) Protection and preservation of ambient units;
8) Maximal protection of agricultural land, and especially land of the first and second credit class, by limiting the expansion of building area to high-value agricultural land;
9) Provision of spatial capacities for locating business complexes.

For all five city municipalities urban planning documents of the lower rank were adopted (Plans of General Regulation of City Municipality), as prescribed by law.

The Voluntary Local Review is aligned with the strategic documents already in place for the City of Niš. The VLR relies on the development directions established in the Development Plan of the City of Niš 2021-2027, and builds upon the identified priority goals and proposed measures for achieving the goals. The VLR is also linked to the priority planning solutions and projects established in the Spatial Plan of the City of Niš Administrative Area 2021.

Currently, the City of Niš is preparing for a next cycle of spatial planning and a new General Urban Plan 2025-2035. The main goals established in the new Plan involve: responsible management of urban development, adequate zoning, determination of spatial relationships between different compatible uses, provision of sustainable traffic and infrastructure solutions, and harmonization of urban development with the goals of low-carbon, climate-neutral development[37]. In that sense, the VLR can be used as an information base to integrate SDG targets when developing new strategic plans for the City of Niš. Equally important, the VLR can be used to enhance the implementation of the standing Development Plan of the City of Niš 2021-2027, by assigning responsibilities, establishing timelines and allocating resources in line with the findings of the VLR.

[36] World Bank Group. (2023). Green, Livable, and Resilient Cities, Serbia: Strengthening Sustainable and Resilient Urban Development.
[37] Decision On the Preparation of the General Urban Plan of Niš ("Official Gazette of the City of Niš", No. 13/2024).

METHODOLOGY

Actors in the VLR Process

The local government of the City of Niš has the responsibility to both its residents and the population of Serbia to contribute to the achievement of the SDGs of the 2030 Agenda. The local review process, which resulted in this report, was guided therefore by the National Coordinator and the Local-Regional Coordinator. The Mayor of Niš supported the endeavour by signing the Letter of Intent on 7 July 2023, thereby officially initiating the process of Voluntary Local Review. The report was prepared by the Local Consultant, chosen in July 2023 as the VLR Development Expert with research experience in urban planning. Significant efforts in shaping the final outcome were invested by the National Coordinator and the Local-Regional Coordinator, who contributed by extending their knowledge and experience on sustainable development. The VLR process was overseen by UN-Habitat, who also provided the review of the report.

The whole process was supported by the Monitoring Unit of the City of Niš, as a dedicated department within the city administration established in August 2023 to enhance the process of stakeholder engagement. The Monitoring Unit's scope of action involved collecting, analysing and verifying local data related to the SDGs, thereby providing good grounds for evidence-based decision-making, but also ensuring the accuracy, transparency and effectiveness of the review process. The members of the Monitoring Unit have contributed to the capacities of the VLR team. Establishing this department was a significant milestone achieved by the City of Niš, not only for streamlining the coordination in developing Niš's Voluntary Local Review, but also for strengthening the capacities of local government and ensuring the sustainability and continuity of the VLR process in the long run.

The stakeholders' engagement in the VLR process was aimed at gaining true participatory feedback from a whole range of different actors, applying the principle of "leaving no one behind". Stakeholders come from a broad range of backgrounds, including different sectors and a variety of persons in terms of gender, age and other characteristics[38]. This inclusivity ensured that diverse perspectives and voices are heard, leading to more holistic and effective solutions to local challenges. Two Stakeholder Forums were organized in the form of workshops, both by the Monitoring Unit of the City of Niš, Local Consultant, Local-Regional Coordinator and the National Coordinator. In that way, the stakeholder track was overseen by the entire VLR team, ensuring that all relevant stakeholders are engaged, and that the engagement process is effective, transparent and fruitful. The contact with national stakeholders was established and supported by the National Coordinator. These events were an excellent opportunity to obtain missing data, reflect on the data collected within desk research, discuss the gaps and challenges in existing development patterns, acknowledge local efforts and reflect on proposed recommendations and projects, thereby promoting the meaningful engagement of stakeholders.

Materials and Methods

Scope. The scope of data analysis is the administrative area of the City of Niš, as a local self-government unit and the territory covered by the spatial plan. The choice of this particular scope of research is rooted in the fact that official data for cities in Censuses and other statistical sources in Serbia is often presented for the LSG territory. In Serbian official administrative categorization, the LSG represents not just a settlement itself, but a much larger area that includes an urbanized core surrounded by extensive rural areas[39]. Typically, each LSG has one central urban settlement

38 See Annex 2. Stakeholder Participation provided in the report.

39 World Bank Group. (2023). Green, Livable, and Resilient Cities, Serbia: Strengthening Sustainable

(the administrative seat of a city or municipality) and a network of peripheral and rural settlements surrounding it. It is also the case of Niš; the city's administrative area includes urban settlements (Niš and Niška Banja) and rural hinterlands, and only limited data can be obtained for the Niš urban core alone[40].

Data timeframe. The report uses the latest available data. Predominantly, the data refers to the year 2023, with some data available for 2024. If the most recent data was not available, then the timeframe involved the most recent year for which the data was obtained, which is noted in the report.

Data sources. The report is based on information collected by:
1) Researching data that is publicly available, such as open data of the Statistical Office of the Republic of Serbia;
2) Reviewing publicly available documents and documents provided by city administrations and their delegates, such as public policies, strategic planning documents at the national and local level, urban planning documents, action plans, programmes, reports, assessments, etc.[41];
4) In discussions with city delegates at the stakeholders' forums and during visits to city institutions; and
5) On the basis of completed questionnaires related to particular SDGs at the stakeholders' forums.

Gaps. The main challenges for the VLR process were the lack of necessary data relating to the City of Niš for the selected indicators, as well as inconsistencies regarding some obtained data. In cases where there were no available data, or the requested information was not aligned with the particular SDG/UMF indicator, proxies were reviewed by the VLR team as the next best available option. The stakeholder was asked to provide additional available data, which could help to shed the light on a particular SDG topic. Discrepancies in data involving various sources were discussed and resolved in direct communication with relevant stakeholders. For some indicators, where there was no data availability at the local level, the data and calculations were provided by the national stakeholders. The final list of reviewed SDGs and indicators involves 26 indicators across 12 SDGs.

Methodology Steps. The methodological approach to VLR development was structured to include several key steps. The roadmap of the VLR of Niš process, presenting the course of activities and key actors, is illustrated in Figure 4.

In the **inception phase**, the Local Consultant first established a timeline for the VLR process. The initial activities by the Local Consultant were to research SDG and UMF indicators and perform stocktaking of relevant national and local strategic plans, in order to gain insight into the alignment od national/local indicators with the UMF/SDG indicators. This phase also included the assessment of available data sources, as well as the preliminary data collection and analysis. These activities set the context for the prioritization and initial selection of indicators to include in the VLR, which was a joint effort of the Local Consultant, National Coordinator and Local-Regional Coordinator. The indicators were selected from UMF Domains, but cross-referenced with SDGs and national/ local indicators. Subsequent activities involved setting objectives for the VLR and mapping relevant stakeholders.

The **phase of situation analysis** began with the collection of data, which was a lengthy process encompassing desk research and stakeholder engagement. Data collection within desk research performed by the Local Consultant involved a review of a comprehensive body of national and local policy documents across various sectors, including economic, social, and environmental aspects. Afterwards, a catalogue of questions for the identified stakeholders was prepared by the Local Consultant.

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and Resilient Urban Development.

40 In case the data refers to other spatial coverage, this is noted in the reported, and the territory from which the data is collected is specified.

41 A complete list of sources ue in the report is provided in the References section.

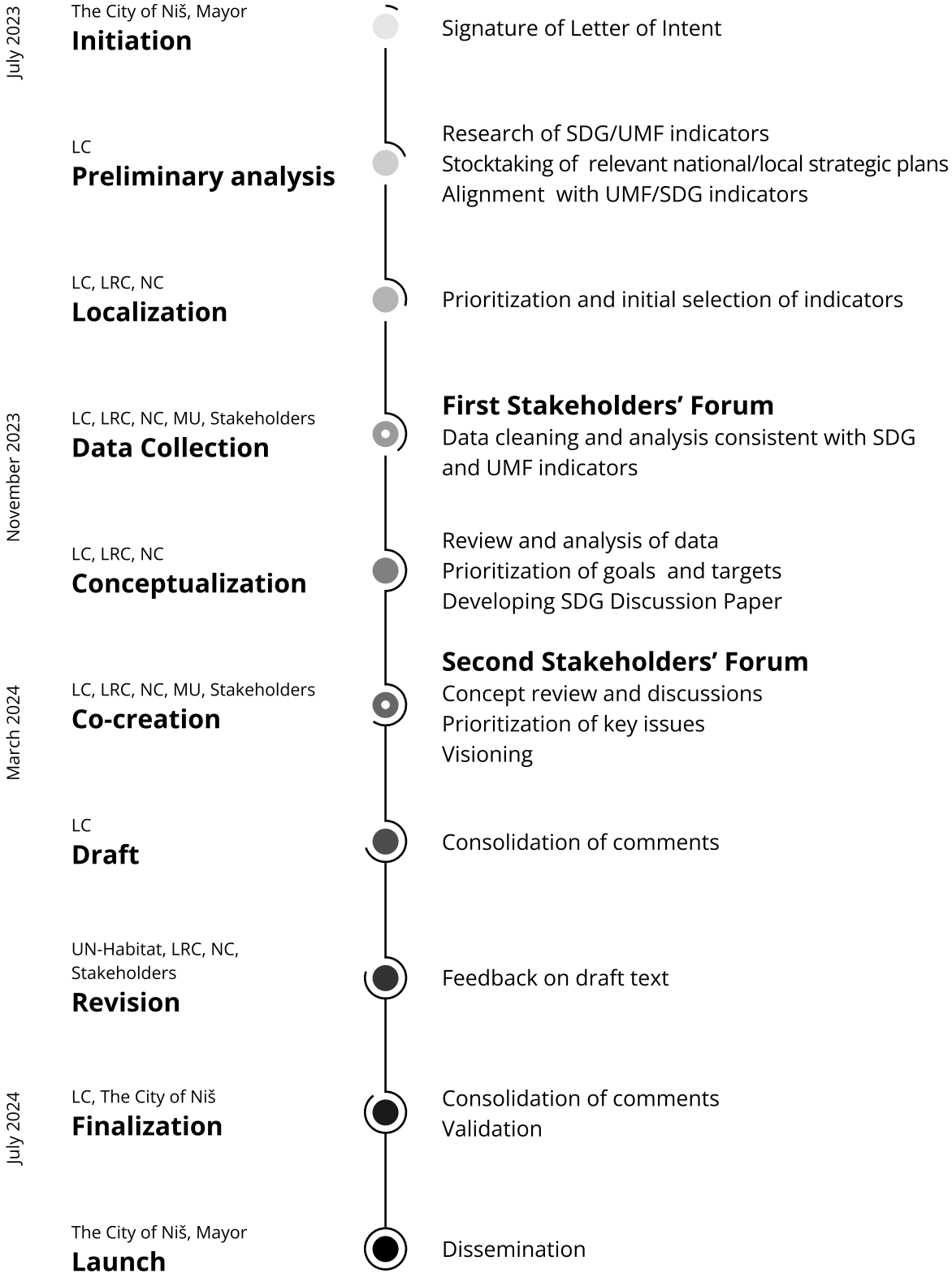


Figure 4. Methodology of the VLR process in Niš, with the timeline, actors involved and key activities.

Source: Scheme by Local Consultant Milena Dinić Branković

The stakeholder track began in September 2023. The initial step in engaging stakeholders was performed through e-mail correspondence by the local Monitoring Unit, with institutions, organizations and associations that have been identified as valuable stakeholders. In this iteration, the importance of VLR development for addressing both local and global challenges was explained, the contribution of that particular stakeholder highlighted, as well as how their involvement influences the final outcome. The e-mail also contained a list of questions (survey) regarding the data on a specific indicator that this particular stakeholder can help with. Detailed instructions on the data collecting methodology were provided to the institution, so that the data can be measurable, accurate and precise[42]. In case of no reply from relevant institution, the next step involved telephone calls and in-person meetings, performed by the Monitoring Unit in order to assess the availability of data and identify available resources on a specific indicator in direct communication.

After the initial steps in informing the stakeholders and getting them on board, two types of stakeholder engagement were performed: First Stakeholder Forum held of 24 November 2023, which gathered all local and regional stakeholders that were able to attend, and individual consultations with stakeholders held throughout November and December 2023. Both the forum and the consultations were organized by the VLR team primarily to obtain missing data, validate the data collected within desk research and discuss it with the institution/organization, as well as to reflect on the indicators that were selected for the VLR of Niš.

The First Stakeholder Forum was organized as an in-person meeting, bringing together representatives of the public sector from all relevant institutions of the City of Niš, as well as associations and organizations of the civil sector (Figure 5). Also, the forum introduced the newly formed local Monitoring Unit of the City of Niš, with the aim to facilitate its cooperation with institutions, organizations and associations during the process of VLR development, and beyond. Aside from the set of questions that capture the needed data on a specific indicator suited to a particular institution, which were initially given in the survey via e-mail, other inquiries and questions were also formulated, aiming to explore the topic further during the stakeholder's in-person engagement. A survey involving all stakeholders was conducted to provide insight on the advancement of the SDGs in the stakeholder's field of work, involving major strengths, crucial weaknesses and priority efforts for the future. The stakeholders were then asked to assess the progress in achieving the identified SDGs by 2030 in their area of expertise. Additionally, some open-ended questions were discussed with the participants. These questions were designed to capture strengths and weaknesses of the area, and were mostly dependent on the availability of collected data and on the attendance of particular stakeholders. Discussions were first initiated with individual stakeholders regarding particular topics in their work field, and continued into the discussion that involved all stakeholders

.

The feedback on the organization of the First Stakeholder Forum and the engagement process was also obtained, aiming to enhance the organization of the Second Stakeholder Forum and the overall VLR development. The Forum has established personal contact with the stakeholders, facilitated the cooperation with the institutions and organizations of public and civil sectors, and enabled proactive involvement of participants.

In the following step, based on all research findings, data cleaning was carried out by the Local Consultant to ensure that the dataset is accurate and complete. After considering and analysing all data, the Local Consultant, National Coordinator and Local-Regional Coordinator performed the prioritization of goals and targets and the final selection of indicators. In the months to come, the

[42] Instructions included the following: 1) It is highlighted that the data is required for the City of Niš as a LSG unit; in case the data refer to another spatial coverage, the institution should note this and specify the area from which the data were collected, 2) The latest available data is required; if not available, then for the previous year, the institution should specify which year, 3) If the institution does not have the required data, it should direct us to another source, if possible.

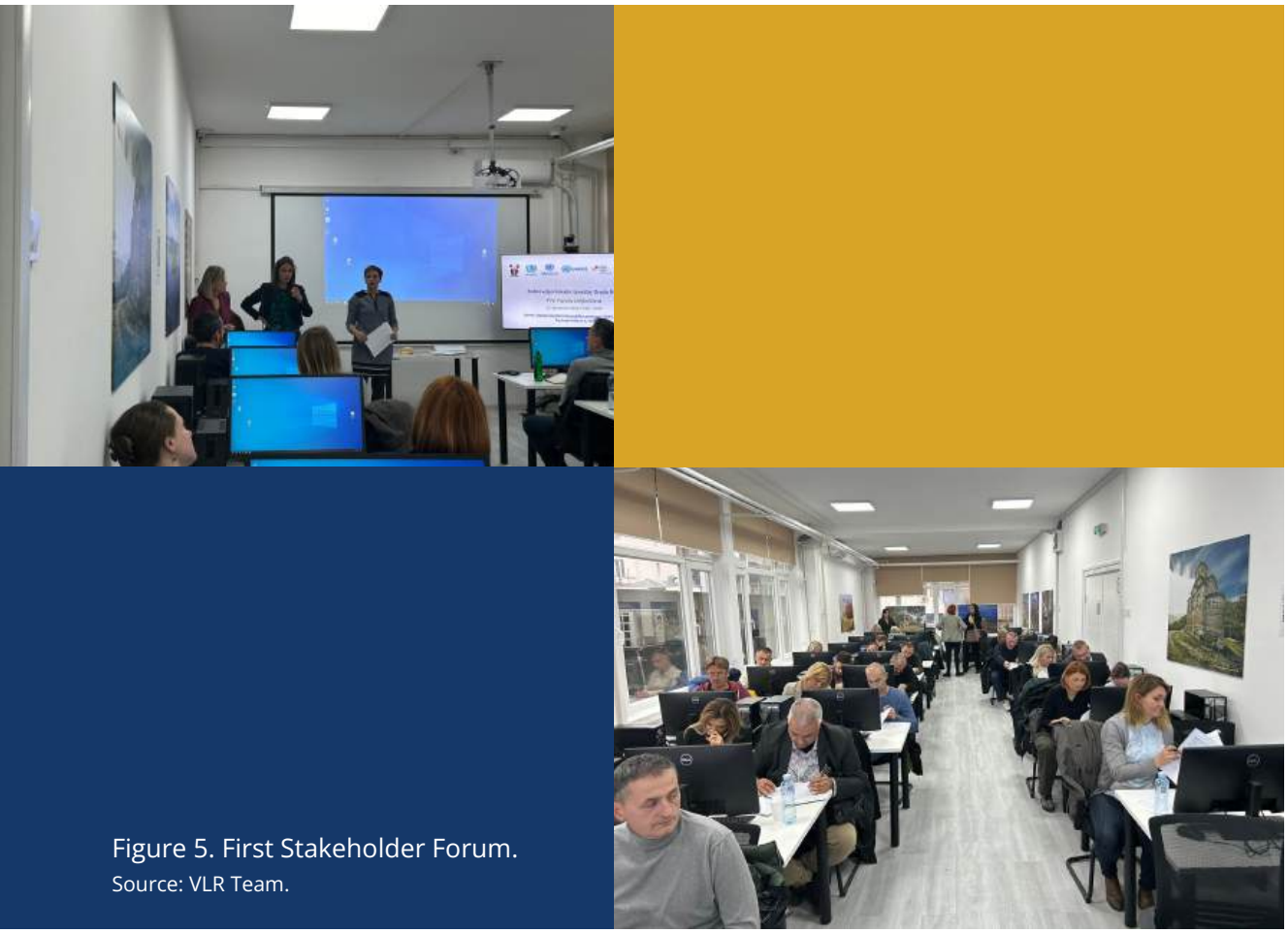


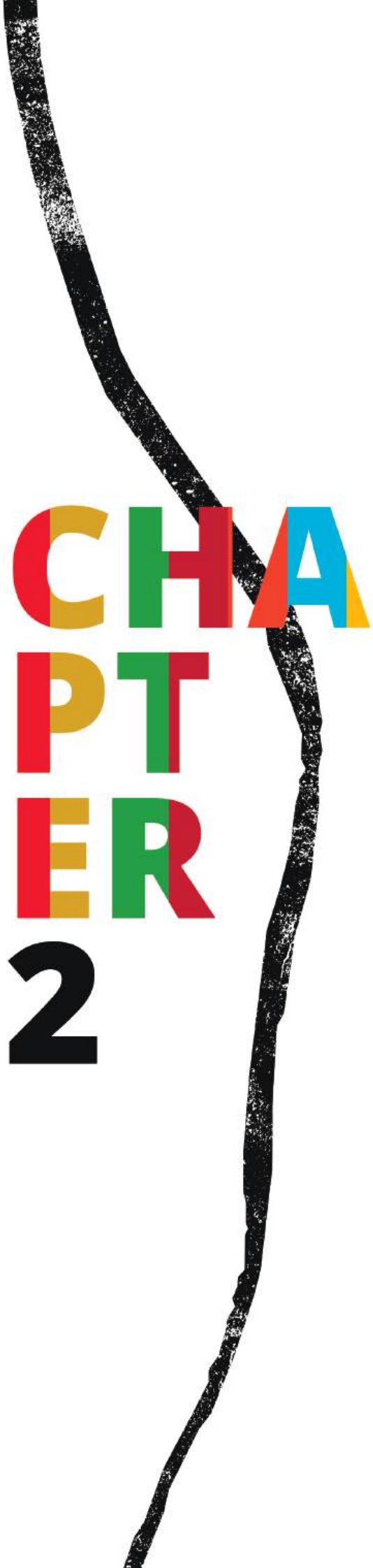
Figure 5. First Stakeholder Forum.
Source: VLR Team.

Local Consultant prepared a comprehensive report that synthesized all findings of the VLR process, entitled SDG Discussion Paper. The report highlighted challenges, achievements and best practices, providing a balanced assessment of the city's sustainability efforts. The SDG Discussion Paper was then made available to the stakeholders, preparing the grounds for the Second Stakeholder Forum.

The Second Stakeholder Forum was organized on 5 March 2024, building upon the data collected in desk research to develop a strategic and action-oriented document (Figure 6). At this point, the **strategic planning phase** was initiated. The first part of the forum involved the overview of research findings presented in the SDG Discussion Papers. The stakeholders were divided into smaller discussion groups focused on different thematic areas: 1) Safety, unemployment and governance, 2) Utility activities and renewable energy, 3) Public services, public space, housing and resilience, and 4) Agriculture, land, natural and cultural heritage. Within thematic groups, the key aspects of the discussion included the existing gaps and challenges for sustainable development at the local level, local efforts in advancing the selected indicators and targets, urgent challenges that need addressing, and potential solutions. The discussions were moderated by the members of the VLR team. In the follow up part of the forum, the VLR team performed strategic planning with stakeholder input. Within a round table talk involving all stakeholders, the discussion involved policy recommendations to reach the vision and goals laid out in strategic documents, as well as the specific actions and projects that the City of Niš should prioritize. Local and regional stakeholders were present in an in-person meeting, while stakeholders from the national level participated online.

Figure 6. Second Stakeholder Forum.
Source: VLR Team - Meeting Recording.

The Local Consultant prepared the Draft VLR of Niš, which incorporated all findings resulting from the co-creation process, marking the **finalization phase**. The Draft version of the VLR Niš underwent the review process by the UN-Habitat, Local-Regional Coordinator, National Coordinator and the stakeholders, before becoming the official document validated by the City of Niš.


CHAPTER
2

NIŠ'S PROGRESS ON THE SDGs

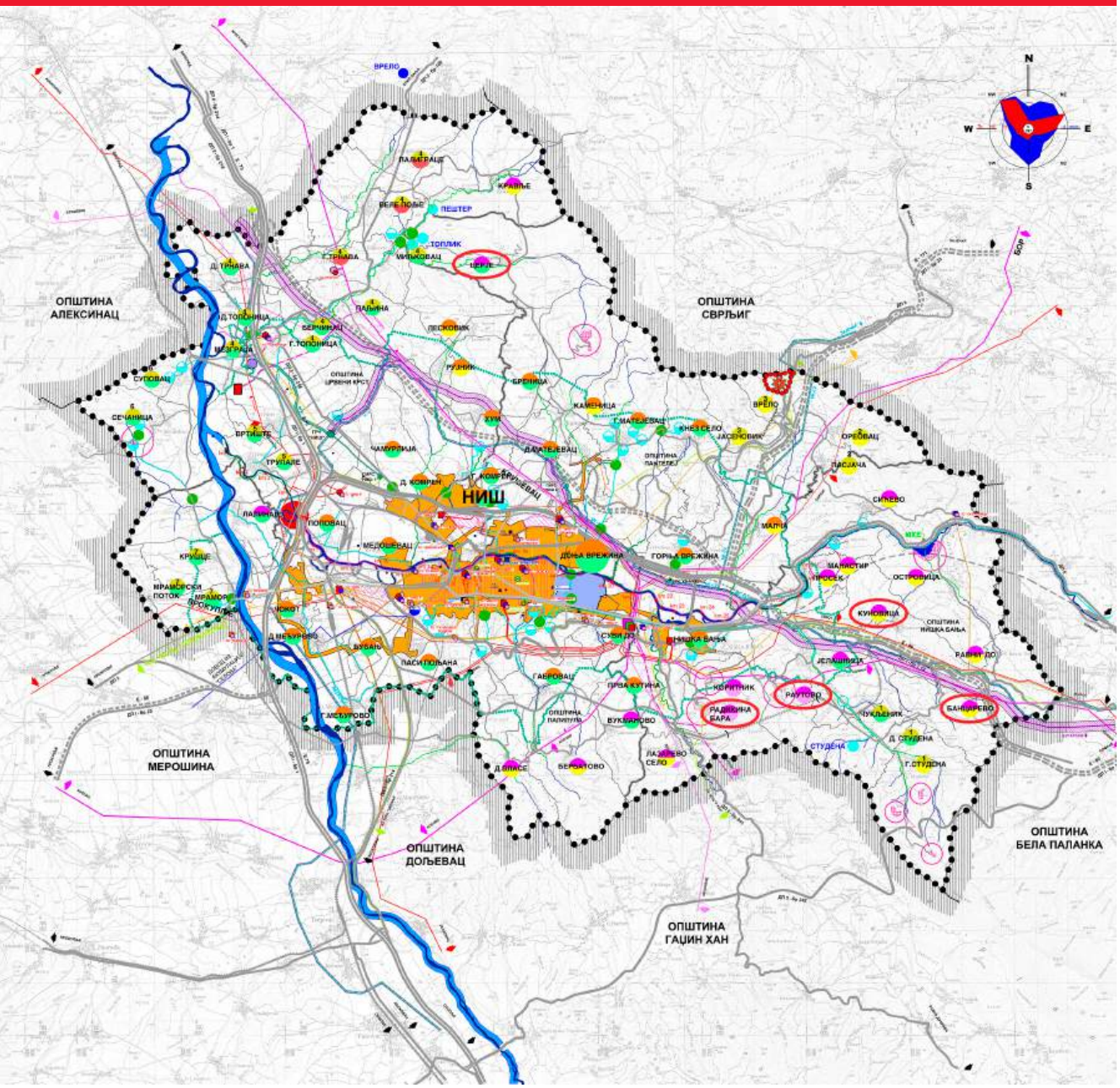
Indicator 1.4.1. Proportion of population living in households with access to basic services

UMF Domain: Society - Inclusive; UMF Indicator 1.2.1. (UMF-09)

Within Serbian context and regulations, the notion of basic services is closest to the terms "utility activities" and "public services". According to the Law on Public Services (2014)[43], public services are considered to be institutions, companies and other organized forms that perform activities so to ensure the exercise of rights and the satisfaction of needs of citizens and organizations, *inter alia* in the areas of: 1) education; 2) health care; and 3) postal traffic and telecommunications. In line with the Law on Utility Activities (2018)[44], utility activities are considered to be the activities of providing communal services important for the fulfilment of the users' daily needs, which are provided and controlled by the local self-government unit, including, *inter alia*: 1) supply of drinking water; 2) purification and removal of atmospheric and waste water; 3) production, distribution and supply of thermal energy; 4) municipal waste management; and 5) urban and suburban public transport.

Overview. The City of Niš has the basic communal infrastructure developed to a large extent, involving the systems for water supply, wastewater sewerage, electrical and heating energy, gasification, waste collection and mobility[45]. The existing and planned infrastructure systems in the territory of the City of Niš are shown in Figure 7.

[43] "Official Gazette of the Republic of Serbia", No. 42/1991, 71/94, 79/05 – other law, 83/14 – other law.
[44] "Official Gazette of the Republic of Serbia", No. 88/11, 104/16, 95/18.
[45] Note: Within the research on this indicator, only services in the domain of utility activities are explored.



WATER SUPPLY
Water pipeline

WASTEWATER
Area with sewage network

ELECTRICAL ENERGY
EXISTING PLANNED
Transmision lines
Substations

HEATING
EXISTING PLANNED
Zones of heating
Heating plants

GASIFICATION
EXISTING PLANNED
Main gas pipeline
Loop of primary gas pipeline
Main distribution node
Main measurement and regulation station

TRAFFIC
State road of the I order - existing
State road of the I order - planned
State road of the II order - existing
State road of the II order - planned
Municipal road
Primary street

WASTE
Settlements not having waste collection service

Figure 7. Infrastructural systems of the City of Niš: water supply, wastewater sewerage, electrical energy, heating, gasification and traffic, with settlements not having waste collection service.
Source: First Amendments and Additions to the Spatial Plan of the Administrative Area of the City of Niš 2021. Reference map No. 2.2. Settlement Network and Infrastructure Systems.

Drinking water. Water supply to the City of Niš is performed through four territorially separate but functionally dependent water supply systems: Medijana, Studena, Ljuberađa-Niš and Moravski water pipeline, which together form the Niš Water Supply System (NIVOS). These systems are managed by the Public Utility Company for Water Supply and Sewerage Naissus Niš. The Medijana water supply system involves a source of underground water, which is fed with previously purified water from the Nišava watercourse. The water supply systems Studena, Ljuberadja-Niš and the Moravski water pipeline all include karst natural springs and supply pipelines with facilities. Of the total number of inhabitants of the City of Niš, about 90% use safe drinking water from the piped water supply system in their own home[46]. Other population also has access to an improved source of drinking water with a collection time of not more than 30 minutes for a round trip (public fountains, wells, etc.)[47].

Sanitation. Collection and evacuation of wastewaters in Niš is carried out through a combined sewage system (NIKAS), with a total network length of 531.74 km[48]. Mixed type of sewerage system covers the majority of the City's territory, while the construction of a separate sewerage system for atmospheric and fecal water is just starting. Naissus Niš is the Public Utility Company responsible for wastewater disposal. The majority of households in Niš are connected to the sewer network system maintained by Naissus, while other households have toilets connected to a septic tank. The estimated share of total population having sanitation services amounts to about 92%, but these services cannot be labelled as safely managed because of the lack of wastewater treatment[49].

Electrical energy. The entire territory of the City of Niš is covered by electricity, i.e. all urban and suburban settlements, with the coverage 99.7% of the number of households[50]. The distribution network of the Power Company "Elektrodistribucija" Niš covers an area of 1,750 km^2, with over 178,000 metering points[51]. The entire territory of the city is provided with the option of connecting to the electric power system. The only parts of the city territory that do not have electricity are informal Roma settlements, where the population does not have electricity due to non-payment of bills. In non-urban areas, the network is predominantly overhead, while in urban areas it is carried out by underground cable lines, because the central zone requires a developed and branched underground infrastructure for power supply. The existing distribution grid has possibilities for expansion and fully meets the projected needs of the City of Niš.

Heating energy. On the territory of the city, thermal energy production is carried out by the Public Utility Company City Heating Plant Niš. The distribution of heating energy to consumers is carried out by a network of heating pipes in total length of about 72 km, with over 1,055 substations[52]. About 30,000 residential and 2,100 business users are covered by this system. The distribution network mostly covers the entire general urban area on the left bank of Nišava. The number of substations and the length of the heating network are constantly increasing, as the City Heating Plant continuously expands its capacities and opens the possibility for new connections to the city heating network.

Energy from natural gas. The supply of natural gas to Niš area is currently being carried out from the north. The ring-shaped primary network of gas pipelines is formed in the central urban area, which then branches out in the direction of east and west. So far, the main distribution node "Niš" has been built northwest of the settlement of Čamurlija, as the ending point of the main gas pipeline MG-09 "Niš-Pojate", as well as the main measurement and regulation station "Niš 1", with a capacity

46 Public Utility Company for Water Supply and Sewerage Naissus Niš, 2023.

47 Detailed elaboration on water supply in the City of Niš is provided in this VLR within the SDG indicator 6.1.1. *Proportion of population using safely managed drinking water services.*

48 Development Plan of the City of Niš 2021-2027.

49 Detailed elaboration on basic sanitation services in the City of Niš is provided in this VLR within the SDG indicator 6.2.1a. *Proportion of population using safely managed sanitation services.*

50 Development Plan of the City of Niš 2021-2027.

51 Development Plan of the City of Niš 2021-2027.

52 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.

of 80,000 Nm^3/hour. The primary city gas pipeline network has a length of 23.4 km. In order to ensure secure supply of natural gas to the territory of the city, it is necessary to provide gas supply from other directions also.

Mobility. The road network in the City of Niš involves: state roads of the 1st order, i.e. main roads (9%); state roads of the 2nd order, i.e. regional roads (23%); and municipal roads, i.e. local roads (68%)[53]. In the urban area, the street network concept implies that city roads of the highest rank are directly connected to highways and state roads of the 1st order, and a traffic ring is formed around the city core in order to relieve the central zone of cargo and transit traffic. In the non-urban area, a network of municipal roads connects all suburban/rural settlements with each other, as well as with regional routes and the city center. The system of public mass transportation of passengers in the City of Niš is founded on the bus subsystem alone, and covers urban, suburban and rural area. Urban network of public transportation lines is pre-determined by traffic routes of the existing primary street network, while the network of non-urban lines is defined by local and state roads that connect suburban/rural settlements with the urban area. The proportion of the population within the walkable distance to public transport is very high in the entire City of Niš area, including both rural and suburban context, and amounts to 91.8%[54],[55].

Waste collection. Organized collection and transport of generated waste from the City of Niš is performed by the Public Utility Company Mediana. The entire City area is divided into 30 waste collection regions[56]. Territories of all city municipalities are well covered with this service, including urban and the vast majority of suburban/rural area (64 out of 69 settlements)[57]. Therefore, a very large share of the population, as much as 99.89%, has access to a reliable waste collection service[58].

Gaps and challenges. The main challenges in the domain of communal infrastructure that the City of Niš is facing are related to sanitation, particularly undeveloped sewage network in rural areas. Furthermore, the lack of a quality water supply in rural areas is a major existential issue for a number of rural settlements. Another concern is related to heat energy supply, since it is estimated that existing capacities do not fulfil the needs of the City, particularly with new planned developments in peripheral areas. Finally, improving mobility in the rural context is crucial. Although the network of municipal roads has been largely developed, it is necessary to reconstruct certain routes, explore potential new connections and improve roadways. The lack of communal infrastructure has a negative impact on the overall quality of life in rural areas, and fosters depopulation[59].

Regarding the competencies and performance of city institutions, the stakeholders agree that the biggest challenges in providing utility services involve: capacity and capability of employees, poor cross-institutional cooperation and insufficiently organized processes. The administration in charge of communal services implements certain processes, but does not perform their coordination and monitoring. Such approach does not enable full insight into the service provided to citizens. Additionally, unresolved property and legal rights over land are a great challenge for city institutions in managing utility activities, both for the realization of new communal infrastructure and for the maintenance of existing one. Better organization of processes and better allocation of jurisdictions are needed, as well as coordination and monitoring of all processes related to communal services, as underlined by those involved in stakeholders' workshops.

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53 Development Plan of the City of Niš, 2021-2027.

54 Calculation performed by the Statistical Office of the Republic of Serbia, 2023.

55 Detailed elaboration on public transport in the City of Niš is provided in this VLR within the SDG indicator 11.2.1. *Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities*.

56 Development Plan of the City of Niš 2021-2027.

57 Public Utility Company Mediana Niš, 2023.

58 Detailed elaboration on waste collection in the City of Niš is provided in this VLR within the SDG indicator 11.6.1. *Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal solid waste generated, by cities.*

59 Igić, M. et al. (2023). Development problems and potentials of rural settlements – case study of rural settlements on the territory of the City Municipality Pantelej, Niš.

Local efforts and initiatives. The City of Niš has several planned activities aimed towards the enhancement of utility activities. A brand-new regional water supply system called "Selova" is envisioned, which should enable water supply that is aligned with the planned infrastructural and spatial development of Niš. The construction of the multipurpose hydroaccumulation "Selova" is completed, and this large infrastructure project was financed by the Government of the Republic of Serbia[60]. However, the accumulation has not yet been put into operation. Upon completion of the entire regional water supply system, connection to it will enable quality and regular water supply for the entire Niš region.

Regarding the energy supply, new heat plants using biomass are planned, which would lead to a reduction in the emission of pollutants. For gas supply, it is planned to build an additional main measuring and regulating station "Niš 2", south of the settlement of Donji Matejevac, on the route of the main gas pipeline MG-10 "Niš-Dimitrovgrad", with a capacity of 40,000 Nm^3/h. It is also planned to complete the loop of the primary gas pipeline network, along with connecting gas pipelines and measuring and regulation stations. All of these projects are still in the planning phase. When it comes to waste management, it is planned to include the remaining five rural settlements in the organized waste collection and transportation system, which should enable 100% service coverage.

Link to the VNR and national level. Access to basic services is only partly monitored at the national level, and involves two indicators: access to basic drinking water services and access to basic sanitation services. Both indicators present high values at the national level, over 99% and 98%[61] respectively, in the year 2019[62]. These corroborate high values obtained for this indicator in the City of Niš.

Indicator 1.4.2. Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure

UMF Domain: Society - Inclusive; UMF Indicator 1.2.2. (UMF-12)

In Serbia, sons and daughters have equal rights to inherit real estate, as do adopted children. The law also guarantees the joint disposal of property during marriage, and real estate registered in the name of one spouse during the marriage is considered joint marital assets. However, cases of discriminationagainst women are still present in real life[63]. Women have lower incomes than men, which is one of the reasons for inequality in real estate ownership. Sex-disaggregated data on real estate ownership was not available until recently. As part of the project "Introduction of a one-stop system for real estate registration in Serbia - second phase" in 2018, the *ex officio* registration of joint property was introduced for real estate acquired during the marriage, and through changes in the Law on the Procedure for Registration in the Real Estate and Land Registry (2023)[64]. This initiative was implemented to increase the share of women in real estate ownership.

Overview. For 2022, data on secure tenure rights to land for total adult population by gender is generated by analysis of real estate cadastre data for the territory of the City of Niš. The data set provides insight into five layers: the percentage of real estate owned exclusively by women,

60 https://kursumlija.org/razvijenost-infrastrukture/

61 https://sdg.indikatori.rs/en-us/area/no-poverty/?subarea=SDGUN010401&indicator=01040102IND09

62 These values also include other improved facilities that are not shared with other households, and which were not reviewed in the City of Niš.

63 Government of the Republic of Serbia and Republic Geodetic Authority. (2020). Gender Analysis with Proposal of Indicators.

64 "Official Gazette of the Republic of Serbia", No. 41/2018, 95/2018, 31/2019, 15/2020 and 92/2023.

the percentage of real estate owned exclusively by men, the percentage of joint ownership or co-ownership by women and men, the percentage of real estate with at least one female co-owner, and the percentage of real estate with at least one male co-owner. Segregated data by city municipalities of the City of Niš is shown in Table 3.

Table 3. Data on land tenure rights by gender, for city municipalities of the City of Niš, 2022.

Municipality	Medijana	Palilula	Pantelej	Crveni Krst	Niška Banja
Owned exclusively by women	28.57	19.14	19.1	17.81	20.38
Owned exclusively by men	40.36	59.77	54.07	51.84	58.19
Joint ownership or co-ownership	31.07	21.09	26.83	30.35	21.44
At least one female co-owner	59.64	40.23	45.93	48.16	41.81
At least one male co-owner	71.43	80.86	80.9	82.19	79.62
Sample size	83.93	64.21	66.29	58.1	52.89
* Sample size refers to the percentage of the territory of the city municipality that was covered by the analysis.					

Source: https://geosrbija.rs/, analysis performed by Local-Regional Coordinator Tanja Obradović.

The highest share of property owned exclusively by women (28.57%) and joint ownership (31.07%) is in the city municipality Medijana, which is the most urbanized area. Other municipalities present lower shares of properties owned by women, with the lowest recorded value in the city municipality Crveni Krst (17.81%).

Gaps and challenges. Gender inequality in ownership structure is particularly present in the field of agriculture. A very low percentage of women are owners of the land held by households, and are rarely the owners of agricultural farms (17.3% in the territory of the Republic of Serbia), even though women are more present among family members and relatives who perform agricultural activities on the farm[65]. Additionally, low awareness of women in rural areas on ownership rights, coupled with their poor interest for economic empowerment, represent a challenge that requires attention and joint efforts of multiple stakeholders.

Local efforts and initiatives. The amendment of the Law on the Procedure for Registration in the Real Estate and Land Registry has indeed increased of the share of real estate owned by women, which empowers women and the overall gender equality. This is a prerequisite for greater activity and growth of women's entrepreneurship on agricultural farm holdings.

Link to the VNR and national level. Availability of data on the Proportion of total adult population, both women and men, with secure tenure rights to land in the territory of the City of Niš is a step forward in achieving the Target 1.4. in the Republic of Serbia. This ensures access, ownership and control of land and other forms of property, as well as inheritance, and raises the overall awareness on equal rights of men and women to economic resources. The VNR highlights the support to local authorities in further developing local inclusive policies for all individuals from vulnerable and marginalized groups.

65 Bogdanov, N. and Babović, M. (2014). Census of Agriculture 2012 - Agriculture in the Republic of Serbia: Labor force and activities of agricultural holdings.

SDG 2: Zero Hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Indicator 2.4.1. Proportion of agricultural area under productive and sustainable agriculture

As one of Serbia's largest urban centres, Niš has significantly higher share of population living in urban settlements compared to the population in non-urban (so-called "other") settlements. This proportion has remained quite steady in the last three decades (Figure 8). The share of urban population in the City of Niš is about 73% (182,797 people)[66], which is significantly higher than the average in Serbia[67] (62%) and the Region of Southern and Eastern Serbia[68] (53%), to which the City of Niš belongs (Figure 9).

Despite its highly urbanized area, Niš has great spatial potential for sustainable agriculture due to the City's large administrative area and small built-up space. There are no specific data on the amount of sustainable agriculture within the city's boundaries[69]. However, Niš also has diverse natural potentials, good soil characteristics, favourable microclimate and a rich farming tradition that all provide good grounds for sustainable agricultural practices. Although the agricultural population in Niš territory is declining, there is an increase in agricultural productivity[70].

The term "agricultural land" refers to the land that is used for agricultural production and land that can be brought to purpose of agricultural production, according to the Law on Agricultural Land

66 SORS. (2023). 2022 Census of Population, Households and Dwellings - Age and Sex.

67 Population in Republic of Serbia: urban 4,120,782; non-urban (other) 2,526,221; total 6,647,003. Source: 2022 Census of Population, Households and Dwellings - Age and Sex.

68 Population in the Region of Southern and Eastern Serbia: urban 749,952; non-urban (other) 656,098; total 1,406,050. Source: 2022 Census of Population, Households and Dwellings - Age and Sex.

69 Regarding the area under productive and sustainable agriculture in the Republic of Serbia, only the data on productive agriculture is available.

70 Niš Property Administration - Department for Agriculture, 2023.

of the Republic of Serbia (2017)[71]. Local self-governments determine measures for implementing agricultural policy in their area. Since 2007, cities and municipalities have been developing and implementing annual Programmes for Protection, Regulation and Use of Agricultural Land, which has a significant impact on the improvement of the quality of agricultural land management[72]. Regarding the monitoring of agriculture, statistical data in Serbia uses the terms „available land of agricultural farm holdings" and "utilized agricultural land"[73].

Overview. Total land fund of the City of Niš includes 37,841 hectares (ha) of agricultural land[74]. The dominant class of land involves II, III, IV and V credit class[75]. The main advantage of land in Niš is its diversity in terms of types, altitude and methods of exploitation, which is a prerequisite for the development of all types of agricultural production. Overall, 31,710 ha of agricultural land is privately owned, while other forms of ownership are state, cooperative, public and other. State agricultural land amounts to 4,054.75 ha, out of which 1,151.07 ha is arable (ploughlands, gardens, orchards, vineyards and meadows) and 2903.68 ha is other land[76]. Niš has approximately 1,420 ha of agricultural land that is covered by the irrigation canal network[77], but it is insufficient.

The analysis of basic parameters of soil fertility[78] confirmed very good soil quality within the administrative area of the City of Niš. The analysis of the concentration of dangerous substances and potentially harmful elements[79] in the soil also show that soil in the largest part of the examined area is not contaminated by these pollutants. The small number of samples in which contamination was found is primarily a consequence of the geological composition of the terrain, since a significant part is occupied by rocks naturally rich in certain heavy metals. When it comes to pesticide residues in the soil, the content of these compounds found during testing is low enough not to pose a risk to the ecosystem. Additionally, it can be stated that one of the main causes of soil pollution in the administrative area of the City of Niš is the inappropriate application of artificial fertilizers and pesticides. To conclude, even though organic agriculture is not practiced, uncontaminated land in Niš administrative area allows a quick and efficient conversion of conventional to organic agricultural production[80].

Available land of agricultural farm holdings amounts to 26,644 ha[81], out of which utilized agricultural land covers 13,815 ha, or 51.85%[82]. Unutilized agricultural land is 12.37% of the available land of agricultural farms[83]. This type of utilization falls under the IV utilization category (out of V) and lags behind other cities and municipalities in Serbia. Out of total utilized agricultural land, the largest

71 "Official Gazette of the Republic of Serbia", No. 62/06, 65/08–other law, 41/09, 112/15, 80/17 and 95/18–other law.

72 Voluntary National Review of the Republic of Serbia, 2019.

73 Available land of agricultural farm holdings consists of: 1. utilized agricultural land, 2. unutilized agricultural land, 3. forest land and 4. other land (land under buildings and yard, ponds, reeds, ponds, and barren land). Utilized agricultural land consists of: 1. agricultural land on the garden plot - infield, 2. ploughlands and gardens, 3. permanent plantings (orchards, vineyards, etc.), and 4. meadows and pastures that the farm regularly cultivates – uses. Source: Methodological Guidelines: Census of agriculture 2023.

74 Niš Property Administration - Department for Agriculture, 2023, with the term "agricultural land" according to the Law on Agricultural Land of the Republic of Serbia, 2017.

75 According to the Rulebook for Cadastral Classification and Assessment of Land ("Official Gazette of the Republic of Serbia", No. 61/2012), all lands suitable for agricultural and forestry production are classified into one of eight credit classes based on the natural characteristics of the land.

76 Programme for the Protection, Arrangement and Use of State-Owned Agricultural Land in the Territory of the City of Niš for the year 2022.

77 Niš Property Administration - Department for Agriculture, 2023.

78 The following parameters were analysed: substitutional acidity, content of carbonates, humus and easily accessible forms of phosphorus and potassium. Source: Niš Property Administration - Department for Agriculture.

79 The elements that were analysed involve dangerous substances: As, Cd, Cr, Hg, Ni, Pb and F, as well as potentially harmful elements: total Cu and Zn, and available B. Source: Niš Property Administration - Department for Agriculture.

80 Annual Programme for the Protection, Arrangement and Use of Agricultural Land in the Territory of the City of Niš for the year 2021.

81 SORS. (2013). Census of Agriculture 2012 - Agriculture in the Republic of Serbia.

82 Statistical Yearbook of the City of Niš, 2019.

83 Niš Property Administration - Department for Agriculture, 2023.

share is ploughlands and gardens (81%), while this share in total available agricultural farm land is 42.22%. Crops, vegetable growing, fruit growing and viticulture are prominent and most productive branches of agriculture in Niš territory. The structure of total available land of agricultural farm holdings and utilized agricultural land is presented in Figure 10.

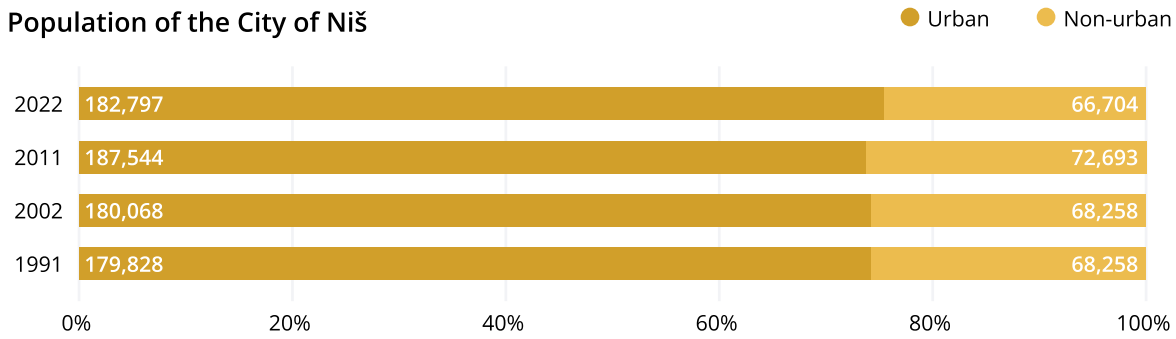

Figure 8. Urban and non-urban population in the City of Niš according to the Censuses 1991-2022.
Sources: 2022 Census of Population, Households and Dwellings - Age and Sex; 2011 Census of Population, Households and Dwellings in the Republic of Serbia - Comparative Overview of the Number of Population in 1948, 1953, 1961, 1971, 1981, 1991, 2002 and 2011.

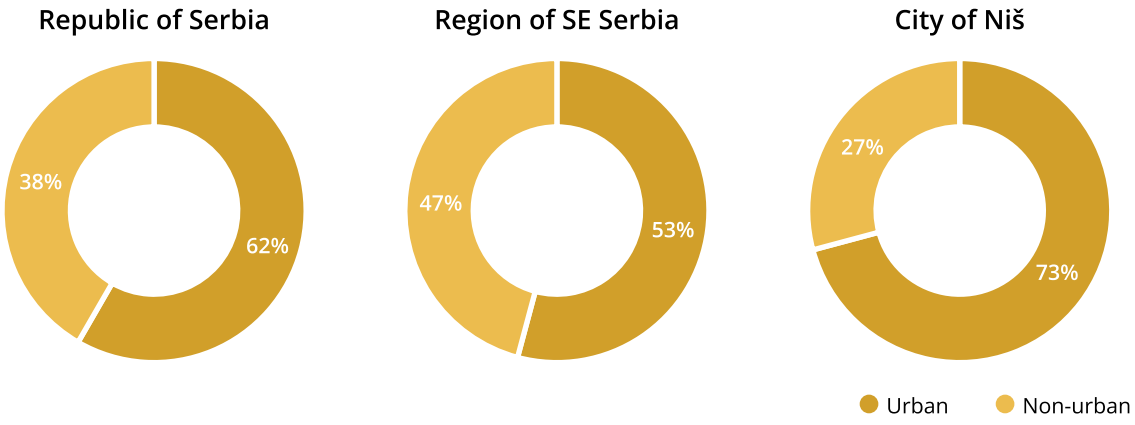

Figure 9. Urban and non-urban population at the national, regional and local levels in 2022.
Source: 2022 Census of Population, Households and Dwellings - Age and Sex.

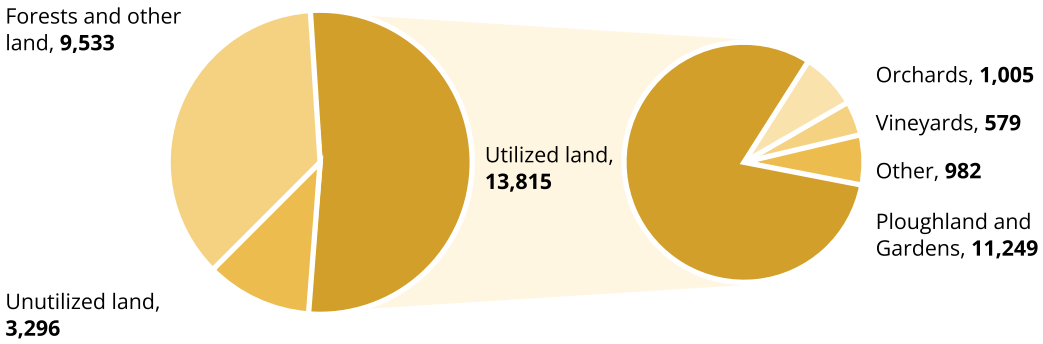

Figure 10. Structure of available land of agricultural farm holdings and utilized agricultural land, surface area in hectares.
Source: Statistical Yearbook of the City of Niš 2019.

Livestock fund of the City of Niš consists of 2,924 cattle, 14,478 pigs, 4,180 sheep and 105,215 poultry[84]. Favourable conditions for raising large livestock are in the valleys, while hilly and mountainous areas are suitable for the development of sheep and goat farming. Other types of livestock farming (pig, poultry, cattle) are represented on a smaller scale[85]. Due to the negative changes in agriculture and animal husbandry that took place in the past period (decline in purchasing power, reduction of the domestic market and loss of the foreign market), family farm holdings remained relatively underdeveloped, insufficiently market oriented, with traditional technologies and marginal economic importance[86].

There are 7,113 agricultural holdings in the City of Niš territory[87], which is a significant number considering the high proportion of population living in urban settlements. This is a decrease compared to the data from 2012 Census, when the number of agricultural farm holdings was recorded at 8,367. The specificity of Niš and of the Region to which it belongs is that the percentage of agricultural farms with more than 10 hectares is small, amounting to only 0.5% (44 farms)[88]. The average land holding is about 3.2 ha, which is much smaller compared to the 4.3 ha in the Region and 6.1 ha in Serbia[89]. The average value of utilized agricultural land is only 1.56 ha per household, which is three and a half times less than the national average[90]. There is a large number of separate plots of utilized agricultural land per farm, and the average number of plots per farm is 7-9[91]. This type of ownership structure also determines the type of agriculture, with a large number of non-commercial households focused on production for their own needs.

Only a small number of individual farmers in the City of Niš are registered for agricultural activity, and that number has been decreasing in the past decade (annual average value decreased from 179 individual farmers in 2015, to 67 in 2021)[92]. Those households are considered commercial farms, households with a marketable surplus and households where agriculture is the predominant activity, and thus represent a significant potential for the development of agriculture[93].

Area of state-owned agricultural land occupied by valid lease agreements is only 142,98 hectares[94]. Given the fact that state agricultural land that can be leased amounts to about 3,200 ha[95], this is a significant unused resource. That land is a potential source of income for local self-government, but it can also be used as an important instrument to support local farmers in increasing and specializing their production.

From the perspective of stakeholders, the main assets of city institutions that work in the area of agriculture involve experienced staff with and high-level expertise, and good insight resulting from field work. In their opinion, in line with the limited land resources, agricultural orientation should be based on high-quality, high-value products allocated in smaller areas, as well as on the processing of agricultural products as the added value[96]. Particularly, fruit and vegetable production have good trends in Niš.

84 SORS. (2019). Survey on the Structure of Agricultural Farm Holdings, 2018.
85 Development Plan of the City of Niš 2021-2027.
86 Development Plan of the City of Niš 2021-2027.
87 SORS. (2019). Survey on the Structure of Agricultural Farm Holdings, 2018.
88 Niš Property Administration - Department for Agriculture, 2023.
89 SORS. (2019). Survey on the Structure of Agricultural Farm Holdings, 2018.
90 Niš Property Administration - Department for Agriculture, 2023.
91 Niš Property Administration - Department for Agriculture, 2023.
92 City of Niš and Office for Local Economic Development. (2022). Statistical Bulletin of the City of Niš, 2021.
93 Development Plan of the City of Niš 2021-2027.
94 Programme for the Protection, Arrangement and Use of State-Owned Agricultural Land in the Territory of the City of Niš for the year 2022.
95 Development Plan of the City of Niš 2021-2027.
96 Niš Property Administration - Department for Agriculture, 2023.

The potential for the development of agriculture is also reflected in the positive trend of weekly migrations towards suburban settlements and active villages in plains and hilly areas. These weekly migrants are mostly the unemployed urban population, who provide income by performing activities on their properties in suburban settlements and active villages[97]. Having in mind that these settlements provide options for some agricultural activities and development of small- and medium-size entrepreneurship, this potential could be utilized for both reducing unemployment and revival of rural areas in the City of Niš.

Gaps and challenges. Fragmentation of agricultural land holdings and the small area of utilized agricultural land represent challenges for the development of agricultural production. An extensive type of agricultural production is present, i.e. a large number of households that are focused on production for their own needs only. Additionally, complex property and legal relations on land are also a specific challenge in the processes of consolidation, conversion and restitution of land.

Stakeholders identified insufficient activities for further improvement of agriculture as one of the crucial weaknesses, leading to insufficient utilization of agriculture for the overall rural development. Poor irrigation practices are an impediment for further development. Also, spontaneous expansion of construction land is endangering the surrounding agricultural land of high creditworthy class. Regarding organic agriculture, the interest of farmers is poor due to high costs of certification, small return on the investment and undeveloped market for organic products.

Human resources in agriculture production are a challenge for the more significant role of agriculture in local self-governments' development. Institutional mechanisms should provide conditions for better cross-departmental cooperation and greater autonomy in work of the employees dealing with issues in agriculture organization and management at the local level.

Local efforts and initiatives. Bearing in mind the fragmentation of agricultural land holdings, the City of Niš has so far carried out the consolidation of about 8,000 ha of land, and consolidation Programmes have been drawn up for the management of the remaining phases for 2,450 ha of land[98]. Consolidation resulted in an average increase of the plot by about 3 times, and larger plots with over 0.4 ha were created by grouping smaller holdings. There are also numerous initiatives for fostering irrigation practices. Systematic efforts are being made to support the farmers in introducing this important agrotechnical measure, such as construction of reservoirs or the electrification of fields.

Link to the VNR and national level. Prevalence of moderate/severe and severe food insecurity in the adult population is gradually increasing in the Republic of Serbia (moderate/severe from 11.4 in 2015 to 14.1 in 2020, severe from 1.7 in 2015 to 3.8 in 2020)[99]. Enhancing management of agricultural land, improving conditions for productive agriculture and promoting sustainable agriculture practices at the local self-government level can help alleviate food related issues and increase adequate nutrition among adult population.

97 Development Plan of the City of Niš 2021-2027.
98 Niš Property Administration - Department for Agriculture, 2023.
99 https://sdg.indikatori.rs/en-us//area/zero-hunger/?subarea=SDGUN020102&indicator=02010201IND01

SDG 3: Good Health and Well-Being

Ensure healthy lives and promote well-being for all at all ages

Indicator 3.6.1. Death rate due to road traffic injuries

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.8. (UMF-08)

Important European highways E75 and E80 pass through the City of Niš. The main roadway connects Belgrade with the northern edge of Niš, from where it branches out to the south along the rivers South Morava and Vardar (E75-M1), and to the east along the Nišava river (E80). Aside from state roads of the 1st and 2nd order, in Niš territory there is also a network of municipal roads with the length of about 1,328 km, which incorporates all local roads in the administrative area of the city[100].

The average vehicle age in the City of Niš is very high, and due to low incomes, it has a tendency to increase. This causes frequent technical malfunctions of vehicles, which then results in the decrease in traffic safety. In order to coordinate the issues of road traffic safety, in 2009 the City of Niš formed the Council for Traffic Safety. With the support of this Council, the Strategy for Road Safety of the City of Niš for the period 2017-2021 was devised and adopted in 2018, along with the Action Plan. By adopting the Strategy, the City took an initial step towards establishing an organized, efficient and high-quality system of traffic safety system in Niš territory[101]. The city has also initiated the creation of the new Strategy for the period 2023-2027, which is currently being prepared.

Overview. In the year 2022 there were 922 traffic accidents in total in the City of Niš. Out of that number, 392 involved accidents with injuries and 524 accidents with material damage[102]. Regarding

100 Public Enterprise Directorate for Development of the City of Niš, 2023.
101 Strategy for Road Safety of the City of Niš for the period 2017-2021. (2018).
102 https://data.gov.rs/sr/datasets/podatsi-o-saobratshajnim-nezgodama-po-politsijskim-upravama-i-opshtinama

the death rate due to road traffic injuries, in 2022 there were 8 fatalities in traffic accidents, while the total number of persons injured in traffic accidents in 2022 amounts to 533[103]. The death rate due to road traffic injuries in Niš is 3.2 (Figure 11).

Fatalities	Death rate	Population
8	3.2	249,501

Figure 11. The number of fatalities and the death rate due to road traffic injuries in the City of Niš.
Source: Strategy for Road Safety of the City of Niš for the period 2023-2027 (in preparation).

Pedestrians are a particularly vulnerable group in the traffic system of the City of Niš. In 2022 the number of pedestrians killed was 4, which accounts for 50% of those killed in traffic accidents, and the number of injured pedestrians was 135, which represents 25% of the total number of injured persons in traffic accidents[104]. Other participants in traffic accidents that were killed in 2022 are 3 motorcyclists and 1 person in a passenger vehicle, while the largest number of injured is in the category of persons in passenger vehicles - both drivers and passengers (Figure 12).

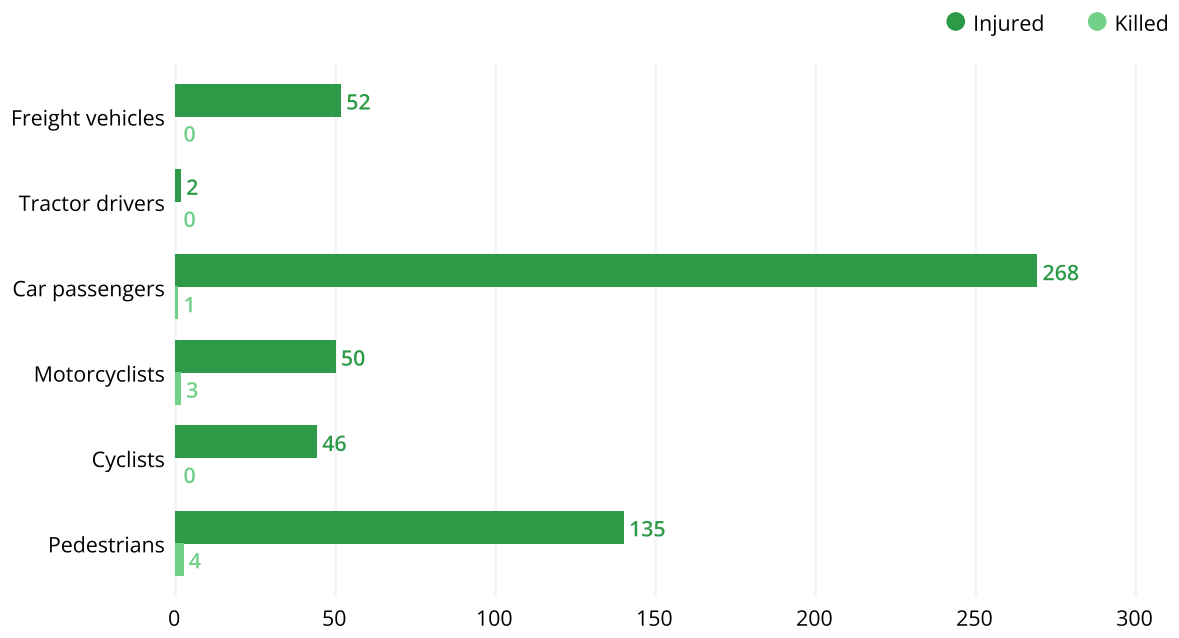

Figure 12. The structure of participants in traffic accidents (injured and killed) in the territory of the City of Niš in the year 2022.
Source: Report on Basic Indicators of Traffic Safety in the Period 2018-2022: City of Niš.

103 Traffic Safety Agency of the Republic of Serbia. Report on Basic Indicators of Traffic Safety in the Period 2018-2022: City of Niš.
104 Report on Basic Indicators of Traffic Safety in the Period 2018-2022: City of Niš.

The number of people killed and seriously injured in traffic accidents in the City of Niš over a prolonged time period is illustrated in Figure 13. It is evident that the number of people injured in traffic accidents within the timeframe 2001-2022 fluctuates significantly, but in general there is a downward trend. The number of seriously injured persons in the same observation period also varies significantly, but there is no clear downward trend. However, in the past three years, there is a constant number of seriously injured people in traffic accidents, which amounts to 80.

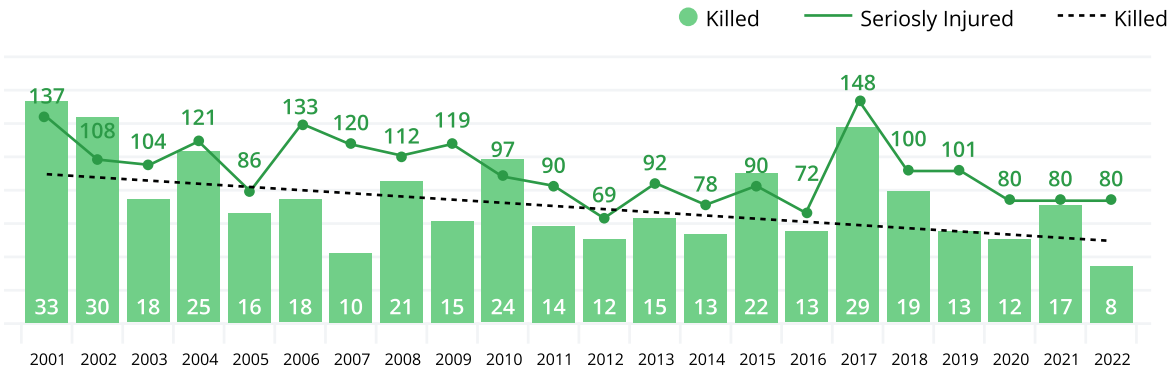

Figure 13. The number of people killed and seriously injured in traffic accidents in the territory of the City of Niš, for the period 2001-2022.

Source: Strategy for Road Safety of the City of Niš for the period 2023-2027 (in preparation).

The number of children killed and injured in traffic accidents in the monitored period 2018-2022 is shown in Figure 14. The number of injured children per year fluctuates, as well as the number of severely and easily injured children. This information points to the necessity of improving traffic safety, in order to stabilize and reduce the number of accidents, and especially to reduce the number of children killed, to zero value.

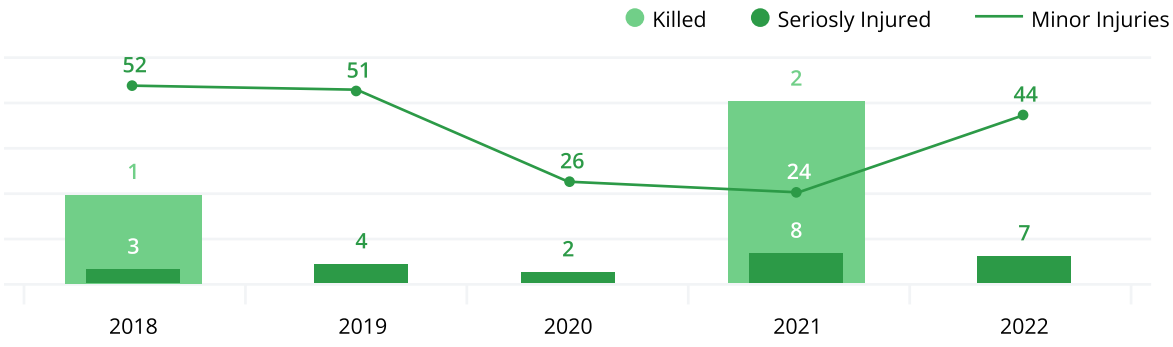

Figure 14. Distribution of the number of children injured and killed in traffic accidents in the territory of the City of Niš in the period 2018-2022.

Source: Strategy for Road Safety of the City of Niš for the period 2023-2027 (in preparation).

For the territory of the City of Niš, the public weighted risk of death in traffic accidents is 90 victims per 10,000 inhabitants, while the public weighted traffic risk in traffic accidents is 274 casualties per 10,000 registered motor vehicles[105]. Compared to other local self-governments in Serbia, the City of Niš belongs to the group of local self-government units with a low-risk value. According to the value of the public weighted risk of injury to the population in road traffic (killed, seriously injured and lightly injured) during the year 2022, the City of Niš is in 27th place out of 161 municipalities in the Republic of Serbia[106].

105 Council for Traffic Safety of the City of Niš, 2023.

106 Traffic Safety Agency of the Republic of Serbia. Report on Basic Indicators of Traffic Safety in the Period 2018-2022: City of Niš.

Advances regarding traffic safety are present, particularly concerning the use of seat belts in the front seat, where the City of Niš achieves the best results in the entire country, and the behaviour of children-pedestrians, where the indicator has a very high value[107]. In the opinion of stakeholders, the increase of traffic safety in the territory of the City can also be attributed to continuous efforts of city institutions on the organization of the traffic system in the city and improving the quality of road infrastructure, as well as broad legal powers that enable taking measures in this area.

Gaps and challenges. An overall positive trend in reducing the number of traffic accidents and their outcomes has not yet been established in the City of Niš. Variations in the number of seriously injured persons, as well as severely and easily injured children in traffic accidents, along with the high number of pedestrians killed and injured in traffic accidents, indicate the need to implement additional measures and activities in order to limit the most serious outcomes.

The key issues in traffic safety that were identified in the territory of the local self-government Niš include the use of mobile phones while driving, not using safety belts in the back seat (indicator value is below national average), not using child restraint systems and unsafe behaviour of pedestrians (excluding children)[108]. Additionally, a major issue in the transport network of the City of Niš is underdeveloped infrastructure for sustainable mobility, especially bicycle paths.

In order to reduce the number of fatalities and decrease the number of severely injured persons in traffic accidents, it is necessary to improve road infrastructure, particularly to repair critical points. When it comes to improving the safety of children in traffic, it is necessary to continue working on educating adults, so to empower them to protect children in traffic. New measures should be implemented to result in the establishment and maintenance of the trend of "0 children killed". All of this requires reinforcement of human resources working in the field of technical regulation, traffic safety and traffic police, along with training and education opportunities to share knowledge and experiences.

Local efforts and initiatives. The City of Niš and the Council for Traffic Safety have implemented certain activities to improve traffic safety, especially the safety of children and pedestrians. Since 2019, the activity of distributing car seats for children is being implemented every year, along with training on how to use child restraint systems in vehicles. So far, 1,200 seats have been distributed. In several locations in the city, on frequent high-speed roads where improper pedestrian crossings were observed, protective pedestrian fences were installed. In 2021, a video surveillance system, that performs automatic recognition of vehicle license plates, was implemented, in order to reduce the number of traffic violations and speeding violations, and to reduce the number of improperly parked vehicles that obstruct traffic flows.

The European Investment Bank, the credit branch of the EU, signed a cooperation agreement with the City of Niš to finance the preparation of the Sustainable Urban Mobility Plan (SUMP), which will enable the city to make investment decisions regarding its transport network on the basis of information. Currently, SUMP is being developed as one of the results of the Project for Urban Mobility and Railway Corridor Regeneration in Niš[109]. The Project comprises the improvement of connectivity and sustainable transport in the city, and the regeneration of the current railway corridor as a municipal public transport axis[110]. SUMP is based on a comprehensive diagnosis of the transport situation and development context in Niš, which sets out clearly defined measures

[107] Traffic Safety Agency of the Republic of Serbia. Report on Basic Indicators of Traffic Safety in the Period 2018-2022: City of Niš.

[108] Traffic Safety Agency of the Republic of Serbia. Report on Basic Indicators of Traffic Safety in the Period 2018-2022: City of Niš.

[109] Assistance on project preparation is provided under Urban Projects Finance Initiative, which will help the City of Niš assess its needs and opportunities, as well as prioritize investments in mobility and related development.

[110] https://upfi-med.eib.org/en/projects/project-for-urban-mobility-and-railway-corridor-regeneration-in-nis/

to meet the mobility needs of citizens and businesses to a 15-year horizon[111]. SUMP measures are expected to have a significant positive impact in advancing sustainable mobility goals for the City of Niš.

Link to the VNR and national level. This indicator is being monitored at the national level. In the past 8 years, values of death rate due to road traffic injuries in Serbia range from 6.71 in 2017 to 5.4 in 2022[112]. The City of Niš presents significantly lower death rate in 2022 compared to the rest of Serbia, and thus contributes to the overall national achievement of SDG 3.

Indicator 3.9.1. Mortality rate attributed to household and ambient air pollution

The City of Niš has very poor air quality, especially in the winter during heating season. From the aspect of air quality and population's exposure to air pollution, the most endangered area is the city municipality Medijana[113]. Medijana has the largest number of inhabitants and extremely high population density, and therefore represents an area where the largest part of population is exposed to increased air pollution[114]. The analysis of the concentration of pollutants for the city municipality Mediana area was performed by the Public Health Institute Niš at the measuring site within the Institute. For the period 2011-2019, the estimated exposure of the population to PM10 particles was 4.4 μg/m^3. Regarding the exposure to PM2.5 particles, it was estimated at 6.61 μg/m^3 in the timeframe 2013-2019. Public Health Institute Niš stresses the extreme harm of even short-term exposure to PM2.5 particles, when they are above the recommended annual (10 μg/m^3) or daily values (24 μg/m^3)[115].

In the City of Niš there are three automatic stations for monitoring air quality parameters that were installed at three permanent measuring points in 2011[116]. They are managed by the Serbian Environmental Protection Agency (SEPA), which is a body within the Ministry of environmental protection that has the capacity of a legal entity. Two of these devices are stationed in city municipality Medijana. Although the data are preliminary and verified afterwards (verification is done on an annual basis), they are available to the public at any time via Internet at the web address: http://www.amskv.sepa.gov.rs/pregledpodatakazbirni.php. Assessment of air quality is carried out by SEPA on the basis of data obtained through annual monitoring.

At the national level, it is the obligation of every legal entity that pollutes the air to measure the emission and report it in the pre-defined forms to the local self-government. This implies to enter the data on the emission of pollutants into the environment in the Local Register of Pollution Sources. Reported data for the City of Niš are publicly available at the web address: http://www.lriz.ni.rs:8088/, and are also submitted to the National Register of Polluters.

Overview. Vulnerable population groups, which are most affected by ambient air pollution, include children of preschool age, children of school age, chronically ill people, pregnant women and the elderly. Also, due to the deterioration of ambient air quality, vulnerable categories of the population are at greater risk of contracting the disease COVID-19[117].

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111 Project Preparation Technical Assistance for Urban Mobility and Railway Corridor Regeneration in Niš (Serbia), Reference Number: AA-010463-001, November 2023.

112 https://sdg.indikatori.rs/en-US/area/good-health-and-well-being?subarea=SDGUN030601&indicator=030601IND01

113 Air Quality Plan for the Agglomeration of Niš, 2020.

114 The largest number of inhabitants of the City of Niš lives in the city municipality Medijana (83,113 persons, i.e. 33.31% of City population), although it is territorially the smallest among all city municipalities (10.70 km^2, i.e. occupies only 1.79% of the City's territory). Consequently, Medijana has an extremely high population density of 7,768 inhabitants per hectare, which is significantly higher compared to the rest of the City territory (418 in/ha).

115 Air Quality Plan for the Agglomeration of Niš, 2020.

116 Air Quality Plan for the Agglomeration of Niš, 2020.

117 Air Quality Plan for the Agglomeration of Niš, 2020.

Health effects of polluting particles in the air are associated with respiratory and cardiovascular diseases and tumors, while long-term exposure may cause mortality from these diseases[118]. Public Health Institute Niš analyses data on *morbidity and mortality* on a regular basis, as part of the Analysis of the Health Status of the Population, and publishes the results on the website[119]. Available data on disease trends is presented graphically in the following Figures. Tendencies in diseases of respiratory organs and diseases of the bloodstream for the period 2011-2019 are presented in Figures 15 and 16[120]. Trends in mortality rates from respiratory diseases, bloodstream diseases and tumors in the City of Niš for the period 2011-2018 are presented in Figures 17 and 18.

Yearly morbidity trends in respiratory diseases present a certain increase in the number of illnesses, but with a relatively constant value of the share of this disease in total morbidity of the population, which is around 30%. Diseases of the bloodstream are on the decline, both in terms of the number of cases and the share of the disease in morbidity of the population (from 22.56% in 2011 to 15.5% in 2019).

Both mortality from respiratory diseases and total mortality of the population are increasing. There is an evident and steady increase in values of the annual mortality rate from respiratory diseases in the territory of the City of Niš (from 0.45 in 2011 to 0.55 in 2018). On the other hand, yearly death rates per 1,000 inhabitants are relatively uniform for blood flow diseases and tumor diseases, and fluctuate in a defined interval (blood flow diseases 5.04-5.78; tumor diseases 2.9-3.26).

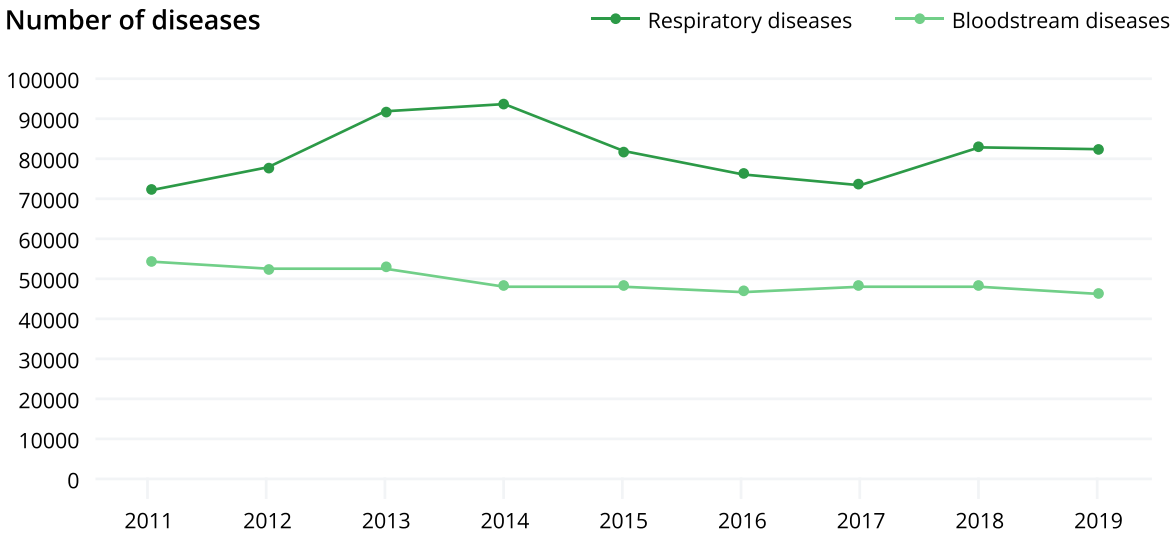


Figure 15. Number of diseases of respiratory organs and diseases of the bloodstream.
Source: Air Quality Plan for the Agglomeration of Niš, 2020.

118 Air Quality Plan for the Agglomeration of Niš, 2020.
119 https://izjz-nis.org.rs/publikacije/publikacije.html
120 Recorded in the general medicine clinics of the City of Niš.

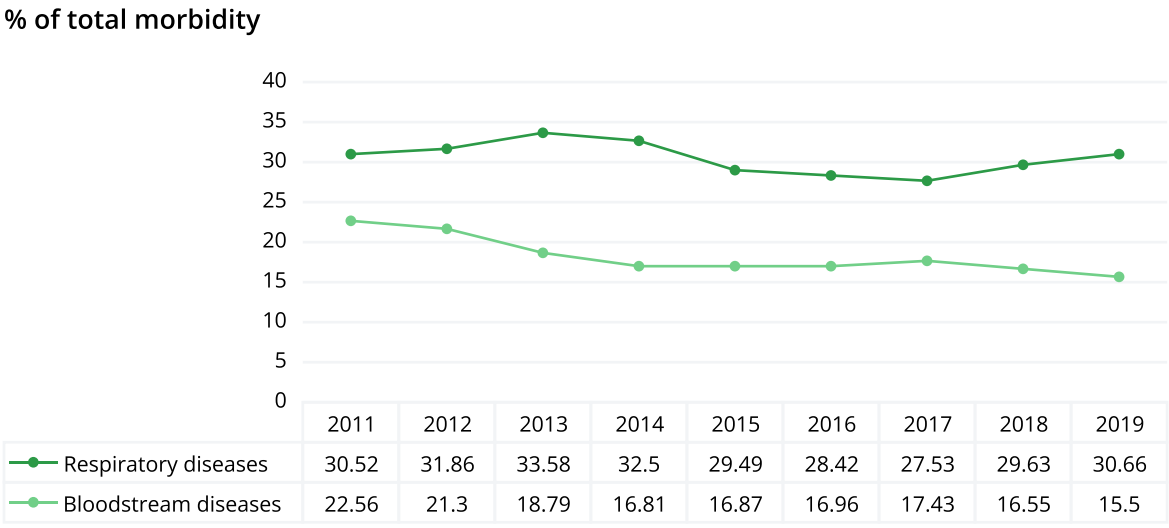


Figure 16. Percentage of total mortality of diseases of respiratory organs and diseases of the bloodstream.

Source: Air Quality Plan for the Agglomeration of Niš, 2020.

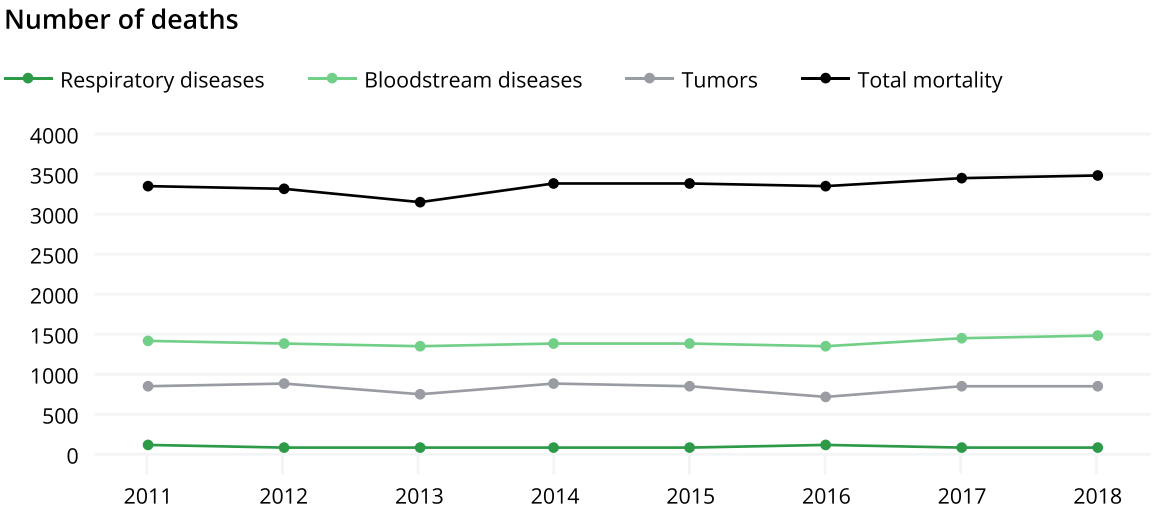
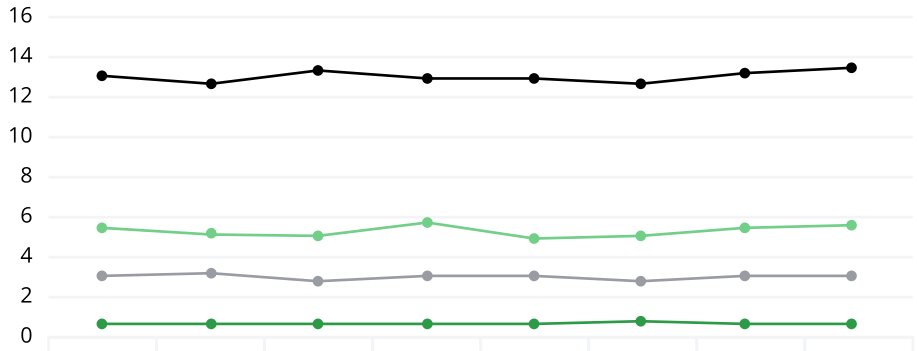


Figure 17. Number of deaths from respiratory diseases, bloodstream diseases and tumors.

Source: Air Quality Plan for the Agglomeration of Niš, 2020.

Mortality rate per 1000 inhabitants



	2011	2012	2013	2014	2015	2016	2017	2018
Respiratory diseases	0.45	0.45	0.48	0.44	0.45	0.52	0.47	0.55
Bloodstream diseases	5.53	5.26	5.04	5.78	5.1	5.14	5.49	5.56
Tumors	3.06	3.26	2.9	3.23	3.04	2.9	3.15	3.14
Total mortality	12.97	12.66	13.31	13.01	13.01	12.79	13.3	13.59

Figure 18. Mortality rates from respiratory diseases, bloodstream diseases and tumors.
Source: Air Quality Plan for the Agglomeration of Niš, 2020.

Gaps and challenges. In order to reach the defined air quality standards, referring to pollutants that have a confirmed harmful effect on the population's health, the City of Niš needs to put in additional efforts to address several crucial issues. The first one involves the Local Register of Pollution Sources for the City of Niš, which was initiated in 2010, but is incomplete because it was not operational in the period 2013-2019. Therefore, there is not enough data for the assessment of pollution sources and pollution mapping[121]. In order to regularly update the Air Quality Plan and enable adequate actions and measures, it is necessary to continuously monitor air quality and ensure the quality of data in the Local Register of Polluters.

The second major challenge concerns furnaces in individual households that still mostly use solid fossil fuels. Thus, they represent the biggest source of air pollution in the territory of the City of Niš, as well as one of the biggest challenges for achieving adequate air quality and healthy environment for the inhabitants of Niš. The generally low environmental awareness of the population with individual furnaces, and the lack of professional knowledge of those who perform the installation and maintenance of systems that emit substances with a greenhouse effect, are two challenges identified by the stakeholders. Also, the lack of manpower and poor cross-departmental cooperation contribute to insufficient control of polluters. Stakeholders point out the need for education of citizens and professionals regarding the substances with a greenhouse effect, as well as education of employees dealing with air quality, with the aim of improving knowledge and exchanging experiences.

The City of Niš is also experiencing challenges in greening its urban area. Majority of the parks were formed in the period 1920-1940, when the population of Niš was ten times smaller. There are no new park developments, and the existing inner-block greenery is often converted into building land. Consequently, each inhabitant is nowadays provided with only 1.2 m^2 of greenery, which is insufficient considering the defined norms of 20-40 m^2 per inhabitant in the urban area, and 9-13 m^2 per inhabitant in the residential area[122]. In addition to the fact that greenery prevents the raising and spreading of suspended particles, green park areas also enable urban recreation and contribute to the overall improvement of population's health. It is necessary to implement measures that will strengthen greening activities in the urban area.

121 Air Quality Plan for the Agglomeration of Niš, 2020.
122 Air Quality Plan for the Agglomeration of Niš, 2020.

Local efforts and initiatives. Availability of air quality data on the web provided by SEPA enables the citizens of Niš to stay informed about the current air condition on an hourly basis. Air quality index is calculated by using software, and the data is presented in different colours on the map of automatic stations. In line with this information, the population may plan their daily activities depending on the pollution level.

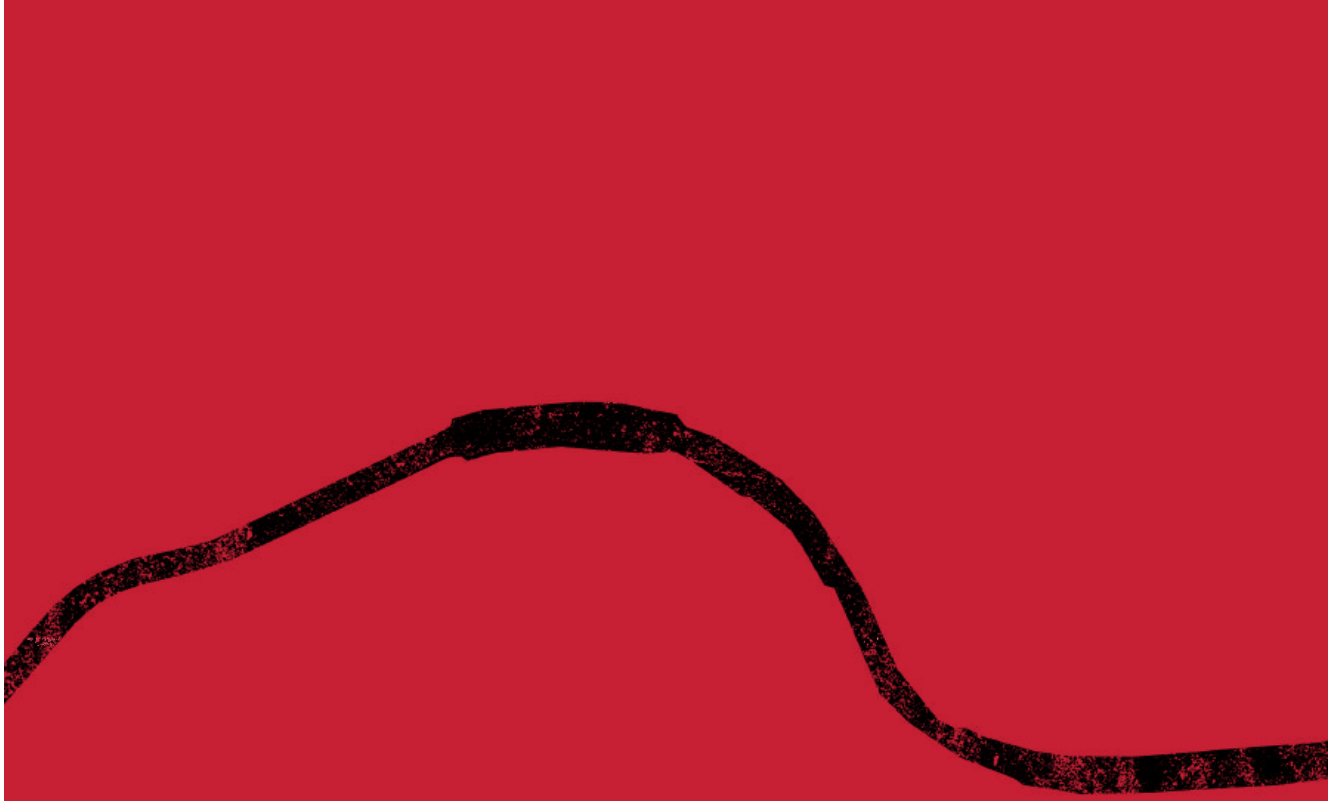
In 2020, the City of Niš adopted the first Air Quality Plan, whose measures are to be implemented by the local self-government. In the last 20 years, numerous activities concerning the improvement of air quality have been implemented, especially in the field of energy[123], and the stakeholders confirm that control of the use of substances with a greenhouse effect is being carried out in the field.

In 2003, the Public Utility Company City Heating Plant Niš switched to using natural gas as the main energy source in its heating facilities, in accordance with the principles of environmental protection. Today, all 3 major heating plants as the largest heat sources in the system[124] use gas as the main energy source, as do 6 of the 15 smaller boiler rooms in the City Heating Plant system[125]. Also, in cooperation with the City of Niš, the City Heating Plant is continuously working on shutting down local boiler rooms in public institutions that use heating oil, coal and fuel oil as energy sources, and their connection to the Plant's distribution system. For boiler rooms that still use fuel oil and heating oil as energy, a conversion to natural gas/biomass is planned, for which the City Heating Plant has prepared projects[126]. The City Heating Plant is also cooperating with the city on network expansion in parts of residential area, which will shut down individual furnaces that use coal, fuel oil or electricity as energy sources.

Furthermore, the city has already developed a distribution network for the supply of natural gas to industry and certain households in cooperation with "Yugorosgaz" A.D. Niš. A thermo-solar plant was installed on the roof of one preschool facility. Activities were initiated to implement the programme of improving energy efficiency of residential buildings, and to stimulate households with individual furnaces to switch to other sources of heating. All these activities contribute to reducing the emission of PM2.5 and PM10 particles and corroborate the determination of the city to improve air quality.

Link to the VNR and national level. The VNR promotes the establishment of local advisory bodies - Health Councils in the local self-government, as one of the localization mechanisms of the SDG 3 regarding public health planning. In the perspective of the local self-governments on this SDG, one of the main challenges listed in the VNR is that local Health Councils are not sufficiently active. Therefore, the Standing Conference of Towns and Municipalities, in partnership with the Ministry of Health and the network of public health institutes, supports the development of public health plans and builds capacities of employees in local Health Councils in Serbia. So far, the City of Niš has not developed a public health plan, which should help in addressing the issue of mortality rate attributed to ambient air pollution.

123 Air Quality Plan for the Agglomeration of Niš, 2020.
124 Heating Plants "Krivi Vir", "Jug" i "Majakovski".
125 Public Utility Company City Heating Plant Niš, 2023.
126 Public Utility Company City Heating Plant Niš, 2023.



SDG 4: Quality Education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Indicator 4.1.2. Completion rate (primary education, lower secondary education, upper secondary education)

UMF Domain: Society - Inclusive; UMF Indicator 1.2.3. (UMF-11)

Education system in Serbia involves two levels of education: primary (eight years of schooling, completed at the age of 15) and secondary (three/four years of schooling, completed at the age of 19). Primary education is obtained in elementary schools within two cycles: primary education - I cycle (grades 1-4), and primary education - II cycle (grades 5-8)[127]. This education is considered basic education and is mandatory. Secondary education refers to high schools and is voluntary. Dual college/workplace education was also introduced in vocational (secondary) education in the school year 2019/2020, with the focus on current labor market demands. The goal of dual education is to attain in companies as many hours as possible of learning through work, so that students may acquire practical knowledge and skills in a real work environment. The Unified Information System of Education is in use, where open data from the field of education is published on the official website of the Ministry of Education[128].

The City of Niš as a local self-government unit has adopted the Decision on the Network of Elementary Schools in its territory, thereby ensuring the availability of education for all. There are 34 public elementary schools intended for all children, within all city municipalities[129]. Secondary

[127] The data on education segregated according to age groups - children/young people aged 13-15, 17-19 and 21-23 is not available, but partial data on the completion rate for primary education – I cycle, primary education – II cycle and secondary education is available from various sources.

[128] https://opendata.mpn.gov.rs/. This system is the basis for modernization of management and decision-making based on information, with the overall aim to ensure a quality and efficient system of education and upbringing.

[129] https://opendata.mpn.gov.rs/otvoreni-podaci/osnovno-obrazovanje.html

education is provided in 18 public institutions and one private secondary school. Public schools involve 4 gymnasiums, 13 vocational schools, and an Art School. There is also 1 school for combined primary and secondary music education. Inclusive education is a strategic approach to education of children with disabilities. As a rule, students with disabilities receive education and upbringing in regular schools together with other pupils, when it is in the best interest of students. Additionally, in 2 special schools, both primary and secondary education is provided only for children with disabilities.

Overview. Niš is characterized by very high completion rates in the overall primary education that involves both education cycles[130]. More than 95% of pupils complete elementary school, as presented in Figure 19 for the 8-year period[131]. There are no significant deviations in completion rates of male and female pupils. The values over 100% indicate that the number of pupils that graduated 8. grade is higher than the estimated number of children in that age group (age 14/15). All of this is the result of people migration, delayed graduation of some pupils, statistical margins, etc. For the year 2022, the share of students that completed the II cycle of primary education (age 14/15), that is 8. grade, was 98.1%. When reviewing the data on the I cycle of primary education alone (age 10/11), the estimated share of pupils that completed 4. grade in 2022 was 99.45%[132].

Completion of secondary education is also high, even though there is no statistical monitoring of the completion rate. However, the statistical data on dropout rates are available for secondary education[133]. They provide good insight into the completion of secondary education, as illustrated in Figure 20. It can be stated that dropout values are fairly even with male and female population, while the overall dropout rates amount to about 1%. Such low values corroborate high levels of completion of secondary education (about 99%).

Regarding dual education, the Regional Chamber of Commerce Niš implements and promotes dual education in the City of Niš. The Regional Chamber of Commerce Niš achieves better results year after year, owing to the good cooperation between entrepreneurs, schools and institutions[134]. Although the number of students in dual model of education is increasing, it is a small percentage compared to the total number of students attending school. When it comes to the gender structure of students, the number of boys prevails in the total number of students who are being educated according to the dual model of education.

High completion rates align with educational attainment level of the population aged 15 and over. Data disaggregated according to the education level[135] show that among the population of 214,404 persons aged 15 years and over, the majority have completed secondary education (Figure 21).

Gaps and challenges. The City of Niš achieves excellent results in completion rates of education, but the provision of optimal educational infrastructure is a challenge. Urban growth in certain parts of the city is not accompanied by the development of elementary schools as a public service. For example, and as pointed out by the stakeholders, the city municipality Pantelej has large demographic growth that involves young families with children. Even though planning documents envision elementary schools in several sites in this booming part of the city, they have not been developed yet.

130 http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx. DevInfo database contains the official statistics for monitoring the situation and development in the Republic of Serbia.
131 http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx
132 Own resesarch as an illustration for the school year 2021/2022.
133 http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx
134 Regional Chamber of Commerce Niš, 2024.
135 SORS. (2023). 2022 Census of Population, Households and Dwellings of the Republic of Serbia - Educational Attainment, Literacy and Computer Literacy.

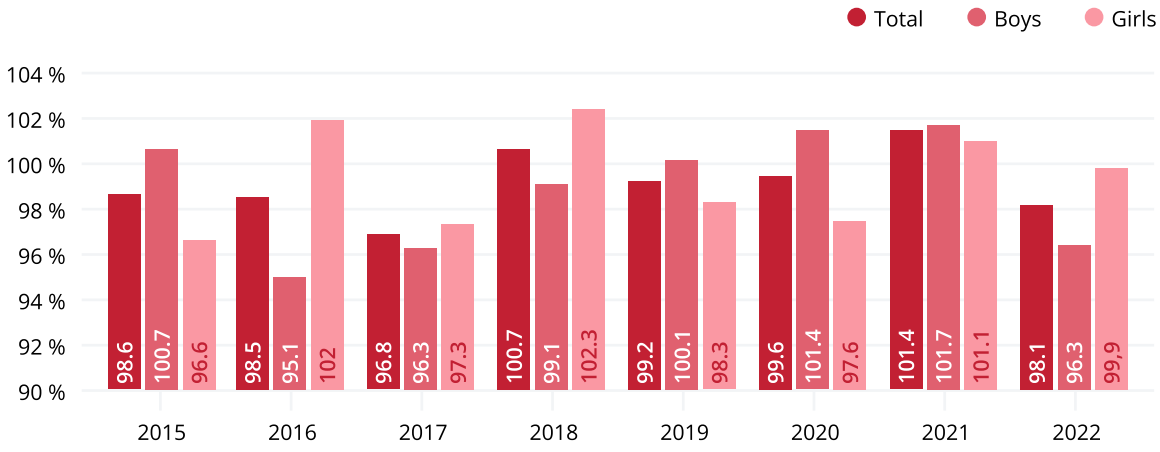


Figure 19. Completion rates of the II cycle of primary education (8 grades of schooling) in the period 2015-2022.

Source: http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx

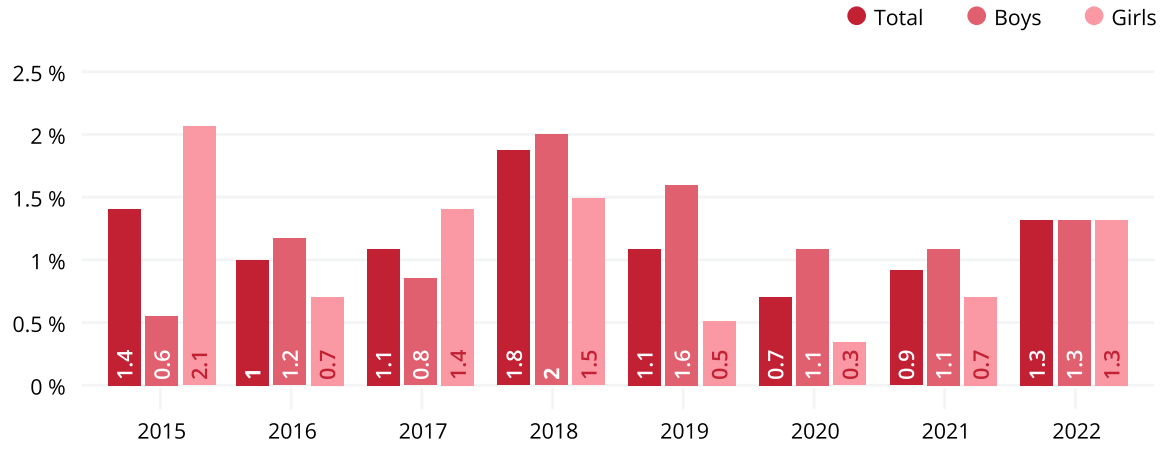


Figure 20. Dropout rates are available for secondary education in the period 2015-2022.

Source: http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx

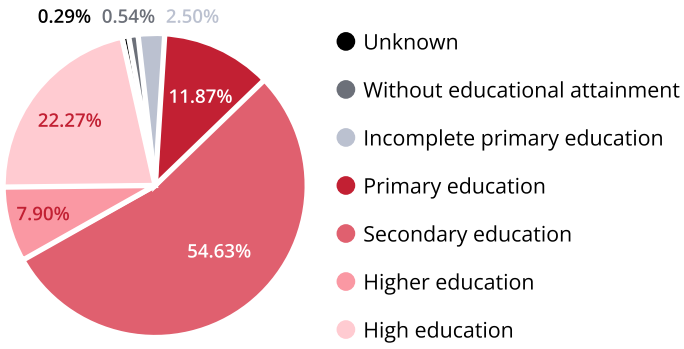


Figure 21. Educational attainment of the population aged 15 and over.

Source: 2022 Census of Population, Households and Dwellings of the Republic of Serbia - Educational Attainment, Literacy and Computer Literacy.

Local efforts and initiatives. The Unified Information System of Education with open data, supported by the statistical research system, is an asset in the process achieving high completion rates, as acknowledged by the stakeholders. Active participation of the Regional Chamber of Commerce Niš in mediation between schools and companies, state and local institutions provides support for dual education. Significant efforts have been made by the City towards inclusiveness of formal education for children with disabilities, refugee and migrant children. Equally important, young people are getting more and more involved. A non-governmental youth organization "Jedi Movement" is currently working on the development and affirmation of non-formal education, and on launching the SDG Youth Corner that should raise awareness on the SDGs from early childhood.

Good practices. A teacher at the elementary school "Desanka Maksimović" in the village of Čokot applies three interesting and easy techniques in teaching reading and arithmetic: 1) the technique of "interactive reading" in teaching boys with disabilities from the autism spectrum, 2) the technique of cards with children's names, and 3) numbered line with a jumper. These techniques contribute to active participation, learning and development of self-confidence of all pupils.

Link to the VNR and national level. This indicator is being monitored at the national level and the completion rate of all levels of education in Serbia is very high (99.9% for I cycle of primary education, 99.5% for II cycle of primary education and 97.7% for secondary education in 2019)[136]. The importance of children's education in Serbia is highlighted in the VNR, because it provides them with the opportunity "to realize their full human potential, to escape or avoid poverty, to increase chances for social inclusion and quality life[137]".

[136] https://sdg.indikatori.rs/en-US/area/quality-education?subarea=SDGUN040102&indicator=04010201IND01

[137] Voluntary National Review of the Republic of Serbia, p. 40, 2019.

SDG 5: Gender Equality

Achieve gender equality and empower all women and girls

Indicator 5.5.1.b. Proportion of seats held by women in local governments

UMF Domain: Governance and Implementation - Inclusive; UMF Indicator 5.2.3. (UMF-69)

According to Serbian regulatory framework, local self-governments are obliged to establish mechanisms of gender equality and secure the participation of women of at least 30% in the authorities[138]. However, in the political and public life of Serbia, women are not sufficiently represented at the local level. According to the latest reports, only 13.3% of women are in the positions of municipal presidents or mayors[139].

The City of Niš has adopted the European Charter for Equality of Women and Men in Local Life in 2013. In 2015 the City also adopted the Local Action Plan for Gender Equality and Implementation of UN Resolution 1325 "Women, Peace and Security" at the Local Level in the City of Niš for the Period 2016-2017, which stipulates the share of 30% of women in the authorities. At the time of envisioning this Plan, it identified key characteristics and setbacks to women's participation in local politics: lower representation of women in executive bodies, insufficient involvement of women in decision-making at the local level (especially of women from rural areas), and insufficient visibility and activity of female politicians on initiatives for gender-sensitive local policies. In line with that, the Plan also defined the following measures:
1. Increasing the participation of women in positions of executive power and in representative bodies, by establishing quotas for positions of the executive power and appointed persons, of at least 30% of the underrepresented gender in accordance with the Law;

138 Voluntary National Review of the Republic of Serbia, 2019.
139 SORS. (2024). Women and Men in the Republic of Serbia, Statistical Office of the Republic of Serbia.

2. Informing and empowering women to participate in decision-making at the local level;
3. Increasing the awareness of female politicians in Niš (councillors and members of political parties), strengthening their mutual cooperation and cooperation with female politicians at the European level.

The last elections for councillors of municipal and city assemblies in Niš were held on June 21, 2020, and conducted according to the proportional system. The electoral units consisted of city municipalities, and the elections were carried out by municipal and city election commissions.

Overview. Positive trends in empowering women in the political and public life at the local level are evident in the City of Niš in the last decade. Regarding the increase of the participation of women in decision-making at the local level, the goal was achieved with the election in 2012, when there were 35 women delegates, and 30.4% of all delegates were women (Figure 22). The share continued to increase with the next election in 4 years' time (32.2%). After the election in 2020, participation of women in the assembly of the City of Niš is as follows: out of 115 members of local governments, 38 are women[140]. The mayor is also a woman. The share of women members of the local government is currently 33.04%. The proportion of seats held by women varies in different city municipalities, and is presented in Figure 23.

Gaps and challenges. In spite of the progress in the representation of women in local government made at the level of the entire local self-government, there is still insufficient involvement of women from the rural areas of the City of Niš in decision-making at the local level. Also, the stakeholders pointed out that there is often insufficient cooperation between institutions and the non-governmental sector, which then leads to inability to grasp gender issues from multiple angles.

Local efforts and initiatives. In line with increasing the awareness of female politicians in Niš, the informal organization Women's Councillor Network was formed in the city parliament in 2016, with the aim of encouraging women to participate more in political and public life, and affirming gender equality at all levels of decision-making. The Organization monitors the adoption of new laws and decisions and their implementation. Also, the Council for Gender Equality of the City of Niš was formed in 2020. In cooperation with the city, the Council proposes measures to encourage and train women to participate in public and political life, to prevent violence against women and domestic violence, and to ensure a better position of the underrepresented gender in the local community.

From the perspective of stakeholders, the direct contact with citizens and constant examination of their needs within fieldwork carried out by the non-governmental associations, is of crucial importance for achieving gender equality. Additionally, various non-governmental organizations, state and local institutions in Niš territory implement activities for the empowerment of women, with a particular focus on women in rural areas. These activities are aimed at supporting women's entrepreneurship (e.g. old crafts), through organizing training courses and informal education, as well as providing grants.

Link to the VNR and national level. This indicator is being monitored at the national level and the significance of achieving gender equality is highlighted in the VNR. The progress in increasing the share of women in local governments is evident (from 21.2 in 2008 to 37.2 in 2020)[141]. Empowering women's participation in Niš government contributes to the overall process of achieving gender equality in Serbia within the SDG 5.

140 SORS. (2023). Municipalities and Regions in the Republic of Serbia, 2023.
141 https://sdg.indikatori.rs/en-us/area/gender-equality/?subarea=SDGUN050501&indicator=05050102IND01

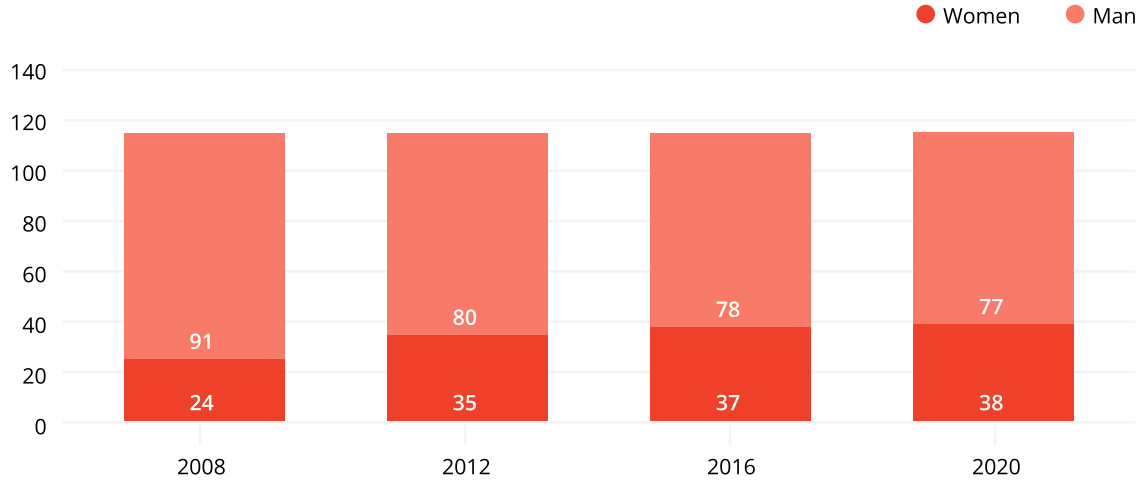


Figure 22. Number of women members in the local self-government City of Niš in the past 4 elections.

Source: Municipalities and Regions in the Republic of Serbia, 2009-2023.

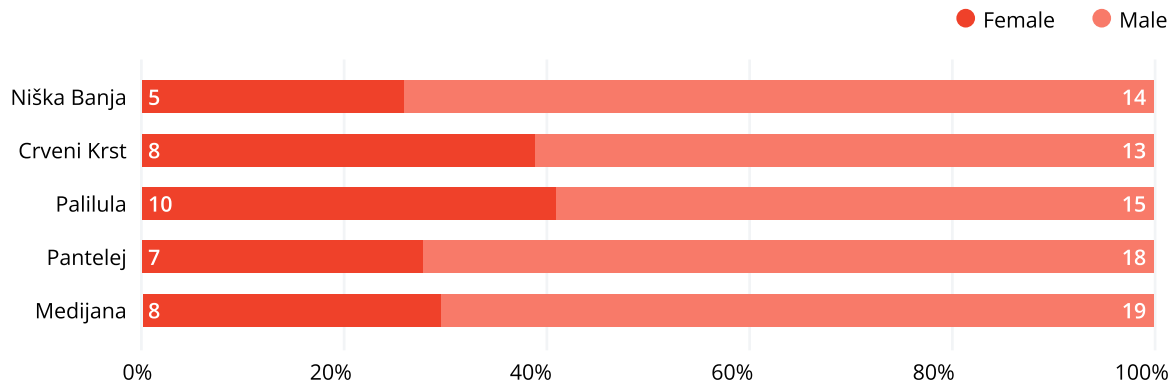
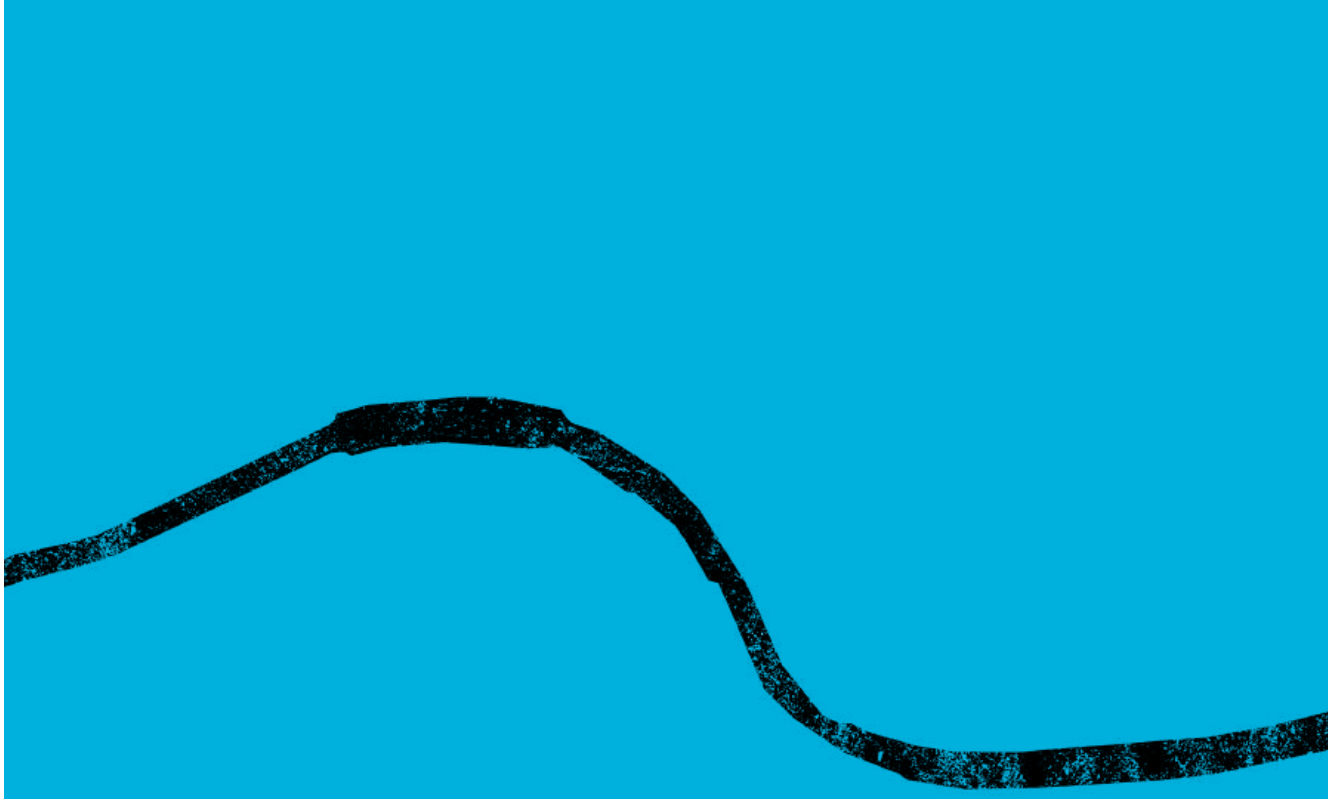


Figure 23. Share of women members in city municipalities of Niš.

Source: Municipalities and Regions in the Republic of Serbia, 2023.



SDG 6: Clean Water and Sanitation

Ensure availability and sustainable management of water and sanitation for all

Indicator 6.1.1. Proportion of population using safely managed drinking water services

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.2. (UMF-02)

Water supply to the City of Niš is performed through four territorially separate but functionally dependent water supply systems: Medijana, Studena Ljuberađa-Niš and Moravski water pipeline, which together form the Niš Water Supply System. This system supplies water to about 350,000 people and Niš industry, including some settlements outside of Niš local self-government unit, with a volume of 37,732,608 m^3/year, i.e. 103,377 m^3/day[142]. The functioning of the system is reliable and stable, with a high-level control of water quality[143]. The distribution network of Niš water supply system is illustrated in Figure 24.

Overview. The number of households that are connected to the public water supply network in the City of Niš in 2023 is 87,440[144], which represents 90.40% of all households.

142 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.
143 Public Utility Company for Water Supply and Sewerage Naissus Niš, 2023.
144 Public Utility Company for Water Supply and Sewerage Naissus Niš, 2023.

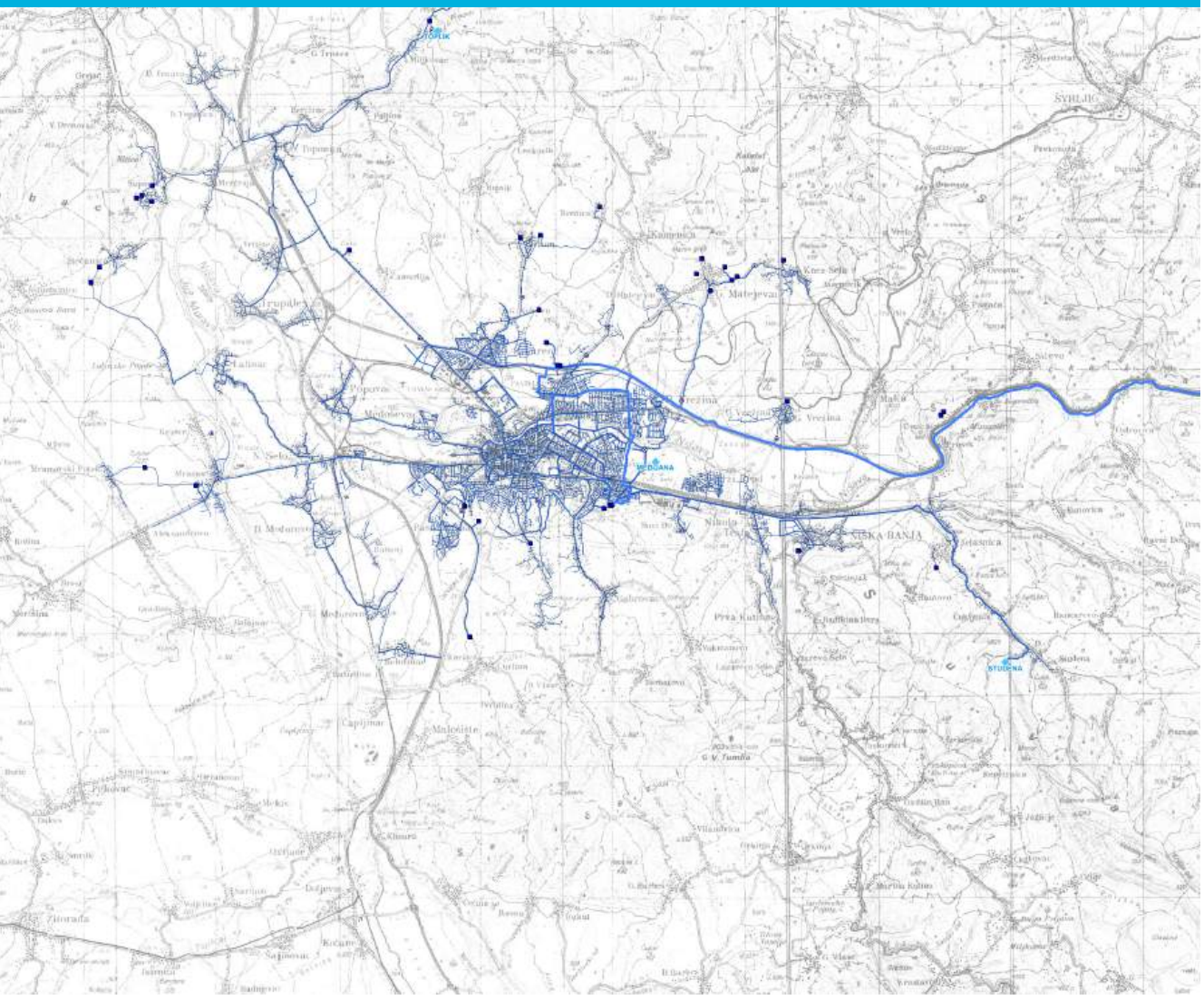


Figure 24. Distribution network of the Niš water supply system.
Source: Public Utility Company for Water Supply and Sewerage Naissus Niš, 2023.

The entire urban area of the City of Niš is covered by the public water supply network, while suburban and rural areas are partly supplied with water from this system. Four rural settlements have no water infrastructure at all, and solely depend on a public fountain[145]. Others have their own rural/local water supply systems, which were built in 1961-1984 by the villagers themselves, and are nowadays managed by city municipalities. Data show that the total number of dwellings[146] connected to the rural/local water supply system is 5,668, while the number of occupied dwellings with such installations amounts to 2,569[147] (Table 4). This represents 4.13% of total dwellings and 2.49% of all occupied dwellings in Niš territory. Also, in some urban settlements the dwellings are connected to a rural/local water supply system, but to a small share only (1.89% of total number and 1.63% of occupied units). It is estimated that about 6,000 users in suburban and rural area in total rely on rural/local water supply system.

145 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.

146 The data on installations to rural/local water supply systems is available for dwellings and not households, which is somewhat higher than the number of households.

147 SORS. (2023). 2022 Census of Population, Households and Dwellings of the Republic of Serbia - Installations in the Dwellings.

Table 4. Number of dwellings with installations connected to the rural/local water supply system, in 2022.

Settlement type	Type of housing unit	Installations to rural/local water supply system	Total number of dwellings
Total	Dwellings in total	5,668	137,100
	Occupied dwellings	2,569	103,270
Urban	Dwellings in total	107	99,665
	Occupied dwellings	42	77,449
Other (rural, suburban)	Dwellings in total	5,561	37,435
	Occupied dwellings	2,527	25,821

Source: 2022 Census of Population, Households and Dwellings of the Republic of Serbia - Installations in the Dwellings.

The rural water supply systems are an impediment to normal functioning of water supply. Public Utility Company Naissus has a cooperation agreement with some of the suburban/rural settlements to maintain and control their water supply system. However, approximately 25 settlements lack such supervision and monitoring[148], so their rural/local water supply cannot be considered "improved water sources". As these systems are not regularly controlled, they can lead to contamination of drinking water due to microbiological pollution. Even though local self-governments are obliged to care for these water systems, in reality this duty is transferred to local communities, which often do not have the resources nor capacities to handle the problem adequately.

The users who are not connected to any water supply network in the territory of the City of Niš are supplied with drinking and technical water from wells and local natural watercourses[149]. This mainly refers to parts of rural settlements that use springs and underground water resources[150].

It can be concluded that total population using safely managed drinking water services is limited to the piped water supply system supervised by the City's Public Utility Company, and the estimated share is 90.40%.

Gaps and challenges. The lack of water supply system in a part of Niš territory is the main challenge for the City of Niš, as seen by stakeholders. The existing rural/local water supply systems are also a major challenge, since some of them are not legally registered. The dilapidation of rural water supply systems, incomplete documentation and the absence of a detailed water supply plan, coupled with the lack of financial resources and unprofessional management, represent the main issues in maintaining these systems[151]. Additionally, with population growth and increased number of companies, existing rural water supply systems also lack sufficient capacity for water supply.

Local efforts and initiatives. In 2014, the Public Health Institute Niš launched a campaign to provide the inhabitants of rural areas with the same access to drinking water as the population in urban areas. The stakeholders emphasize that constant efforts are invested by the city in providing clean water for every potential user.

Link to the VNR and national level. Monitoring at the national level is performed for the proportion of population using safely managed drinking water services. Results show relatively

148 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.

149 Public Utility Company for Water Supply and Sewerage Naissus Niš, 2023.

150 There is no data for the territory of the City of Niš on the number of protected excavated wells, the number of unprotected excavated wells, the number of households that use water from unprotected sources and surface water, nor the number of households that must purchase bottled water. Cisterns for water supply are used only in cases of works on repairing damage to water networks or planned maintenance works.

151 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.

constant values in the observation period 2000-2022, ranging at 74-75% for total population and 81-82% for urban population[152]. The City of Niš contributes to that perspective with a high share of population having access to safe drinking water. The VNR highlights the need to prepare and realize necessary projects for implementing missing infrastructure.

Indicator 6.2.1.a. Proportion of population using safely managed sanitation services

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.3. (UMF-03)

The City of Niš has a combined sewage system. Mixed-type collectors are installed in the immediate city centre, while the type of separate sewage system, separating atmospheric water from faecal water, is developed in certain newly built parts of the city. The total length of the sewage network is 531.74 km[153] as illustrated in Figure 25. All wastewater in Niš is evacuated to Nišava River via several outlets on the left and right banks of the river.

Figure 25. Distribution network of the Niš sewage system.
Source: Public Utility Company for Water Supply and Sewerage Naissus Niš, 2023.

Overview. The number of households connected to the public sewer network in the City of Niš in 2023 is 80,468[154], which stands for 83.19% of households in Niš. The vast majority of households connected to the city's sewer network are located within urban area. When it comes to suburban and rural settlements, only some of them have partially built sewerage network. The remaining households have toilets connected to a septic tank. The total number of dwellings[155] that are

152 https://sdg.indikatori.rs/en-US/area/clean-water-and-sanitation
153 Development Plan of the City of Niš 2021-2027.
154 Public Utility Company for Water Supply and Sewerage Naissus Niš, 2023.
155 Data on septic tanks is also available for dwellings in City territory, which is higher than the number

connected to a septic tank is 14,540, while the number of occupied dwellings with installations to a septic tank, amounts to 8,925[156] (Table 5). This represents 10.61% of total dwellings and 8.64% of all occupied dwellings in Niš territory. Out of the total number of dwellings connected to a septic tank, only 7.87% are located in urban area, and 92.13% in other settlements, with similar ration for occupied units[157].

Table 5. Number of dwellings with sewage installations connected to a septic tank, in 2022.

Settlement type	Type of housing unit	Sewage installations connected to a septic tank	Total number of dwellings
Total	Dwellings in total	14,540	137,100
	Occupied dwellings	8,925	103,270
Urban	Dwellings in total	1,145	99,665
	Occupied dwellings	686	77,449
Other (rural, suburban)	Dwellings in total	13,395	37,435
	Occupied dwellings	8,239	25,821

Source: 2022 Census of Population, Households and Dwellings of the Republic of Serbia - Installations in the Dwellings.

To sum up, the share of population using sanitation services in the City of Niš, including both the connection to the public sewer network and septic tanks, is estimated at 92%. Notwithstanding, the City of Niš does not have a wastewater treatment plant and the collected wastewater and faecal sludge are not receiving any treatment before their discharge into the recipient, Nišava River. Therefore, these sanitation services cannot be characterized as safely managed.

Gaps and challenges. One of the main issues for the City of Niš is the poorly developed wastewater infrastructure and the complete absence of sewage system in certain areas of Niš. From the perspective of stakeholders, synchronized action of all city institutions is needed regarding the expansion of sewage networks, as well as enhanced cooperation involving permits and technical documentation. Moreover, a separate sewage system for collecting atmospheric water does not exist in the majority of the city territory, which increases the risk of flooding.

Local efforts and initiatives. The project "Construction of Wastewater Treatment Plant and Collection System in Niš"[158] is one of the most significant projects implemented by the City of Niš, in cooperation with the European Union and the Ministry of Environmental Protection of the Republic of Serbia. The project implies, among other, the development of a 46.6 km long sewage network. As part of this project, the construction of the sewage network began in 2023 in four rural settlements in Niš, and is expected to connect more than two thousand households to the public sewerage network. The stakeholders corroborate the City's ongoing commitment to removing waste water through continuous activities.

Link to the VNR and national level. This indication is being monitored at the national level and the results show a decrease in the share of population using safely managed sanitation services (from 29% in 2000 to 25% in 2022)[159]. The VNR suggests to prepare and realize necessary projects to put in place missing infrastructure.

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of households.

156 SORS. (2023). 2022 Census of Population, Households and Dwellings of the Republic of Serbia - Installations in the Dwellings.

157 There is no data on the number of households/dwellings that have chemical toilets.

158 https://www.euzatebe.rs/en/projects/eu-for-nis-wastewater-collection-and-treatmnt

159 https://sdg.indikatori.rs/en-us//area/clean-water-and-sanitation/?subarea=SDGUN060201&indicator=06020104IND02

Indicator 6.3.1. Proportion of domestic and industrial wastewater flow safely treated

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.1. (UMF-40)

The City of Niš does not have a Wastewater Treatment Plant, so wastewater is directly discharged into the recipient - Nišava River. All this leads to further pollution of this watercourse, and poses a significant risk to the environment.

Overview. The volume of total generated wastewater in the City of Niš in 2021[160] amounts to 18,380 in units of 1,000 m^3. Wastewater from households in City territory is being discharged without any treatment. Treatment of wastewater generated by the industry is performed to a limited extent, since the only (pre)treatments before discharge into the sewage system are related to specific activities, such as meat industries, gas stations, etc.[161]. Also, the majority of city territory does not have a separate system for collecting atmospheric wastewater, so it is being discharged without treatment into the recipient, together with other wastewaters.

Wastewater is discharged into Nišava from two main collectors, with an average annual flow of 1,048 l/sec and with continuous measurements[162]. In addition to these two main outlets, there are another 10 faecal sewage outlets and 54 atmospheric sewage outlets of smaller capacity and without monitoring data.

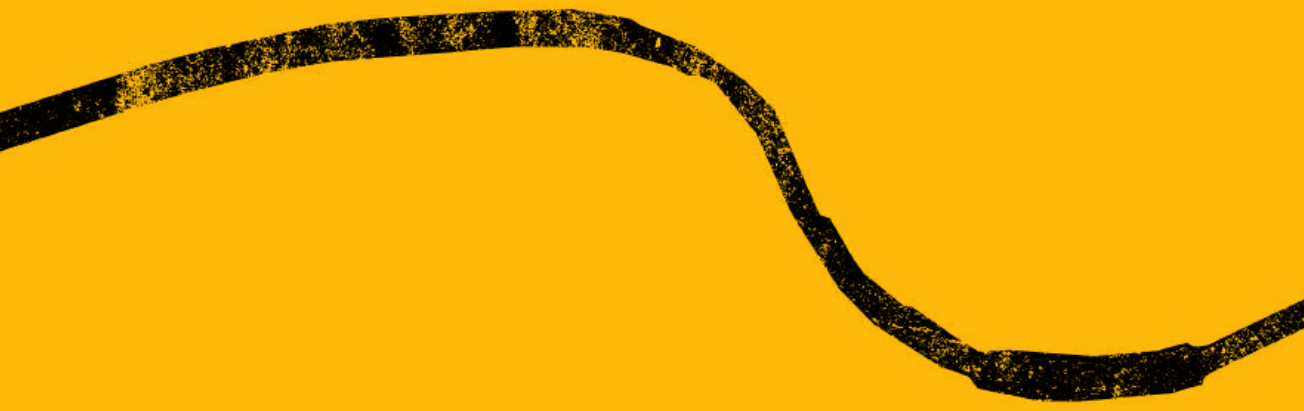
Therefore, it can be stated that the proportion of wastewater flow safely treated in the City of NIš is 0%.

Gaps and challenges. The inexistence of Wastewater Treatment Plant is a major challenge in urban development. The City of Niš needs to put in additional efforts in improving wastewater treatment according to the EU standards, in order to contribute to the overall public health, enhance water quality, support wildlife habitats, enable wastewater reuse and stimulate economic growth. Although the economic factors are identified by the stakeholders as the main impediment for the construction of Wastewater Treatment Plant, the procedures and devices for the purification of wastewater in the city territory need to be introduced as soon as possible.

Initiatives and actions. The planning documents envisage wastewater treatment before it is released into the watercourse. The construction of Wastewater Treatment Plant is planned at the location "Ciganski Ključ" near the settlement of Popovac, along with six collectors leading to the plant. Plant construction has been announced by the authorities as part of the activities within the project "Construction of Wastewater Treatment Plant and Collection System in Niš"[163]. The capacity of this plant will meet the needs of 286,000 inhabitants. The project's total value is 87 million euros. A significant part of the funds was provided through the pre-accession funds of the European Union, while the remaining part was allocated from the budget of the Ministry of Environmental Protection of the Republic of Serbia. In 2022, the construction of collectors on the right and left bank of Nišava began, after which the construction of a wastewater treatment plant is expected.
Link to the VNR and national level. Proportion of domestic and industrial wastewater flows safely treated is being monitored at the national level and the results show continuous progress, but at a very slow pace. The share of population connected to wastewater treatment with at least secondary treatment has increased from 4.5% in 2000 to 15.2% in 2022[164]. The VNR also acknowledges poor

160 SORS. (2022). Municipalities and Regions in the Republic of Serbia, 2022.
161 Public Utility Company for Water Supply and Sewerage Naissus Niš.
162 Public Utility Company for Water Supply and Sewerage Naissus Niš.
163 https://www.euzatebe.rs/en/projects/eu-for-nis-wastewater-collection-and-treatmnt
164 https://sdg.indikatori.rs/en-us//area/clean-water-and-sanitation/?subarea=SDGUN060301&indicator=2501030302IND01

capacities of LSGs in Serbia to provide high-quality wastewater treatment (sanitation), and points to the necessity of developing missing infrastructure (wastewater treatment facilities, water plants, etc.).



SDG 7: Affordable and Clean Energy

Ensure access to affordable, reliable, sustainable and modern energy for all

Indicator 7.2.1. Renewable energy share in the total final energy consumption

UMF Domain: Environment - Resilient; UMF Indicator 3.3.1. (UMF-46)

As part of the efforts to deal with sustainable development of energy and energy efficiency in an organized manner, in 2008 the Department for Energy was established in Niš, within the City Administration. Also, Sustainable Energy Action Plan (SEAP) for the City of Niš was adopted in 2014 by local authorities, as a document recommended by the European Commission that defines measures for reaching the goal of reducing CO2 emissions by 2020. Recently, the City of Niš has developed the latest Energy Balance of the City of Niš for 2020 (published in 2022), which determines the current energy consumption at the level of the local self-government, estimates total energy costs, and creates the basis for short- and long-term planning of energy consumption, and for defining measures and activities of energy saving.

Overview. Valuable potentials of renewable energy sources exist in the City of Niš territory, except for the use of wind energy and biofuel. Research on the average wind speed, wind blowing directions and frequency of occurrence of winds have established that Niš territory is not suitable for the construction of wind generators[165]. There is no significant production of plant raw material for the production of biofuels, nor is it possible to realize a significant production of biogas and biofuels in agriculture and cattle breeding[166].

Regarding other renewable energy sources, the City of Niš is currently exploiting only a small share

165 Development Plan of the City of Niš 2021-2027.
166 Action Plan of Sustainable Energy Development of the City of Niš, 2014.

of their potential. Biomass and hydropower are the only renewable energy sources used, while other resources are reviewed but not actually exploited (oil, biofuel, passive solar heating, geothermal energy)[167]. The total consumption of final energy in the City of Niš in 2020 was 1,717,356.5 MWh[168]. Regarding the energy balance by category in 2020, the largest share of energy consumed in Niš was electricity at 43.3% (743,868.0 MWh), followed by biomass with 22.1% (380,201.3 MWh). In the sector of biomass consumption in 2020, compared to 2017, a decrease of 1.8% was registered.

Biomass. In the territory of the City of Niš, firewood is the dominant resource of renewable energy. There are about 20,000 ha of forest in the area, mostly hardwoods, out of which one quarter is intended for deforestation[169]. On an annual basis, this provides 36,000 m^3 of firewood, with an estimated total heating value of 110 GWh/year[170]. Use of firewood for heating purposes is characteristic of rural areas and peripheral/ suburban settlements, because firewood is the cheapest resource for heating. It is expected that its use will continue in the future, due to low purchasing power of the population, high price of conventional fuels (heating oil, liquid gas, coal), as well as slow development of gas distribution network and costly installation of gas infrastructure.

Other biomass that has certain energy value is wooden waste from forests, parks and green urban areas (87,383 m^3 of hardwoods, 119 m^3 of conifers), and plant residues from agricultural production. These potentials are underused. The main reasons for low utilization of forest biomass, which is forestry by-products after felling and forest maintenance work (stumps, forest waste, low-category firewood), are the lack of forest roadways and high transport costs[171]. Forest wood waste, generated in the process of processing wood for construction, is about 450 m^3 per year, and its estimated heat value is 500 MWh. An extensive study is necessary to determine more precisely the potential of biomass obtained from wood for its use within city heating system and for obtaining electricity. In the field of arable production, only residues from grain production have a significant energy potential, owing to the fact that a significant area of the fields is in arable farming (about 20,000 ha). It is estimated that the straw remaining on plowed fields could be used for burning in suitable boilers, since its energy value for heating is high. It is also estimated that using straw residues could save around 320 GWh of energy/year[172].

Hydropower. In the area of the territory of the City of Niš, there are currently two mini-hydropower plants, both located on Nišava River in the Sićevo gorge: 1) "Sveta Petka" hydropower plant, put into operation in 1908, with a yearly production of 3,000 MWh, and 2) "Sićevo" hydropower plant, put into operation in 1931, with 4.000 MWh generated yearly. Total production of renewable energy from hydropower in Niš amounts to about 7,000 MWh per year. Research shows that there are potentials for the construction of additional small hydropower plants on watercourses in the area of the City of Niš, with great local value.

Solar energy. Although according to the inflow of solar energy, Niš represents one of the cities with the highest potential in Serbia (average daily inflow of 4.00-4.20 kWh/m^2), there are no systemic activities on the implementation of solar energy use. A certain number of solar collectors are currently being used in Niš territory, for heating sanitary water and as support for the classic heating system with heating boilers. They are mainly used within individual homes, and there is no data on the exact number of installed units. Installing solar collectors on public buildings has only just begun. Research on the operation of mini photovoltaic power plants within the region of South Serbia, to which the City of Niš belongs to, has shown great profitability - the initial investments

167 University of Niš - Faculty of Mechanical Engineering. (2022). Energy Balance of the City of Niš for 2020.

168 University of Niš - Faculty of Mechanical Engineering. (2022). Energy Balance of the City of Niš for 2020.

169 Action Plan of Sustainable Energy Development of the City of Niš, 2014.

170 Action Plan of Sustainable Energy Development of the City of Niš, 2014.

171 Development Plan of the City of Niš 2021-2027.

172 Action Plan of Sustainable Energy Development of the City of Niš, 2014.

can be recovered within a six-year period if the mini power plant is working constantly without downtime, which is a half of its contract period[173].

Geothermal energy. Four geothermal springs are registered in Niš territory (Table 6). The most significant one is located in Niška Banja, which is a spa settlement. Previous research at this location has shown that there are large amounts of high-temperature geothermal water. The City of Niš could benefit greatly from the use of this energy, for the purpose of heating, tourism and agricultural production within closed systems in winter periods[174]. In order to realize the potential of geothermal energy, additional research is needed.

Table 6. Geothermal springs in the territory of the City of Niš.

Location of geothermal source	Water temperature °C	Capacity (l/s)
Niška Banja	35-40	100
Banja Topilo	30	10
Miljkovac	36	50
Ostrovica	22	10

Source: Action Plan of Sustainable Energy Development of the City of Niš, 2014.

Waste. It is assumed that a significant potential of biogas as a renewable energy source exists within waste management processes. Such biogas would be obtained from the waste management at the landfill, as well as from the new wastewater treatment plant, but additional research is necessary.

It can be concluded that the share of renewable energy in the total final energy consumption is limited to biomass and the hydropower generated in two hydro power plants, and amounts to 22.55%.

Gaps and challenges. The stakeholders agree that the main challenge for the City of Niš is the spontaneous and lump-sum approach to planning and introduction of locally available renewable energy sources, which leads to their poor exploitation. The current development of the energy sector has largely contributed to the substandard air quality during the heating season, significant energy poverty[175], energy wastage, high dependence and significant uncertainties in energy provision, and strengthening of the negative aspects of climate change[176]. The stakeholders call attention to underdeveloped communication and insufficient exchange of information between institutions, which exacerbate the existing issues. There are potential investors that want to use renewable energy sources, but there are no designated locations.

Local efforts and initiatives. An initiative to develop four solar power plants on the territory of city municipalities Crveni Krst and Pantelej has been launched, and the procedure for developing and adopting the Plans of Detailed Regulation for these facilities is ongoing. Also, a more significant inclusion of biomass into the city heating system is planned, especially from forest wood waste, given that a third of households in Niš is connected to the city heating system[177]. It is necessary to conduct additional studies and research to fully exploit the potential of existing renewable sources (solar and geothermal energy, municipal and agricultural waste, local biomass). At the stakeholders' workshops, those involved attest to various initiatives for financing of energy efficiency projects at the local level.

[173] Mitković, M. et al. (2018). Analysis of electric power production results in South Serbia: Recommendations for improvement of operation of first mini photovoltaic power plants.

[174] Development Plan of the City of Niš 2021-2027.

[175] Energy poverty in the Republic of Serbia is defined through the combined action of three factors: low household income, high expenditure of available income on energy, and insufficient energy efficiency of buildings. Although there are no precise statistical data or studies on energy poverty in Niš, based on some small-scale unofficial research, it is assumed that a significant number of households are energy poor.

[176] Development Plan of the City of Niš 2021-2027.

[177] Development Plan of the City of Niš 2021-2027.

Good practices. The central kitchen "Mladost" of the preschool institution "Pčelica" in Niš supplies food to kindergartens and schools in the City. The introduction of a thermosolar plant for the preparation of sanitary hot water in this facility represents a pioneering project in the application of renewable energy sources in southern Serbia, which was completed in 2020. On 120 m^2 of the building roof, solar collectors with a power of 85 kW were installed for heating water, thereby replacing the fuel oil boiler. A total of 48 solar collectors were placed in four fields with 12 collectors each. In the facility's substation, three boilers for consumption of hot water are installed. The existing oil fuel boiler is used as an alternative heat source. Owing to the installation of the thermosolar plant, the total annual saving of final energy is 150,422 kWh/year, while the financial savings are 2,256,326 RSD/year. CO2 emissions have been reduced by over 40t CO2/year.

Another project significant for the city is "Photovoltaic Solar Power Plant with Chargers for Electric Vehicles - Magdon Niš Residential Complex", which was realized in 2023[178]. The project for the construction of this photovoltaic power plant in Niš included the installation of 149 solar panels with a power of 60 kW on the roofs of three residential buildings in the Magdon Niš complex (Figure 26), along with the installation of 3 chargers for electric vehicles with an individual power of 22 kW, which were installed in the garages and in the yard[179]. The project will contribute to the preservation of the environment by reducing greenhouse gas emissions by 54t CO2/year.

Also, a noteworthy project is the 303-meter-deep exploratory well with geothermal water in the complex of the City Heating Plant Krivi Vir. Warm water with a temperature of 20.3 degrees Celsius is drawn from the well. After chemical preparation, 5 l/s are pumped into the heating system. There are also indications that a geothermal lake exists underground in the urban area of Niš, however further research, studies and analysis are required to confirm this.

Link to the VNR and national level. This indicator is being monitored at the national level and the significance of achieving SDG 7 in Serbia is highlighted in the VNR. The progress in increasing the share of renewable energy in the total consumption of final energy at the national level is constant, but progressing at a slow pace (from 19.76 in 2010 to 25.28 at 2021)[180]. Standing Conference of Towns and Municipalities provides support to LSGs in utilizing renewable energy resources. Prioritizing renewable energy sources in the VLR Niš is thereby well aligned with national plans and the VNR, and should contribute to the overall strengthening of the energy sector in Serbia.

178 The realization was supported by UNDP Serbia through the project "Just Green Transition and Decarbonization in Serbia", financed by the Government of Japan, and implemented in cooperation with the Ministry of Mining and Energy and the Ministry of Environmental Protection of the Republic of Serbia.

179 Energy Manager of the City of Niš, Center for Sustainable Energy Development – CORE Niš.

180 https://sdg.indikatori.rs/en-US/area/affordable-and-clean-energy?subarea=SDGUN070201&indicator=070201IND02

Figure 26. Residential complex Magdon Niš with solar panels installed on the roof.
Source: Energy Manager of the City of Niš, Center for Sustainable Energy Development – CORE Niš.

SDG 8: Decent Work and Economic Growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Indicator 8.5.2. Unemployment rate, by sex, age and persons with disabilities

UMF Domain: Economy - Inclusive; UMF Indicator 2.2.1. (UMF-27)

Global political, economic and demographic changes, which strongly impacted the Republic of Serbia, have also reflected on the overall development of the City of Niš, particularly on its macroeconomic environment. After the demise of the socialist system, intensive transformation of the city's economy occurred due to the transition to a market-oriented system, taking a negative course. From a starting point of once technologically and innovatively advanced city with a developed electronic and mechanical industry, Niš underwent a significant downturn in the late 1990s, within the transitional process of extreme deindustrialization[181]. The economic development of the city was additionally slowed down by major external factors, such as the regional conflicts in the 1990s and NATO conflict in 1999, the world economic crisis in 2008 and the global pandemic in 2020.

Overview. The total active population (labour force) of the City of Niš is 113,895 persons[182]. Depending on the investment activity in the city in recent years, the number of unemployed has varied. However, it can be stated that the overall number of unemployed has decreased significantly compared to the previous decade: there were 36,310 unemployed people at the end of the year 2013, and only 17,613 at the end of 2023 (Figure 27). Downward trend in unemployment is more evident with male population than it is with female one.

181 Development Plan of the City of Niš 2021-2027.

182 SORS. (2023). 2022 Census - Population according to economic activity, age and sex, by municipalities and cities.

According to the latest data from February 2024[183], the number of unemployed people in February 2024 was 17,935, which determines the current unemployment rate in the territory of the City of Niš at 15.75%.

The structure of unemployed persons by age and gender for the same month and year is illustrated in Figure 28. The majority of the unemployed are persons is in the 30-54 age group (54.4%), which is expected given that this population cohort is the largest and the most productive one. Persons aged 55-64 are also unemployed to a significant extent (27.2%), given the fact that this is the smallest age group. These are often people that have lost their job with the downfall of the socialist public companies, and have not been able to adapt to the new market system. The share of unemployed in those aged 15-29 is somewhat lower (18.4%). This is due to the fact that young people mostly continue the process of education beyond the age of 15, until 24, as well as some incentive measures implemented within the past several years. There are no major discrepancies regarding the unemployment of men and women, but a slightly higher number of unemployed women compared to men is present within the age groups of 30-54 and young people under 30 years of age.

Regarding previous work experience, as of 31 December 2022[184], the share of persons seeking employment for the first time is high and amounts to 71.3%. The share of unskilled persons is 17.7%, and refers to workers with low qualifications - I and II degree of vocational education. Data available for the year 2022 also show that the number of unemployed persons per 1,000 inhabitants in the territory of the City of Niš in 2022 was 76, compared to 64 at the national level[185] (as of 31 December 2022).

There is an increase in employers' interest for hiring persons with disabilities. Due to the measures of active employment policy of persons from this unemployment category, a total of 289 persons with disabilities got a job in 2023[186].

Gaps and challenges. The higher number of unemployed persons per 1,000 inhabitants in the City of Niš compared to the national average indicates that a better alignment of existing educational profiles with the city's economy needs is required. Also, the high share in unemployment of persons over the age of 55 points to the fact that local development policies must be better suited to the employment of vulnerable categories. The low level of wages represents an additional challenge, since it is the main reason that a part of the unemployed population does not accept the available jobs and formal employment. Despite the state's efforts to create a more favourable economic and business environment, a certain number of people in Niš still choose to work in the informal (grey) economy, in order to increase their income. The stakeholders agree that poverty and grey economy are some of the biggest challenges for the City of Niš.

A significant share of unemployed young professionals and insufficient utilization of highly qualified labour force represent two major threats for the economy, due to the high risk of labour outflow abroad. The stakeholders state that major challenges are also related to inexistent data on the number of young people who are not in education, employment or training (the youth NEET rate), as well as the lack of mechanisms that would collect and interlink all data related to youth employment at the city level. As pointed out by the stakeholders, the local sectoral strategic framework concerning young people needs to be updated, along with increasing allocations for youth policies and strengthening the capacity of the Office for Youth.

183 National Employment Service – Niš Branch. (2024). Monthly Statistical Bulletin - Nišavski District, February 2024.
184 SORS. (2023). Municipalities and Regions in the Republic of Serbia, 2023.
185 SORS. (2023). Municipalities and Regions in the Republic of Serbia, 2023.
186 https://www.nsz.gov.rs/sadrzaj/preko-niske-filijale-u-ovoj-godini-zaposleno-289-osoba-sa-invaliditetom/11046

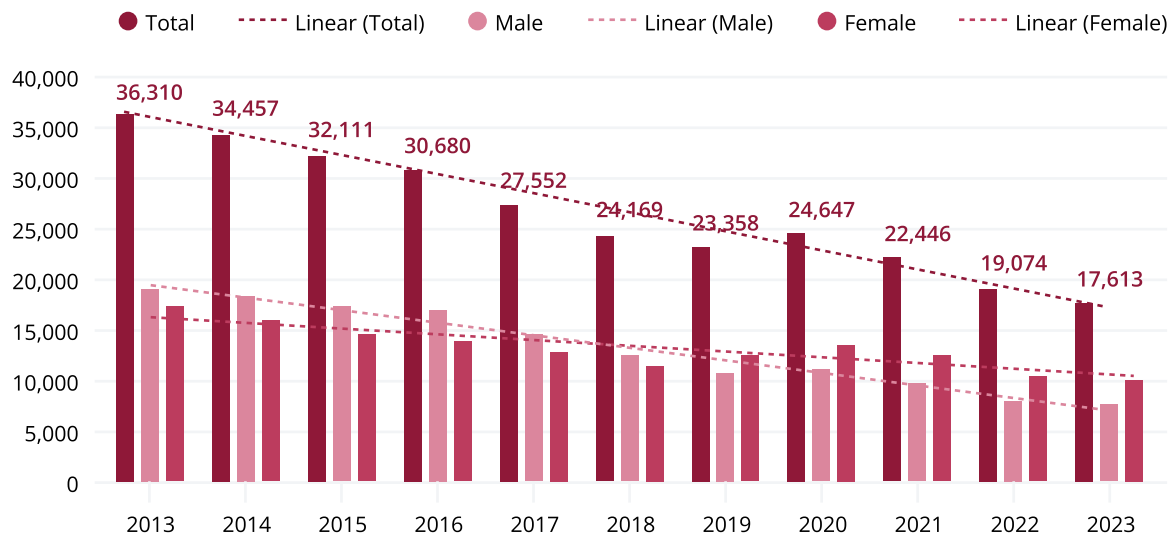


Figure 27. Trends in the number of unemployed persons over the last decade (as of 31 December).
Sources: http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx (2013-2022), Monthly Statistical Bulletin - Nišavski District, February 2024 (2023).

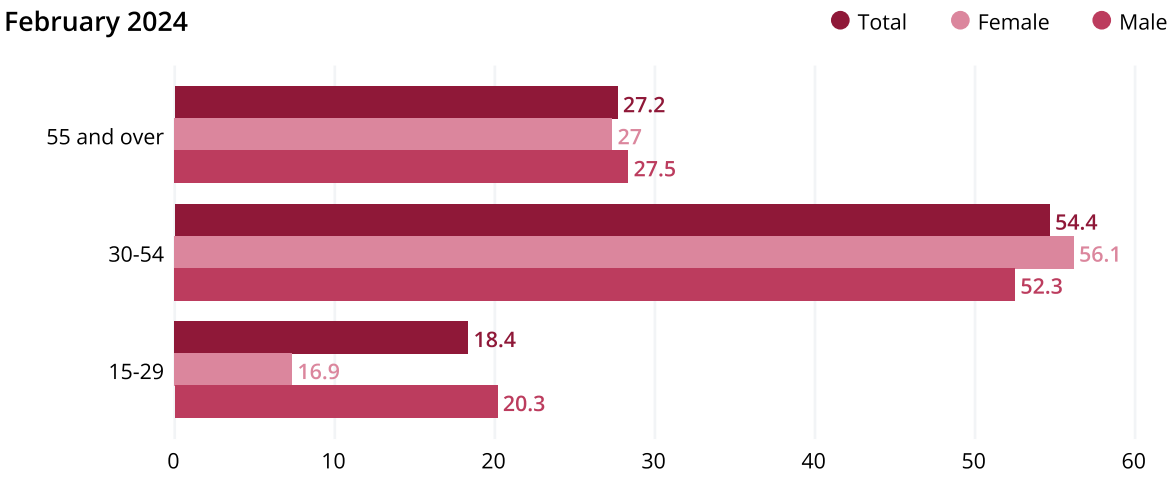


Figure 28. Share of the unemployed (%) by age group and gender in the total number of unemployed in February 2024.
Source: Monthly Statistical Bulletin - Nišavski District, February 2024.

Local efforts and initiatives. A significant proportion of people with higher and highest education level (VII and VIII degrees of education) was present in the structure of the unemployed in 2020[187] (17.48%), indicating underutilization of the most qualified labour force. However, in the last few years, foreign investments and opening of several factories has somewhat reduced the unemployment of highly educated people.

In order to enhance youth employment, two important state-led programmes carried out by the National Employment Service are currently being implemented in the City of Niš. The "My First Salary" programme is being implemented since 2020 for the purpose of connecting the economy and the young unemployed. The programme supports employers from both private and public sector to solve the issue of personnel shortage, through the training of young people for independent

187 Development Plan of the City of Niš 2021-2027.

work with mentoring support and financial incentives[188]. The "Youth Guarantee" programme is implemented as a pilot project in three cities starting with 1 January 2024, one of which is Niš[189]. The programme encourages youth employment through the cooperation of various sectors and social partners, where young people up to the age of 30 receive a job offer, continued education or internship within four months of obtaining unemployment status or completing formal education. The two programmes contribute to the lower values of youth unemployment in Niš compared to other age groups.

The stakeholders attest to implementation of national and local programmes that encourage employment according to gender, age and persons with disabilities through the Niš branch of National Employment Service, as well as programmes aimed at the developing entrepreneurship and agriculture. The Regional Chamber of Commerce Niš is actively participating in mediation between companies, state and local institutions to enhance employment, particularly for young people. The Office for Youth of the City of Niš was founded in 2012 as part of the City Administration for Social Activities to carry out, among other, the activities on increasing youth employment. Aside from these institutions, the stakeholders perceive the large amount of data on unemployed persons as one of the main strengths that could help reduce unemployment.

Link to the VNR and national level. The unemployment rate is monitored at the national level, and the total value amounts to 9.4% in 2023[190]. This is lower than the unemployment rate of the City of Niš, and indicates the need for improving the overall economy policy and business environment at the local level. The VNR states that young people are facing serious obstacles in finding employment. Therefore, the VNR points to the need of better employment opportunities and better working conditions for young people, particularly young women, as outlined in crucial national strategic documents.

188 https://mojaprvaplata.gov.rs/o-programu
189 https://www.nsz.gov.rs/nsz/garancija-za-mlade-%E2%80%93-nove-mogucnosti-i-prilike/11107
190 https://sdg.indikatori.rs/sr-latn/area/decent-work-and-economic-growth/?subarea=SDGUN080502&indicator=240003020102IND03

SDG 11: Sustainable Cities and Communities

Make cities and human settlements inclusive, safe, resilient and sustainable

Indicator 11.1.1. Proportion of urban population living in slums, informal settlements, or inadequate housing

UMF Domain: Society - Sustainable; UMF Indicator 1.4.1. (UMF-23)

In the Republic of Serbia, the term "substandard settlement" is used for settlements that do not meet the essential standards of living quality and can be compared to the United Nations' definition of slums. Therefore, the following criteria, derived from the United Nations' definition of slums, are essential to the identification of substandard settlements in Serbia[191] (**from here on, slums**): 1) inadequate access to drinking water; 2) inadequate access to sanitation and other relevant forms of infrastructure; 3) poor quality of housing units; 4) overcrowding, in terms of the average population density and a large number of members per household; and 5) uncertainty of the legal status of housing, involving buildings and respective plots. Settlements meeting all of the above criteria are not present to a great extent in Serbian cities, and are predominantly associated with the Roma population[192].

[191] Although the "settlement" is a statistical term in the Serbian context, the terms "substandard settlement" and "illegal settlement" in English in this report may also refer to zones and individual objects within a formal settlement.

[192] Đorđević, A. (2017). Podstandardna romska naselja u Srbiji - Pregled podataka iz Geografskog Informacionog Sistema za 2016. godinu.

Extensive data was collected for Roma population group within previous studies and research on various topics[193],[194],[195], in accordance with the principle of "Leave No One Behind", includingthe data on slums[196]. The Roma national minority in the Republic of Serbia has been in a difficult position for many years. A large number of the Roma population is invisible to the system, because they have no identity documents. In addition to social exclusion, the poorest strata of the Roma community do not have stable incomes or access to services necessary to meet basic life needs (clean water, electricity, sewage). Their social and health status was further exacerbated by the emergence of the coronavirus, due to poor hygienic conditions and the impossibility of maintaining social distance during the epidemic.

When it comes to settlements that reflect other particular criteria, one development pattern also stands out as a mass phenomenon of the post-socialist development period. These are the so called "illegal settlements", which were developed without necessary building permits, and where buildings have no security of tenure. Illegal settlements are associated with informal settlements as defined by the United Nations. The definition applies three main criteria, which were used to identify illegal settlements in Serbia (**from here on, informal settlements**): 1) inhabitants have no security of tenure vis-à-vis the land or dwellings they inhabit; 2) the neighbourhoods usually lack, or are cut off from, formal basic services and city infrastructure; and 3) the housing may not comply with current planning and building regulations, is often situated in geographically and environmentally hazardous areas, and may lack a municipal permit.

The issue of illegal construction in Serbia has existed for decades, but it especially escalated in the 1990s, with the beginning of transition to a market-oriented system. Unfavourable political circumstances, overall poverty, the absence of planning documentation, the complicated procedure for obtaining a building permit and the lack of control over illegal construction were objective circumstances that made legal construction difficult. The sprawling new housing developments beyond the urban edge occurred in the post-socialist period, blurring the boundaries between urban and rural[197]. Even though the expansion of cities was characterized by informal settlements mostly in the early transition period, this process is still ongoing. Informal settlements in Serbia differ from those in other parts of the world, in that they were typically not developed because of extreme poverty and are not associated with impoverished housing units[198]. Rather, they are inhabited by middle-income families, and their housing stock is built of solid materials, but without building permits and without conforming to urban plans, zoning and regulations.

193 Government of the Republic of Serbia. (2024). Serbia and the 2030 Agenda – Mapping the National Strategic Framework in Relation to the Sustainable Development Goals.

194 Voluntary National Review of the Republic of Serbia, 2019.

195 Office of the United Nations High Commissioner for Human Rights (OHCHR) and Social Inclusion and Poverty Reduction Unit. (2020). Mapping of Substandard Roma Settlements According to Risks and Access to Rights in the Republic of Serbia with Particular Attention to the COVID-19 Epidemic.

196 For the purposes of settlement mapping, access to safe drinking water was defined as having a regular connection to the public water supply network, which excludes access to wells with technical water, those built without proper technical documentation and building permits and/or not maintained in accordance with valid regulations, and access to public fountains in yards or parks. Irregular access to the water supply network was defined as having a connection to the water supply network without the approval of the competent service. Access to the sewage network was defined as having a regular connection to the public sewage network, which excludes connections to septic tanks built without appropriate technical documentation and building permits and/or not maintained in accordance with applicable regulations. Irregular access to the sewerage network was defined as having a connection to the sewerage network without the approval of the competent service. Access to electricity was defined as a regular connection to the electricity distribution system, in accordance with applicable regulations. Irregular access to electricity was defined as connection to the electricity distribution system without approval for the connection of the competent service.

197 Dinić, M. and Mitković, P. (2016). Suburban design: from 'bedroom communities' to sustainable neighborhoods.

198 World Bank Group. (2023). Green, Livable, and Resilient Cities, Serbia: Strengthening Sustainable and Resilient Urban Development.

The Republic of Serbia has repeatedly tried to solve the problem of illegal construction by passing several laws dealing with legalization. The weak interest of citizens was a consequence of the expensive and complicated process of legalization, as well as the unhindered trade of non-legalized objects on the market. Illegal construction has been a felony since 2003, but each of the laws regulating this issue prolonged the time limit for legalization. The current Law on Legalization of Buildings[199] was adopted in the public interest, with the aim to introduce the majority of illegally constructed building stock into legal processes under the most favourable conditions, within a simple and quick procedure. The priority in the legalization process is the status of family houses and apartments, in order to assist the inhabitants to resolve their tenure issues. In 2004, Serbia signed the Vienna Declaration on Informal Settlements in South Eastern Europe, with the objective to agree on actions that will legalize and improve informal settlements in a sustainable way, and prevent future illegal settlements[200].

Both slums and informal settlements, similar to all other Niš settlements, are included in the planning documents that cover the City of Niš area, so it is possible to build the necessary infrastructure in them and obtain the necessary documents for construction (Information about the location, Building permit, etc.).

Regarding the share of population living in inadequate housing, also identified by UN-Habitat as a challenge for urban sustainability[201], it cannot be established for the City of Niš because the data on three criteria for defining inadequate housing (accessibility, cultural adequacy and affordability) is not available.

Overview: Slums. There are 10 slums in total in the territory of the City of Niš. Five of them are located in Niš urban area (Beograd mala, Romska kuća, Crvena zvezda, Jevrejsko groblje, Stočni trg), one in Niška Banja urban area, and four in rural settlements (Kamenica, Matejevac, Jelašnica and Prva Kutina)[202]. All are inhabited by Roma and involve larger communities as independent settlements, or smaller parts of formal settlements having zones of slum housing. Nowadays, there are zones of slum housing inhabited by Roma in both urban and rural settlements of Niš. Additionally, other Roma neighbourhoods throughout the City of Niš (called "mahala-mala") have disappeared due to urbanization processes over the years, with their structures integrated into the urban fabric. The total number of inhabitants living in mapped slums in the local self-government Niš amounts to 8,409[203], which represents 3.37% of the total Niš population.

Access to water. Even before the COVID-19 epidemic outbreak, the lack of access to safe drinking water, food storage and personal hygiene was a very serious problem for residents of some slum settlements and slum zones, contributing to the risk of diseases. The appearance of the COVID-19 virus has posed additional challenges to the inhabitants of these slums. Based on the collected data, 5,150 people living in slums (61.24% of the population of slums)[204] demonstrated not having access to safe drinking water or having only irregular access[205]. Seven slums have partial access[206]

199 "Official Gazette of Republic of Serbia", No. 95/2015, 83/2018, 81/2020, 1/2023 and 62/2023.

200 https://locuireinformala.ro/wp-content/uploads/2019/12/Declaratia-de-la-Viena-privind-asezarile-informale-2004.pdf

201 UN-Habitat (2018). SDG Indicator 11.1.1 Training Module: Adequate Housing and Slum Upgrading. United Nations Human Settlement Programme (UN-Habitat), Nairobi.

202 Database of substandard Roma settlements in the Republic of Serbia, Ministry of Construction, Transport and Infrastructure, 2024.

203 OHCHR and Social Inclusion and Poverty Reduction Unit. (2020). Mapping of Substandard Roma Settlements According to Risks and Access to Rights in the Republic of Serbia with Particular Attention to the COVID-19 Epidemic.

204 OHCHR and Social Inclusion and Poverty Reduction Unit. (2020). Mapping of Substandard Roma Settlements According to Risks and Access to Rights in the Republic of Serbia with Particular Attention to the COVID-19 Epidemic.

205 Irregular access to the water supply network implies having a connection to the water supply network without the approval of the competent service.

206 Partial access to safe drinking water means that a share of the inhabitants of the same settlement

to safe drinking water from the water supply network, while three have no access to water supply at all (Figure 29). When it comes to the share of settlement territory that is connected to the water supply network, over 70% coverage only exists in two Roma settlements (Beograd Mala and Crvena Zvezda), while other slums are connected to a lesser extent.

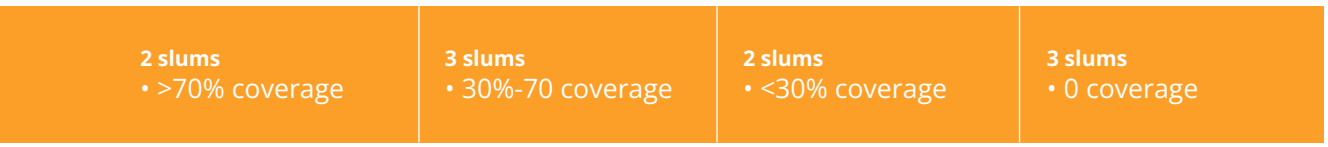


Figure 29. Access to the city's water supply system in Roma settlements/slum zones in the City of Niš.

Source: Database of substandard Roma settlements in the Republic of Serbia, Ministry of Construction, Transport and Infrastructure, 2023.

Access to sanitation. Sanitation issues in slum zones and settlements also pose a challenge, given the fact that adequate hygienic conditions represent an essential element of health care. A total of 63.98% of the population of slum settlements and slum zones (5,380 people) indicated having no or irregular access to the sewerage network[207], and living in very poor hygienic conditions[208]. Only one settlement has partial access[209] to the sewerage network of the City of Niš, with a less than 30% coverage of the settlement territory (Beograd mala) (Figure 30). In seven other slums households have permeable septic tanks, while in two slums there is no sanitation access at all (Jevrejsko groblje and Romska kuća -12. Februar).

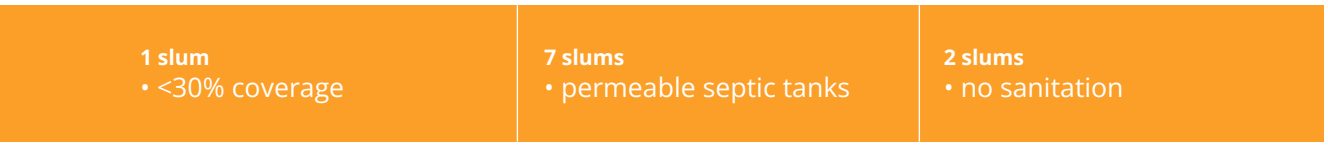


Figure 30. Access to the sewage network in Roma settlements/slum zones in the City of Niš.

Source: Database of substandard Roma settlements in the Republic of Serbia, Ministry of Construction, Transport and Infrastructure, 2023.

Access to electricity. Slums inhabited by Roma population in Niš are also experiencing difficulties in establishing permanent access to electricity. Discriminatory practices in electricity distribution were documented in the Opinion of the Commissioner for the Protection of Equality, which was a response to the complaint of the residents of Crvena Zvezda settlement. The situation was particularly alarming during the COVID-19 epidemic, when obtaining timely and adequate information regarding the measures for preserving public health was very difficult, as well as attending classes that took place on national television channels for school-age children.

Based on the obtained data, 4,749 people living in Roma settlements and slum zones (56.47% of population of slums) indicated having no or irregular access[210] to electricity[211]. All slums have partial access[212] to the city's electrical distribution network. Five slums have over 70% coverage of

have access to safe drinking water, while with the remaining part of population either do not have access or have only irregular access.

207 Irregular access to the sewerage network was defined as having a connection to the sewerage network without the approval of the competent service.

208 OHCHR and Social Inclusion and Poverty Reduction Unit. (2020). Mapping of Substandard Roma Settlements According to Risks and Access to Rights in the Republic of Serbia with Particular Attention to the COVID-19 Epidemic.

209 Partial access to the sewerage network is defined as one part of the inhabitants of the same settlement having access, and the other having no access or irregular access.

210 Irregular access to electricity was defined as connection to the electricity distribution system without approval for the connection of the competent service.

211 OHCHR and Social Inclusion and Poverty Reduction Unit. (2020). Mapping of Substandard Roma Settlements According to Risks and Access to Rights in the Republic of Serbia with Particular Attention to the COVID-19 Epidemic.

212 Partial access to electricity is defined as one part of the inhabitants of the same settlement having

their territory with electricity, while other slum settlements and slum zones have lower values of connection to the electricity distribution system (Figure 31). Access to electricity in these slums is often limited to certain times of day when the electricity network is least congested.

5 slums	3 slums	2 slums
• >70% coverage	• 30-70% coverage	• <30% coverage

Figure 31. Access to electricity in Roma settlements/slum zones in the City of Niš.
Source: Database of substandard Roma settlements in the Republic of Serbia, Ministry of Construction, Transport and Infrastructure.

Structural quality, durability and location. Regarding structural quality and durability, the dwellings are made of weak materials which are unsuitable for construction in seven slum settlements/zones. In three slums appropriate construction materials were used, which ensure durability and safety of structures (Beograd mala, parts of Matejevac and Kamenica). Regarding the location, all of the slums are mostly integrated into the urban fabric (nine communities), while one community is located at the periphery of a rural settlement (Jelašnica). The original Roma community on the periphery of the formal settlement Prva Kutina was abandoned, and since the 1970s, the Roma population has been acquiring plots and houses of poor construction quality from the locals in several locations throughout the village[213].

Sufficient living area, overcrowding. Roma settlements in South-Eastern Europe present high residential densities and overcrowding[214]. Slum settlements and slum zones inhabited by Roma in the City of Niš are no exception to this development pattern. Even though density data for these slums is not available, based on empirical research it can be stated that they are compact and densely populated[215].

Security of tenure. Roma settlements in Serbia mostly originated in three development patterns[216]: 1) spontaneously built in the vicinity of cities, without a planning basis and through the process of self-building, 2) planned, when the authorities displaced Roma from certain locations and settled them into the abandoned workers' barracks or in container settlements, and 3) illegally built, in the areas where building permits were required. In the City of Niš, Roma settlements have a structure and a system that are a combination of these development patterns, where housing and other objects were built without building permits. In 9 out of 10 slums, less than 10% of the building stock is legalized, and owners of less than 30% of objects have filed a request for legalization[217]. In the settlement Beograd mala these shares are higher and amount to about 50% of legalized objects and up to 70% of objects in the process of legalization[218]. There are various types of ownership

access and the other having no access or irregular access.

213 Stakeholder information, employee of the Local Community Office in the settlement Prva Kutina.

214 Organization for Security and Co-operation in Europe (OSCE) Office for Democratic Institutions and Human Rights (ODIHR). (2006). Roma Housing and Settlements in South-Eastern Europe.

215 According to the 2022 Census of Population, Households and Dwellings of the Republic of Serbia - Dwellings by Density Standard, Type of Ownership and Occupancy Status, the density standard is presented in two ways: useful floor space per occupant, and number of rooms per occupant. In programmes and projects of social housing, the area norms that are applied are defined by the Regulation on Standards and Norms for Planning, Design, Construction and Conditions for the Use and Maintenance of Apartments for Social Housing, 2013. The Regulation specifies that an apartment cannot have less than 10 m^2 per household member, that is, not less than 20 m^2 in the case of a single-member household. Given the fact that dwellings are classified into eight groups when considering the number of rooms per occupant, with the lowest value being 0.5, the minimum value can be established at 0.5. It can therefore be stated that in Serbia dwellings that do not meet these criteria lead to overcrowding.

216 Macura, V. (2017). Urbanism and Roma Settlements in Serbia.

217 Database of substandard Roma settlements in the Republic of Serbia, Ministry of Construction, Transport and Infrastructure, 2023.

218 Database of substandard Roma settlements in the Republic of Serbia, Ministry of Construction, Transport and Infrastructure, 2023.

status of land in slums where the dwellings are developed: in five slums the land is *privately* owned (Beograd mala, Crvena zvezda, Jelašnica, Kamenica, Matejevac), in two of them there is *mixed* ownership (Prva Kutina, Romska kuća), and in three other slums the land is in *public* (state or city) ownership[219]. Unresolved ownership issues, such as in Crvena Zvezda and Romska kuća, along with the overall poverty, contribute to the complexity and uncertainty of the future of slums.

Overview: Informal settlements. Construction without legal permits on the territory of the City of Niš is present both in the urban area and in suburban/settlements, resulting in informal settlements. The process of legalization of such construction was initiated in 1997, and was performed according to previous laws dealing with illegal construction until 2015. The extent of illegal construction is best illustrated by the fact that the total number of cases initiated under the previous legalization laws was as much as 36,204. Of that number, 10,800 legalization procedures were completed (29.83%) during an 18-year period, leaving 25,404 informal buildings in an unresolved status.

After the adoption of the new Law on Legalization of Buildings in 2015[220], the legalization was somewhat expedited. The total number of illegally built buildings in the City of Niš territory in 2017 was 31,890[221]. Out of that number, 21,190 objects were residential buildings and 198 combined residential-commercial buildings. The total number of buildings legalized by the standing law amounts to 7,321 buildings, over the eight-year period of the implementation of this law (as of 14 January 2024) (Figure 32)[222]. However, the extent of housing stock developed without building permits is still large, and involves also the objects in slums. It can be assumed that about 14,000 residential and commercial-residential objects remain in an informal status. Having in mind that the average household in the City of Niš has 2.5 members[223], it can be concluded that approximately 35,000 people live in buildings constructed without permits (about 14% of the population of Niš). These buildings are present throughout the urban fabric. However, not all of these structures are located in informal settlements or slums – some of them were developed in planned settlements, only without building permits.

The stakeholders call attention also to the problem of informal weekend settlements developed next to watercourses in the settlements Donja Vrežina and Sićevo. Illegally constructed objects are located in floodplains and use septic tanks and wells. Therefore, such structures pose a significant risk of flooding and a threat to the environment.

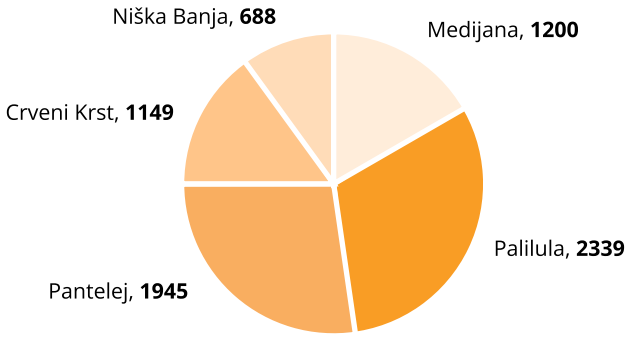


Figure 32. The number of legalized buildings in the City of Niš, by city municipalities.
Source: http://www.eservis.ni.rs/ozakonjenjeobjekata/

219 Database of substandard Roma settlements in the Republic of Serbia, Ministry of Construction, Transport and Infrastructure, 2023.
220 "Official Gazette of Republic of Serbia" No. 95/2015, 83/2018, 81/2020, 1/2023 and 62/2023.
221 Database of the Ministry of Construction, Transport and Infrastructure, 2023.
222 Database of the City Administration for Construction, 2024.
223 SORS. (2023). Municipalities and Regions in the Republic of Serbia, 2023.

To conclude regarding the proportion of population living in slums and informal settlements in the City of Niš, it is estimated that the share of population living in these deprived housing forms is roughly 18%.

Gaps and challenges. Both informal settlements and slums in the City of Niš remain major urban sustainability challenges and manifestations of inequality in the city. The present scale of informal settlements and dwellings developed without building permits indicates the inability of local authorities to deal with the issue of illegal construction in spite of their efforts. Slum settlements and slum zones on the other hand are faced with multiple problems, and the overall poverty of Roma population further exacerbates their housing situation. In addition, the lack of data on accessibility, cultural adequacy and affordability as the criteria for defining inadequate housing, is a gap to be addressed for developing future housing strategies.

One of the major issues for the City of Niš involves the Roma settlement developed within the site of the historic Jewish cemetery, which was declared a cultural heritage in 2007. This slum settlement originated in the 1950's and has been expanding ever since. Roma families have built their homes in the northern part of the cemetery among the tombs and on gravestones, using old tombstones as building material, foundations and pavement. The cemetery is nowadays occupied by dwellings in approximately one-third of the site, and is also threatened by the encroachment of surrounding commercial enterprises (Figure 33).

Figure 33. Aerial view of the Jewish cemetery surrounded by the new construction and Roma settlement.

Source: https://www.timesofisrael.com/putting-the-squeeze-on-a-serbian-jewish-cemetery/. Photo courtesy of Ivan Ceresnjes/JTA.

Ownership over land is another important impediment in resolving the status of slums, which is illustrated in the case of Roma settlement Crvena zvezda. This neighbourhood originated in the 1960's, when the first Roma families settled here spontaneously. In 2009, the land where Crvena zvezda settlement is situated was sold to an investment fund and is now on private land[224], which implies eviction of its population. The idea of resettlement was not embraced by the locals. Additionally, the residents of Crvena zvezda have had problems with electricity supply for years because the entire settlement is connected to only a few electricity meters. This resulted in high electric bills, which the impoverished community could not afford to pay, and consequently the power supply was cut off on several occasions by the Public Utility Company due to unpaid bills. The Roma population of this settlement viewed the cancellation of electricity supply as a pressure to make them leave the settlement themselves.

Another wicked problem for the City of Niš concerns the legalization of Roma slums, since it would be very difficult to implement. Even if all Roma dwellings were legalized, it is unlikely that such a settlement could function adequately because the conditions in those settlements often cannot be upgraded. Additionally, the legalization process could not cover other elements of urban structure (infrastructure, common and public areas), as defined by the Law on Planning and Construction in Serbia[225].

All slums in the area of the City of Niš are covered by Plans of General Regulation. For settlements Beograd mala, Stočni trg and Jevrejsko groblje the Plan of Detailed Regulation is required for further elaboration of the area. Some slums or their parts are located on private land, or on land with unresolved ownership, and another urban use is planned. Therefore, it is not possible to preserve all slums, nor the current scale of the slum as an entity - it is necessary to resettle the population that inhabits the buildings whose legalization is not possible. This is the case with the Crvena zvezda settlement, where the plan envisages business and trade use, as well as part of the settlement located on the site of the Jewish cemetery. The idea of moving is strongly opposed by the majority of Roma population of these settlements, since alternative housing options have not been provided. Inhabitants seek solutions to reside in their current properties also because they hesitate to change their age-old living habits and leave overcrowded dwellings. In the majority of the area of settlements Stočni trg and Beograd mala, the planning documentation acknowledges existing dwellings and zone residential use, thereby enabling the City to legalize buildings, provide infrastructure and communal equipment. In the settlement Romska kuća ownership of land is mixed, so even though residential use is zoned in the plan, implementation is difficult.

Due to insufficient income and lack of formal employment of the majority of Roma citizens, these people often do not meet the criteria for rent/purchase of the apartments built through programmes for housing support. Since its foundation in 2004, the Public Enterprise City Housing Agency Niš has built a total of 416 apartments through various programmes for housing support. These new developments are located at two sites, in Niš urban area (Majakovski Street), and in Pasi Poljana suburban settlement (Čedomir Krstić Street). Apartments are both sold and leased. Along with five pre-existing apartments owned by the City in different locations, the total number of apartments of the so called "social housing" in the City of Niš territory in the period 2004-2023 amounts to 421. Even though these buildings are occasionally inhabited by the Roma population, it is only to a small extent, and for those who can afford buying an apartment.

Until today, the City of Niš has demonstrated insufficient capacities to resolve the issue of slums. Even though motivation exists with the local authorities, the lack of financial resources and citizens' reluctancy have been preventing the resettling of slum population. In the opinion of stakeholders, insufficient number of communally equipped housing locations and insufficient sources of funding are the main impediments to providing social housing to the citizens of Niš, including Roma population.

224 Macura, V. (2017). Urbanism and Roma Settlements in Serbia.
225 OSCE/ODIHR. (2006). Roma Housing and Settlements in South-Eastern Europe.

Local efforts and initiatives. The stakeholders attest to the efforts of the authorities in financing the creation of planning documents and multiple projects for Roma settlements. Two slum settlements, Crvena Zvezda and Stočni trg, are particularly in the focus of national and local governments and the international community. In 2018, the construction of houses for 50 Roma families in Ivana Milutinović Street was announced (in proximity of Stočni trg settlement), as well as the development of apartments for 110 Roma families from the Crvena Zvezda settlement, which would be financed from European funds. However, these projects have not yet begun their realization.

Regarding the settlement Jevrejsko groblje, the Jewish community initiated the resettlement of the Roma population from the cemetery in 2003, and this was declared as one of the priority actions in the Housing Strategy of the City of Niš, adopted in 2007. In 2008, the City Housing Agency and UN-Habitat initiated a project "First steps in relocation process of Roma families from the Jewish cemetery in the City of Niš", which involved all relevant stakeholders, including the Roma and Jewish communities[226]. Within a participatory planning process, a new development concept for the entire neighbourhood called "Rasadnik" was devised, involving a socially, ethnically and functionally mixed area. Despite the positive attitude of local authorities, the project was not realized due to lack of funding, but also the reluctance of the Roma community members and their distrust in institutions.

In dealing with the consequences of illegal construction, the Ministry of Construction, Transport and Infrastructure enabled all municipalities in Serbia to engage more people to work on tasks of legalization[227], thereby setting the context to speed up this process. The number of new employees engaged in legalization in the City of Niš amounts to 30 people. Through the official website, the City Administration for Construction Niš informs the public about their performance in legalization[228]. The process of obtaining a building permit is much improved and simplified, and this document is now issued within the period of five days[229]. Therefore, the City has provided good grounds for construction in line with regulations.

Potentials. As perceived by the stakeholders, the major strengths of the City of Niš in dealing with slums and informal settlements lies with city authorities and administration, urban planners and designers. The existence of an institution dealing with safe and affordable housing (social housing) is one of City's main assets. From the viewpoint of an urban planner who participated in stakeholders' workshops, and based on his conversations with Roma population, Roma neighbourhoods should be officially mapped in order to preserve their specific urban morphology, tradition and culture, and labelled as tourist landmarks of Niš.

Link to the VNR and national level. At the national level, the indicator that monitors the share of urban population living in slums, informal settlements or inadequate housing is recorded at 4%[230], which is a similar value to the proportion of this population living in the City of Niš (3.37%). The VNR highlights the role of Standing Conference of Towns and Municipalities in assisting local governments to create conditions for a better quality of life, which is achieved, among others, by more efficient issuing of building permits and construction, and support to developing sustainable housing. The VNR prioritizes the legalization process from the institutional aspect, given its social and economic implications on the quality of life. Also, in the VNR, the Roma population is identified as a vulnerable and marginalized group, which faces limited access to opportunities in virtually all areas, including housing.

226 Macura, V. (2009). Roma settlements in Serbia: current state of affairs and future goals.
227 Voluntary National Review of the Republic of Serbia, 2019.
228 http://www.eservis.ni.rs/ozakonjenjeobjekata/
229 City Administration for Construction Niš, 2023.
230 https://sdg.indikatori.rs/en-US/area/sustaniable-cities-and-communities

Indicator 11.2.1. Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

UMF Domain: Society - Inclusive; UMF Indicator 1.2.2. (UMF-10)

Niš had trams in the period 1930-1958, when this transport form was suspended. Nowadays, the system of public mass transportation of passengers in the territory of the City of Niš is founded on the bus subsystem alone. Public transport is implemented within the framework of a public-private partnership[231]. City public transport has vehicles of different ages and equipment, with different environmental impacts. The main bus station is currently located in the city centre, next to the Niš Fortress. Therefore, numerous bus vehicles are channelled throughout the urban zone, which does not have a sufficiently developed infrastructure to accommodate the current volume of traffic.

In 2018, the city developed a study of transportation in the territory of the City of Niš, which redefined public transport in the city and proposed guidelines for its improvement.

Overview. The number of passengers transported daily by public transport is 75,797, which is about 30% of the population of the City of Niš[232]. The network of lines of public transportation system in Niš covers both urban and suburban areas. The network consists of a total of 52 lines[233], with exploitation length that equals 778.15 km. Of the total number of lines, there are 14 urban (134.04 km) and 38 suburban transport lines (644.11 km)[234]. The number of realized departures on the territory of Niš is very high: 95.86% of all departures are realized on urban lines, and as much as 98.35% on suburban lines. Therefore, it can be stated that suburban/rural settlements in the territory of the City of Niš are well served by public transport, and there is good connection with the urban area. Nevertheless, the average frequency of vehicles on suburban lines during the day does not exceed one vehicle per hour, which is insufficient.

The map of public transportation lines (both urban and suburban), allocation of public transport terminus sites, as well as borders of tariff zones in the City of Niš, is presented in Figure 34. The map is available online and involves the inventory of all public transport stops in the service area[235]. This georeferenced data is used to perform the analysis of the street network to measure the walkable distance of 500 m and/or 1 km to the nearest transport stop[236]. Results are presented in Figure 35. The proportion of the population within the walkable distance to public transport is as much as 91.8% of the City of Niš territory[237].

When reviewing the accessibility of public transport, this share is somewhat lower. Not all public transport vehicles in the City of Niš are suited to special-needs customers, service is impaired during peak hours, and some stops' environments require significant physical, functional and aesthetic improvement.

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231 Project for public-private partnership in the performance of communal activities of urban and sub-urban public transportation in the territory of the City of Niš, 2019. https://www.eupropisi.com/dokumenti/NIS_2019_69.pdf

232 Development Plan of the City of Niš 2021-2027.

233 https://jgpnis.rs/

234 Project for public-private partnership in the performance of communal activities of urban and sub-urban public transportation in the territory of the City of Niš, 2019. https://www.eupropisi.com/dokumenti/NIS_2019_69.pdf

235 https://www.google.com/maps/@43.3203643,21.8872944,14z/data=!4m2!6m1!1s19yzn_HiUTyCGN-zIRmrVz_2qRgJI?authuser=0&entry=ttu

236 The scope of spatial analysis involves the entire territory of the City of Niš as a local self-government unit.

237 The calculation performed by the Statistical Office of the Republic of Serbia.

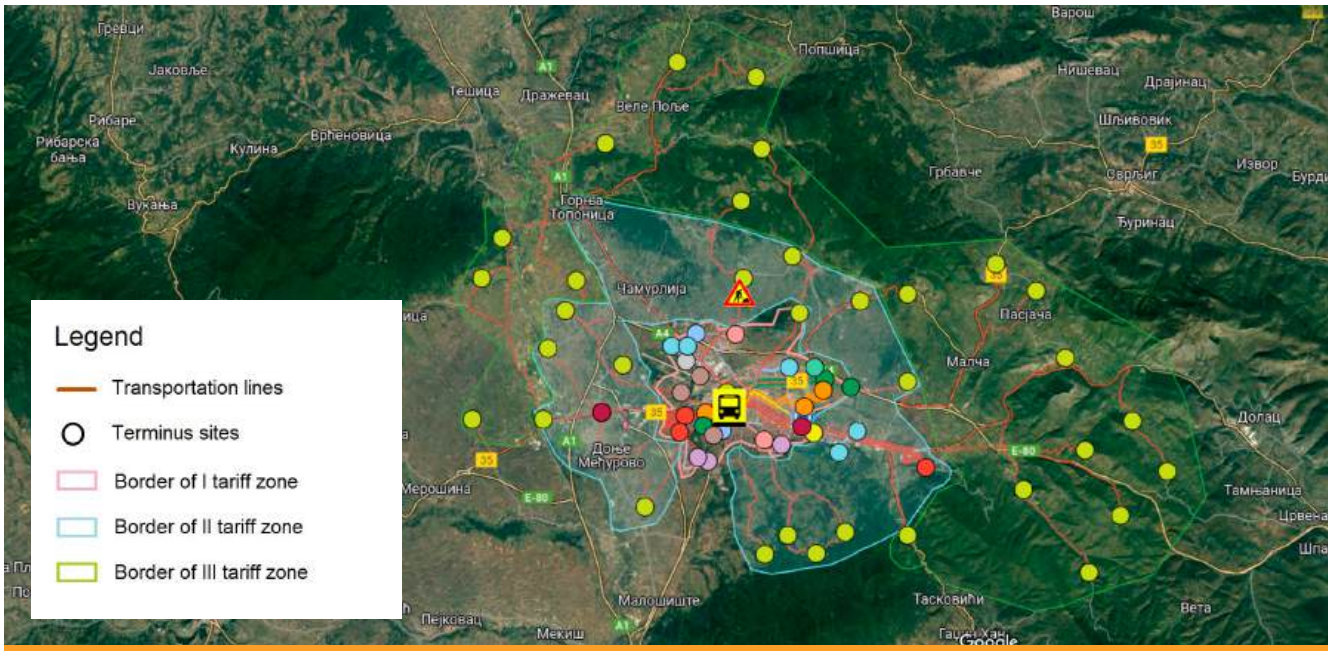

Figure 34. Map of public transportation lines, public transport terminus sites and borders of tariff zones in the City of Niš.

Source:https://www.google.com/maps/@43.3203643,21.8872944,14z/data=!4m2!6m1!1s19yzn_HiUTyCGNzIRmrVz_2qRgJI?authuser=0&entry=ttu

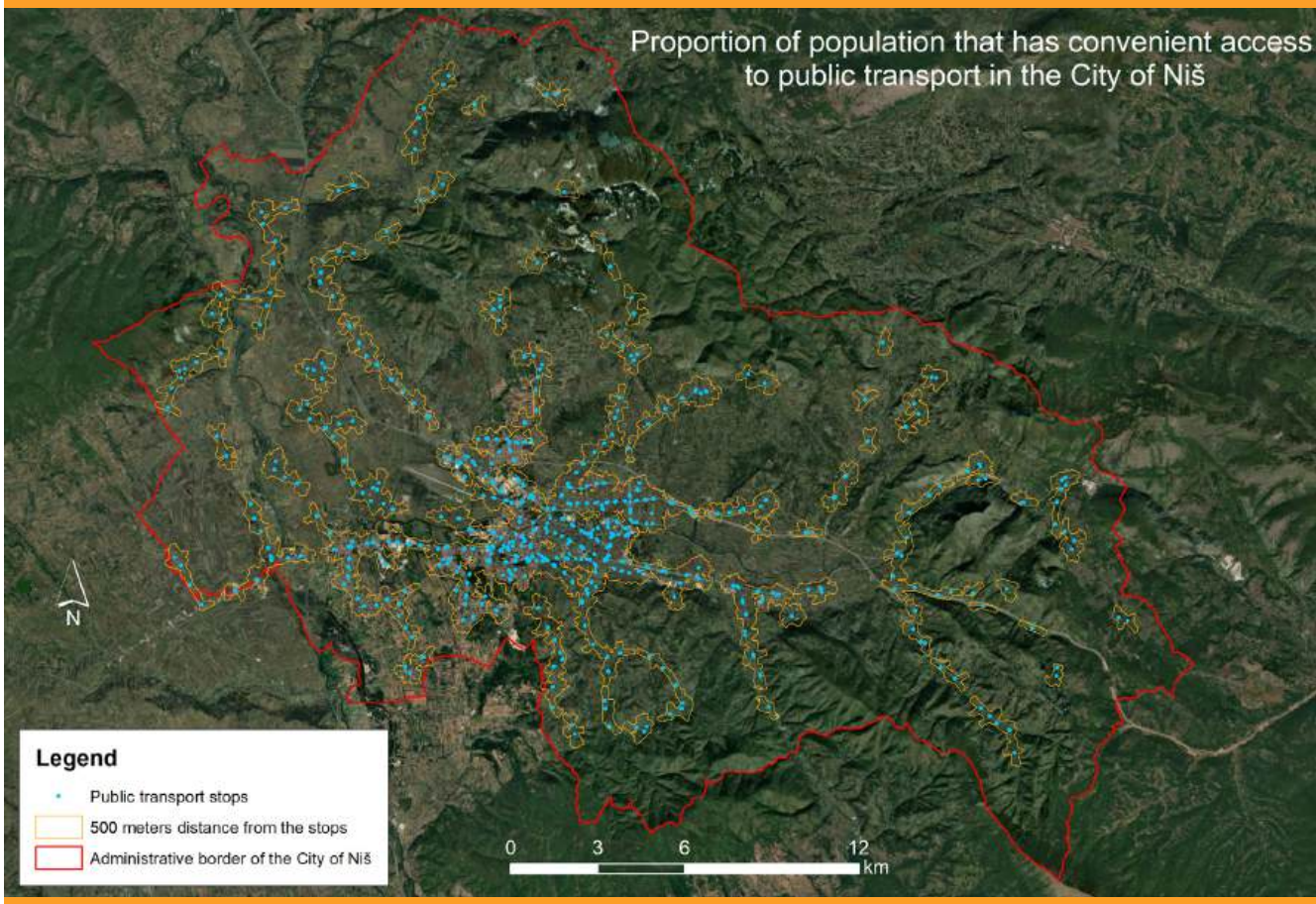

Figure 35. Map of public transport stops and area of walkable distance of 500 m in the City of Niš.

Source: Statistical Office of the Republic of Serbia.

Gaps and challenges. Community insight on the functioning of public transport is considered very important to the City of Niš, which was emphasized at the stakeholders' workshops. The citizens provide feedback on City transportation service and report issues to the Public Utility Company Directorate for Public Transport of the City of Niš. The most common complaints from users of public transportation include[238]:

1. Introducing a greater number of departures, or larger-capacity buses to operate on the transportation lines, in busiest hours when the busses are crowded, i.e. when people go to work and children to school;
2. Delays of departures in relation to the time provided by the timetable;
3. Cancellations of scheduled departures;
4. Failure to stop the bus at all stops, and unpolite staff;
5. In the winter period, shortening of the routes due to snow (suburban lines);
6. In the summer period, for buses without windows, the air conditioner is not being used or is defective;
7. Maintenance and arrangement of bus stops (installation of canopies, repair of damaged canopies and posting signage at bus stops);
8. Providing free public transport for all persons over 65 years of age.

Aside from the issues listed by users of public transport, Niš also lacks contemporary information technologies that would provide passengers information about public city transport in real time (via computer, mobile phone applications, etc.). Modernizing the way of informing users would raise the level of service quality and enhance the use of public transport services. When purchasing new buses, it is required that they are low-floor, with at least one ramp for people with disabilities[239], but not all existing vehicles meet that requirement. In order to reduce the emission of exhaust gases, the possibility of introducing electric buses should be explored. Also, not all are stops are in adequate locations with easy access. Public transport stops need to be equipped with light and sound notifications, as well as signs in Braille, in order to enable smooth use of public transport for people with disabilities.

Local efforts and initiatives. The City of Niš works on improving the public transport in terms of its sustainability, impact on air quality and availability to all citizens. The stakeholders attest to the support of the local self-government when it comes to solving key issues, as well as regarding investments in infrastructure that enhance public transportation. Planning documents for Niš envision the relocation of the existing railway corridor line from Niš to Niška Banja (both passenger and cargo), from the densely built-up urban area to the northern part of the city. This relocation should enable the introduction of light rail traffic in place of the existing railway route, and thereby the overall enhancement of the public city transport system. Reintroducing trams into the urban transportation system would benefit the environment. The relocation of the main bus station is also planned to the northern industrial part of the city, thereby reducing the volume of traffic in the central zone.

Link to the VNR and national level. Although this indicator is not being measured at the national level, it is estimated that a high proportion of the population has access to public transport. Similar to other former socialist cities, characterized by a compact urban form, the cities in Serbia were also well served with public transport during socialism. This inherited transportation pattern continued well into post-socialist period, resulting in relatively good provision of mass transportation service to urban residents of Serbian cities. In line with the sustainable provision of utility services in towns and municipalities, the VNR is promoting the concept of smart cities and the use of ICT for improving the quality of services, including transport.

238 Public Utility Company Directorate for Public Transport of the City of Niš, 2023; Niš City Administration for Communal Activities and Inspection Affairs, 2023.

239 Project for public-private partnership in the performance of communal activities of urban and suburban public transportation in the territory of the City of Niš, 2019. https://www.eupropisi.com/dokumenti/NIS_2019_69.pdf

Indicator 11.4.1. Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)

UMF Domain: Culture - Resilient; UMF Indicator 4.3.2. (UMF-58)

In Serbia, immobile cultural assets include cultural landscapes, spatial cultural-historical entities, monuments of culture, archaeological sites and landmark sites[240],[241]. Depending on their importance, cultural heritage is classified into categories of cultural assets, cultural assets of great importance and cultural assets of exceptional importance. Cultural assets that enjoy prior protection are things and creations that are assumed to have cultural values, while assets under prior protection involve registered properties with prior protection. Data on immobile cultural assets are available in the Information System of Immovable Cultural Property, which is designed to store digital and digitized data of immobile heritage of the Republic of Serbia[242].

Overview. The City of Niš has a rich immobile cultural heritage within its territory[243] (Figure 36). Out of 111 immobile cultural assets in total, six sites are classified as assets of exceptional importance. These involve monuments of culture Ćele Kula, War Camp 12. februar and Early Byzantine tomb with frescoes, archaeological site Mediana, and landmark sites Memorial Park Bubanj and Čegar site. Immobile cultural assets of great importance involve seven sites - the archaeological site Humska čuka, and six monuments of culture of great importance: Latinska church in Gornji Matejevac, Monastery of the Holy Virgin in Sićevo, Pasterov zavod building, Oficirski dom building, the building of the old Principality – Banovina and Niš Fortress. Furthermore, Niš also has numerous cultural assets throughout its territory (Figure 37).

98 monuments of culture	2 spatial cultural-historical entities	7 archaeological sites	4 landmark sites

Figure 36. Number of immobile cultural assets by category in the City of Niš.
Source: Public Institute for the Protection of Cultural Monuments Niš.

There are also 15 assets in Niš under prior protection that are already registered. Regarding those cultural assets that enjoy prior protection and are assumed to possess cultural values, there are 745 buildings with monumental characteristics, 27 ambient and construction units and 60 archaeological sites.

240 Law on Cultural Heritage, "Official Gazette of the Republic of Serbia", No. 129/2021.
241 Note: Within the research on this indicator, only cultural heritage is explored.
242 https://nasledje.gov.rs/index.cfm?jezik=Engleski
243 Public Institute for the Protection of Cultural Monuments Niš, 2023.

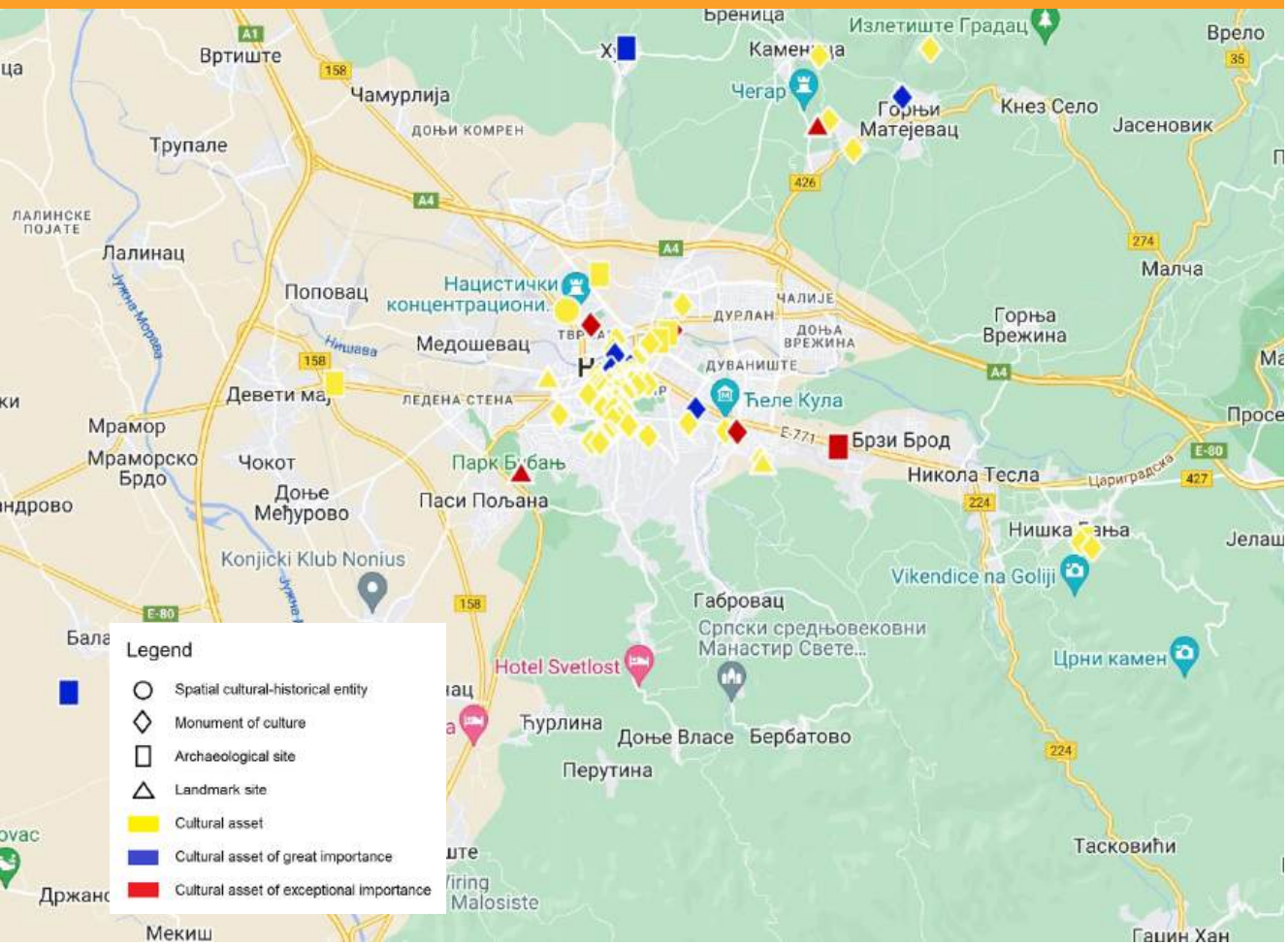

Figure 37. Allocation of immobile cultural heritage within Niš territory.
Source: https://nasledje.gov.rs/index.cfm?jezik=Engleski

Data for expenditure on cultural heritage is available at the local level from budget reports for public funding. For the year 2022, a total of RSD 19,681,095[244] was spent for the activity "Improvement of the system of preservation and presentation of cultural-historical heritage"[245]. This programme activity is implemented through the institutions of the National Museum, the Historical Archive and the Institute for the Protection of Cultural Monuments. This amount spent preservation and presentation of cultural-historical heritage represents 0.17% of the total budget funds spent in 2022.

Gaps and challenges. The most significant challenges regarding cultural heritage are related to funding. In previous decades, the lack of financial resources resulted in modest investments in valuable objects of cultural heritage in Niš territory[246]. Also, the efforts in the presentation and promotion of cultural heritage are insufficient. Consequently, the potential of cultural heritage is underused regarding the development of tourism. The stakeholders highlighted the need for raising the overall level of preservation of the city's cultural heritage, and performing research works in the field of architectural heritage.

Aside from insufficient arrangement of existing cultural and historical sites, there are also areas with architectural heritage that are not explored at all. In 2022, the remains of Early Christian tombs were discovered in the city municipality Pantelej, which are a part of the eastern necropolis of the

244 EUR 167,379.59
245 Decision on the final account of the City of Niš budget for 2022 ("Official Gazette of the City of Niš", No. 62/2023.)
246 Development Plan of the City of Niš 2021-2027.

ancient city of Naissus. This important discovery was made by a private investor while performing works on new residential development. The measures of protection of this valuable site are poorly implemented, and archaeological excavation is currently suspended due to jurisdiction disputes, legal issues and financing of the works.

Local efforts and initiatives. From the perspective of stakeholders, there are efforts in the preservation of cultural heritage. Significant investments were made in the period 2017-2020, when the City of Niš invested more than 2 million euros to improve the state of cultural heritage through project financing[247].

Indicator 11.6.1. Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal solid waste generated, by cities

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.2. (UMF-41)

Collection and management of municipal solid waste (MSW) in Niš territory is performed by the Public Utility Company Mediana. This company also collects recyclable waste, sorts it, and prepares it for transport. Mediana company has harmonized its waste management with the current national regulations. Waste characterization has been done, daily and annual waste management records are kept, and monitoring of landfill operations is performed. This data is regularly forwarded to the Serbian Environmental Protection Agency (SEPA).

Overview. The vast majority of LSG territory is covered by organized waste collection. The urban area of Niš is fully covered by organized waste collection (100%)[248]. Regarding rural areas, there have been permanent efforts on their inclusion in organized waste collection in the last few years, and on the removal and recultivation of illegal landfills in these areas. In 2022, 62 out of 69 rural settlements had access to waste collection service. In 2023, two additional villages were included in the organized municipal waste collection system, thereby leaving only five rural settlements without this service (Table 7)[249]. This represents 6,76% of the total number of settlements in City territory, and only 0.11% of the total population. The proportion of population with access to basic MSW collection services in the City of Niš is very high and amounts to 99.89%.

	Rural Settlement					City of Niš
	Radikina Bara	Rautovo	Bancarevo	Kunovica	Cerje	
Population	47	8	39	22	150	249,501
Share	0.11%					100%

Source: Public Utility Company Mediana Niš, 2023.

In the year 2022, total MSW collected in the city was 85,061 tonnes/year, or 201 tonnes/day[250]. Total MSW managed in controlled facilities in the city is approximately 3 tonnes/day, but this only refers to the waste that is brought from commercial facilities for destruction. The amount of generated and deposited waste in Niš has presented a constant increase in volume over the last years (Figure 38).

247 Development Plan of the City of Niš 2021-2027.
248 Public Utility Company Mediana Niš, 2023.
249 Public Utility Company Mediana Niš, 2023.
250 Public Utility Company Mediana Niš, 2023.
The amount of collected waste is measured by a truck scale (with minimum error) at the municipal landfill. Only measurement irregularities are present on days when the truck scale is broken, because the amount of waste is then calculated based on the volume of usable truck space.

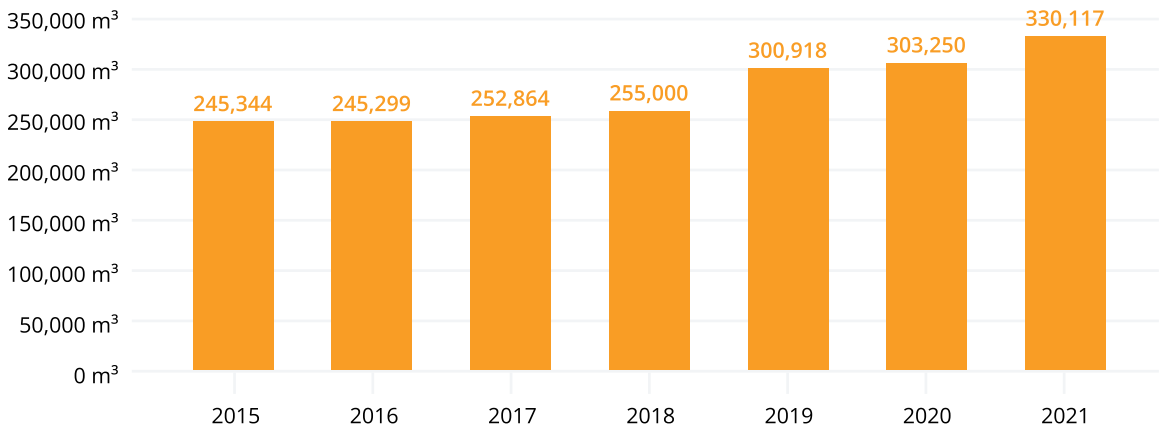

Figure 38. Total volume of deposited waste in m^3 per year in the City of Niš.
Source: Business plans of Public Utility Company Mediana Niš 2017-2023.

Collected municipal and other non-hazardous waste is transported to the local communal landfill "Bubanj", which is located on the edge of Niš administrative area, mostly in the territory of the municipality of Doljevac. The communal landfill was opened in 1968 and officially zoned for that use in 1971, with an exploitation period of 30 years. However, the exploitation of the landfill is constantly being prolonged by expanding certain fields, as a temporary solution in the absence of an adequate space for solid waste disposal. Until recently, Bubanj landfill operated as a plain garbage dump site, and it still presents the biggest environmental risk of the City of Niš[251]. The landfill is now in the process of rehabilitation, and the site is being used for the purpose of waste disposal until the new Regional Centre for Waste Management "Keleš" is developed[252].

Bubanj landfill is an unsanitary landfill because it does not meet the criteria of modern municipal waste management, nor does it ensure environmental protection. Its closure is planned after the end of the exploitation period, with the prerequisite for exploitation being to rehabilitate the landfill with minimal environmental protection measures and create conditions for recultivation of the existing area. The existing landfill consists of four segments (S1, S2, S3, S4), three of which are closed and partially recultivated[253]. The only active landfill segment is S4, which was rehabilitated in 2015 with the aim to provide enough capacity for additional two to three years. In S4 field, waste disposal is currently carried out by using the technology applied in the European Union. Construction of a new sanitary field S5 is also planned. Currently, the landfill is fenced, there are perimeter channels and retention basins. The base of the landfill is natural clay, which prevents the penetration of filtrate into deeper layers and into underground water. Measures of compaction and covering of waste with inert material are applied at the landfill. Landfill gases are channelled through biothorns[254] and released into the atmosphere. The landfill parameters are regularly monitored. There is no system for purifying leachate and waste water.

In the last decade, significant progress has been recorded in waste recycling practices in Niš. In 2016, individual households in the territory of two city municipalities, Medijana and Palilula, were provided with a "blue bin" for collecting packaging waste. Recycling islands for collecting plastics and glass have been installed throughout the city, involving 350 containers for collecting packaging glass and 250 nets for collecting PET packaging. All of these activities were carried out with the aim of developing positive habits of citizens and their active involvement in the waste management process, expansion of the system of separation of recyclable materials, and creation of new jobs in the recycling industry.

251 Local Waste Management Plan of the City of Niš 2011-2021.
252 General Urban Plan of Niš 2010-2025.
253 Development Plan of the City of Niš 2021-2027.
254 Biothorns are gas wells used for the extraction of landfill gas.

A Recycling Centre was built in 2014, in the industrial zone of the city, covering an area of about 5.5 ha. The Centre collects waste from three sectors - industry, commercial activities and households. Raw materials that are collected are recyclable materials: paper, cardboard, PET packaging, plastic film, Tetra Pak packaging, aluminium cans and glass. Recyclable waste that is collected from "blue bins" and containers for packaging waste is brought to the Recycling Centre for further sorting by waste fractions. Separated fractions are further baled and handed over to operators for recycling. Unprocessed waste is separated and taken to the landfill. The amount of packaging waste processed in 2022 amounts to 400 tonnes.

Apart from recycling of certain types of waste and waste disposal, other types of waste treatment are not performed in Niš.

Gaps and challenges. Despite the very high share of population and territory that is being serviced by organized waste collection in the City of Niš, the existing landfill does not enable environmentally friendly waste disposal. The amount of MSW collected and transported to controlled waste management facilities in Niš is therefore estimated as low, and this issue remains one of the biggest challenges that the City is facing nowadays. Achieving the required level of safety in MSW management and turning the current waste disposal process into a waste management process are urgently needed actions in the City of Niš.

From the perspective of stakeholders, the lack of financial resources and insufficient efforts of all actors are the main impediments to solving key problems in waste management. Also, successful integration of SDGs into waste management projects in Niš requires educational and promotional activities to enhance implementation, such as holding tribunes, round tables and panels for professionals, as well as better informing and engaging the citizens.

Local efforts and initiatives. The beginning of the project for rehabilitation, closure and recultivation of Bubanj landfill marked the starting of waste management practice that pollutes the environment less. The stakeholders highlight that sustainable MSW is supported by enforceable planning documents at the local level that are aligned with the SDG 11. A regional landfill is planned at the border of the administrative area of the City of Niš, which will serve the municipalities of Niš, Gadžin Han, Svrljig, Ražanj, Doljevac, Aleksinac, Merošina and Sokobanja[255]. It will be formed in such a way to occupy mostly the already degraded space, with an extension that is adequately located in relation to natural and man-made conditions. The regional landfill will include two units: 1) Brownfield location (existing landfill after remediation), which is a functional and infrastructurally equipped site, and 2) Greenfield location (site "Keleš" in the territory of Doljevac municipality) zoned for a sanitary landfill of non-recyclable municipal waste. Regarding the development of regional landfill, the progress is slow. So far only a Decision has been adopted and signed by 6 local self-government units.

Good practices. In 2020, in the territory of the City of Niš, 42 illegal landfills were recorded, mostly in rural parts of city municipalities. Despite regular cleaning of these locations, the low level of environmental awareness among citizens causes illegal landfills to form again. Therefore, two Recycling Yards were opened in city municipalities Palilula and Medijana in 2022, and three more are planned in other city municipalities. These are sites where citizens can dispose of their waste that is not suited for household waste containers, such as bulky waste, green waste, hazardous household waste, waste from electrical and electronic equipment, batteries, etc. The goal of this initiative is to systematically deal with the issue of illegal landfills. From the perspective of stakeholders, the best form of prevention from the creation of illegal landfills is to provide waste collection service for all settlements in rural areas, and to create Recycling Yards in urban areas.

255 Spatial Plan of the City of Niš Administrative Area 2021.

Unit Zelenilo, a department of the company Mediana, composts biodegradable waste from parks for its own use. The humus obtained in this way is used for growing new seedlings in the Mediana nursery garden.

At the national level, the latest amendments to the Law on Planning and Construction (2023) also enhance waste management, by requesting a document on waste flow when issuing the permit for the use of buildings[256]. This document corroborates that the waste created in the process of construction and demolition is submitted for waste treatment or waste storage, and will reflect on the local level.

Link to the VNR and national level. This indicator is partly being monitored at the national level, so the data on total MSW generated is available. A progressive increase in generated waste is evident in Serbia (from 2710 thousand tonnes in 2017 to 3180 thousand tonnes in 2022)[257], which is verified at the level of Niš, as mentioned above.

Indicator 11.6.2. Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.3. (UMF-42)

Annual values of PM2.5 are regulated in the Republic of Serbia, but there are no legal regulations for their daily concentrations, unlike for PM10 where both annual and daily values are regulated. There is also a lack of legislation regarding the regulation of indoor air pollution. The Serbian Environmental Protection Agency (SEPA) keeps the National Register of Pollution Sources. Local self-government units finance air quality monitoring as part of their legal obligations. In 2022, significant progress was made in monitoring the state of air quality, as the largest influx of data from local governments was obtained[258]. The basis for assessing air quality, as well as for determining its category are: mean annual concentrations, the number of days and the number of hours with exceeded limit values. Third category marks excessively polluted air where limit values for one or more pollutants are exceeded. Local self-government units in which the air is of the third category, are obliged to adopt air quality plans. Air quality plans aim to achieve the appropriate limit values (target values) established by the Law on Air Protection of the Republic of Serbia. They are adopted on the basis of air quality assessment and include all the main polluting substances and the main sources of air pollution.

From the standpoint of air quality, Niš has an unfavourable geographical position, since the entire built-up area is located in a basin, which is enclosed from the north, east and south by mountain and hills. As the northwest wind is the most frequent one during the year, pollutants from the air are directly carried towards the urban area of Niš. Frequent temperature inversions prevent vertical air flow and reduce the positive effects of solar radiation, thereby resulting in the appearance of smog. There are over 100 days a year with fog and mist. All these characteristics cause the accumulation of pollutants in the air[259]. The City of Niš adopted Air Quality Plan for Niš Agglomeration in 2020.

Overview. Air quality in the City of Niš is primarily affected by emissions of pollutants from: 1) heating plants and boiler rooms (boiler plants and rooms of the Public Utility Company City Heating

256 "Official Gazette of the Republic of Serbia", No. 72/2009, 81/2009, 64/2010, 24/2011, 121/2012, 42/2013, 50/2013, 98/2013, 132/2014, 145/2014, 83/2018, 31/2019, 37/2019 - other law, 9/2020, 52/2021 and 62/2023, Article 158.

257 https://sdg.indikatori.rs/en-us/area/sustaniable-cities-and-communities/?subarea=SD-GUN110601&indicator=110601IND01

258 Data from a total of 220 automatic stations and measuring points were collected and processed - in addition to the data from the Environmental Protection Agency, the air quality assessment for 2022 also used data from automatic monitoring in the local networks of cities in Serbia.

259 Development Plan of the City of Niš 2021-2027.

Plant Niš, individual boiler rooms in public institutions and companies), 2) individual furnaces in households, 3) traffic (vehicles with engines with internal combustion) and 4) industry[260]. It is assumed that an additional source of emissions of polluting substances is the existing unsanitary landfill, although there is no measuring point for air pollution control in its vicinity[261]. During the cold period of the year, there are additional emissions in the City of Niš, and the levels of PM10 and PM2.5 pollutants are significantly higher. Similar to the national level[262], the heating of households from heating plants with a power of less than 50 MW and local furnaces is identified as the dominant source of pollution[263].

SEPA manages three automatic stations for air quality monitoring at three sites in the City of Niš: Public Health Institute Niš, Elementary School "Sveti Sava" and Kamenički Vis, with the results immediately available at the SEPA website. However, comparable data for values of fine particulate matter in Niš, for which monitoring is continuously performed throughout the past six years by the Public Health Institute Niš, are available only at the measurement point located at the Public Health Institute Niš. Based on the data monitored and published by SEPA[264], air quality in the agglomeration of Niš in the period 2017-2022 was of the third category[265]. In the case of Niš, the excessive air pollution results from exceeding limit values of fine particulate matter PM10 and PM2.5, as illustrated in Figure 39. The latest measurements in 2022 show excessive pollution and no improvement. The mean annual value for particulate PM10 is 44.3 μg/m^3, while the mean annual value for particulate PM2.5 is 34.0 μg/m^3 – both of which exceed the established annual limit values (40 μg/m^3 for PM10 and 25 μg/m^3 for PM2.5)[266]. The annual mean level of particulate PM2.5 even exceeds the tolerance annual value[267] of 30 μg/m^3.

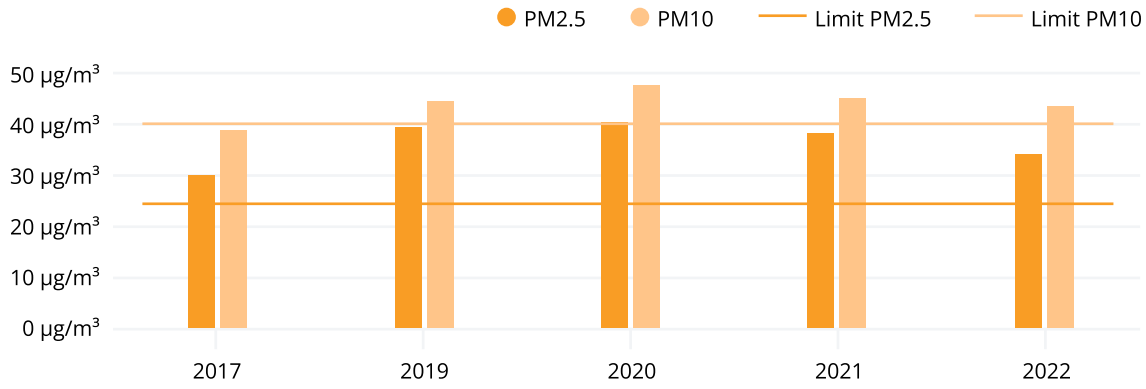

Figure 39. Annual mean levels of fine particulate matter PM2.5 and PM10 (indicative measurements) at the measurement site Public Health Institute Niš.

Source: Annual Reports on the State of Air Quality in the Republic of Serbia 2017-2022.

260 Air Quality Plan for the Agglomeration of Niš, 2020.

261 Air Quality Plan for the Agglomeration of Niš, 2020.

262 The main causes of high values of fine particulate matter are identified at the national level. In the past few years, the national balances of emissions of suspended particles PM10 and PM2.5 show that their biggest source are heating plants with power less than 50 MW and small individual furnaces, with a share of 65% for PM10 and 80% for PM2.5. Other sources involve: road traffic with 10% for PM10 and 9% for PM2.5, industry with 8% for PM10 and 5% for PM2.5, and other sources of emissions. Source: Annual Report on Air Quality in the Republic of Serbia in 2022.

263 Decision on the implementation and co-financing of the project "Reduction of air pollution in Niš originating from individual furnaces, by connecting to the city heating system" ("Official Gazette of the City of Niš", No. 108/2022).

264 http://www.sepa.gov.rs/?tema=Vazduh

265 Due to the insufficient volume of measurements of suspended particles PM10 in the agglomeration of Niš, a valid assessment of air quality for the year 2018 is not possible.

266 Public Health Institute Niš. (2023). Annual Report on Ambient Air Testing in Niš for the year 2022.

267 The Law on Air Protection ("Official Gazette of the Republic of Serbia", No. 36/2009, 10/2013 and 26/2021-other law) prescribes limit and tolerance values of pollutants, where the tolerance value is the limit value increased by the tolerance limit.

When reviewing the longer measuring period (2011-2019) at the same measuring site[268], the average annual value of PM10 was 52.99 μg/m^3, with the average annual values of PM10 during heating season 75.27 μg/m^3, and outside of heating season 32.12 μg/m^3. It can be stated that the mean annual value of PM10 exceeds the mean annual threshold value of 40 μg/m^3. During the period 2013-2019, the measured mean annual values of PM2.5 particles ranged from 31.1 μg/m^3 in 2013 to 52.4 μg/m^3 in 2016[269]. Results show that both the limit (25 μg/m^3) and the tolerant (30 μg/m^3) average annual value were exceeded.

Significant efforts were invested by the Public Utility Company City Heating Plant Niš. In line with the principles of environmental protection and sustainable development, the City Heating Plant switched to the use of natural gas as the main energy source in 2003. The Plant produces thermal energy in 3 heating plants and 15 boiler rooms, and within the Plant system 95.97% of energy is produced from gas, 3.85% of energy is produced from fuel oil, and 0.18% of energy is produced from heating oil, while coal is not used at all[270]. Energy conversion in heat sources was being carried out continuously for two decades, so that all 3 heating plants nowadays use gas as an energy source, as do most of the smaller boiler plants (6 out of 15). Each of these reconstructions was accompanied by modernization of the production plant itself, with an increase in operational functionality for the purpose of limiting the levels of fine particulate matter. Also, in cooperation with the City of Niš, the City Heating Plant is continuously working on shutting down local boiler rooms in public institutions that use heating oil, coal and fuel oil as energy sources, and their connection to the Plant's distribution system. For the remaining boiler plants, a conversion to natural gas/biomass is planned, for which the City Heating Plant has projects already prepared[271]. The City Heating Plant is also cooperating with the City on its network expansion in segments of residential area, which will shut down individual furnaces that use coal, fuel oil or electricity as energy sources.

Gaps and challenges. Regarding air quality, the City of Niš has been in a very unfavourable situation throughout the past decade. Bearing in mind the measured values of PM10 for the period 2011-2019 and of PM2.5 for the period 2013-2019, the mean annual values of PM10 and PM2.5 exceed the threshold values, and the values of PM10 during heating season have more than doubled compared to the period outside heating season. Given the facts that the city's heating plant almost exclusively uses natural gas, local industry is mostly "clean", and very few public buildings still use solid fossil fuels, these are not the causes of this type of pollution[272]. Therefore, the main causes of high levels of PM10 and PM2.5 particles are private households with individual furnaces, which mostly use inefficient appliances (stoves and boilers) and solid fuels (coal, firewood, fuel oil, heating oil, various types of waste).

The efforts made by the City of Niš and City Heating Plant appear to be insufficient for the overall reduction of air pollution. As noted by the stakeholders, poor individual responsibility of citizens regarding air quality and overall SDG 11, coupled with the lack of personal motivation, equipment and funds for environmental protection, results in excessive air pollution. Also, the creation of the City Administration for Environmental Protection of the City of Niš is suggested, as a body that will deal with air quality issues, and focus on necessary measures and actions.

Local efforts and initiatives. Publishing the data on air quality on the web in Serbia was a step forward in acknowledging air quality issues. At the local level, the stakeholders highlighted the importance of the fact that environmental monitoring is being performed in the territory of the City of Niš on a regular basis.

268 Air Quality Plan for the Agglomeration of Niš, 2020.
269 Air Quality Plan for the Agglomeration of Niš, 2020.
270 Public Utility Company City Heating Plant Niš, 2023.
271 Public Utility Company City Heating Plant Niš, 2023.
272 Decision on the implementation and co-financing of the project "Reduction of air pollution in Niš originating from individual furnaces, by connecting to the city heating system" ("Official Gazette of the City of Niš", No. 108/2022)

As part of the efforts to reduce excessive ambient air pollution, the City of Niš and the Ministry of the Environment of the Republic of Serbia initiated the project "Reduction of air pollution in Niš from individual furnaces by connecting to the city heating system". The project is set to carry out the measures envisioned in the Development Plan of the City of Niš 2021-2027[273], and the city accepted co-financing of the project and began its implementation in 2021. The project aims to solve the long-standing problem of air pollution by improving energy efficiency, reducing energy consumption, increasing the use of available renewable energy sources in single-family housing and reducing pollution and CO2 emissions. The specific goal of the project is the removal of existing heating devices that use solid fuel (coal, fuel oil, heating oil, various types of waste) and the connection of individual households to the city heating system in the territory of the City of Niš. Within the project, a total of 182 changes to existing heating devices in individual households were co-financed, up to 50% of the estimated value, in three calls (Table 8). The project is ongoing, and the fourth call was announced in October 2023. Given the large number of households with individual furnaces in the city, the improvements in air pollution have not been recorded yet, but the project is likely to show results in the future.

Table 8. Replacement of existing heating devices in Niš households within the project.

Effects	Replaced with pellet devices	Replaced with gas devices	Connection to the city heating system	Total replacements
I Call 2021	43	20	1	64
II Call 2021	37	46	0	83
III Call 2022	18	16	1	35
Total	98	82	2	182

Source: City Administration for Construction Niš, 2023.

Link to the VNR and national level. Annual mean levels of fine particulate matter (for both PM2.5 and PM10) are being monitored in Serbian cities. A decreasing trend in the overall value of particulates is recorded in the period 2011-2019 (from 30.67586 to 21.73909 μg/m^3 in the total values, and from 31.53425 to 22.32589 μg/m^3 in urban settlements alone)[274]. These values indicate that Niš has significant progress to make in achieving acceptable levels of air quality. The VNR stresses that local authorities should intensively adjust, among others, the management of energy, achievement of energy efficiency, and decarbonization of local mobility with the targets of SDG 11, in order to achieve sustainability.

[273] Some of the measures related to improving air quality that were established in the Plan include: 1) Development and improvement of energy infrastructure by improving energy efficiency, while ensuring energy security and supply of renewable, "clean" and locally available energy, 2) Incentive measures to reduce air pollution, 3) Development of innovative and integral systems for qualitative-quantitative assessment of air quality, 4) Establishing a unique information system for managing environmental protection, etc.

[274] https://sdg.indikatori.rs/en-us/area/sustaniable-cities-and-communities/?subarea=SDGUN110601&indicator=110601IND01

Indicator 11.7.1. Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities

UMF Domain: Environment - Inclusive; UMF Indicator 3.2.1. (UMF-44)

From the beginning of the 1990's, and especially in the early post-socialist transition period until the 2000's, the process of continuous degradation of existing public spaces has been going on in Serbia. This period is also characterized by complete absence of developing and furnishing new public spaces, within new developments. In times marked by the overall poverty, local administrations focused only on the necessary activities of maintaining the traffic and technical infrastructure, which were necessary for the functioning of the city.

Nowadays, the situation has not much improved. Public open space still does not have an important position in regulations, nor in strategic and urban plans, and its development potential is not recognized nor used in Serbian cities. Previous laws on the topic of planning, design and construction only determined boundaries between the so-called "public land" and "other land", without the obligation to establish norms for positioning, structuring, shaping and constructing public open spaces. The current Law on Planning and Construction[275] recognizes "public use", "public interest" and "areas of public use", but not the terms "public space" nor "public open space". Additionally, the UN-Habitat definition of "open public spaces" or "public open space" has not been applied in Serbian legislation, which often results in a variety of interpretations of the concept of public open space. This is a challenge that needs to be overcome, so that the data could be compared among urban settlements within the Republic of Serbia, and at the international level[276]. In this report, the term public open space will be used[277].

In Serbian legislation, public space is associated only with "areas of public use", implying streets, parks, squares, etc, and limited to spaces that are in public ownership. Other types of land, which also serve as public open space, are not reviewed at all. This is the case with undeveloped land and green areas in residential zones that are often located on "other land" (non-public land). The ambiguity concerning the regime of undeveloped land and green areas in residential zones is particularly visible in inherited housing estates from the socialist past. In the Real Estate Cadastre of the Republic of Serbia, it is very common for a residential building to be located on a cadastral plot of the same size as that building, with no regard to the regime and use of the land in the immediate surroundings of the buildings[278]. Such treatment of undeveloped space causes many problems in exploitation, because it remains unclear who the land belongs to, who has the right to use it, and who is obliged to maintain the space.

The matter is further complicated in residential urban blocks, where it is defined by Law that the land surrounding the buildings is "land that is in public use" (enabling different forms of ownership), so that it could serve the buildings within that residential block[279]. The Law particularly highlights that the land should be in public use for urban blocks that were designed in an open system of

275 "Official Gazette of the Republic of Serbia", No. 72/2009, 81/2009, 64/2010, 24/2011, 121/2012, 42/2013, 50/2013, 98/2013, 132/2014, 145/2014, 83/2018, 31/2019, 37/2019 - other law, 9/2020, 52/2021 and 62/2023, Article 158.

276 Progress in Monitoring SDG Indicators in the Field of Sustainable Urban Development in the Republic of Serbia, 2023.

277 "Public open space" refers to undeveloped land or land with no buildings (or other built structures) that is accessible to the public, and that provides recreational areas for residents and helps to enhance the beauty and environmental quality of neighbourhoods. Source: UN-Habitat (2018). SDG Indicator 11.7.1 Training Module: Public Space. United Nations Human Settlement Programme (UN-Habitat), Nairobi.

278 Marković, D. (2022). Analysis: The possibility of introducing a policy of managing public spaces in the City of Niš.

279 Marković, D. (2022). Analysis: The possibility of introducing a policy of managing public spaces in the City of Niš.

spatial organization. In urban blocks developed in an enclosed and semi-enclosed system of spatial organization pre-dating and during the socialist period, which are to be found mostly in central city zone, the land may also be in public or mixed ownership. However, in practice, the spatial organization and the enclosed form of urban block suggest limited access to the general public, and implicate shared use of inner residential courtyards only by the residents of the buildings within that particular complex.

Existing legislative framework and modalities of land management do not provide sufficient basis for the implementation of public open space as quality spaces accessible to all, into the practice of urban planning and design in Serbia.

Overview. The surface area of public open space in the City of Niš cannot be determined in line with international standards due to different methodologies and lack of consistent data. Some research was performed at the national level, resulting in data that cannot be compared to other cities beyond Serbia[280]. Total surface of land allocated to streets alone or public open space alone is not available. However, according to the data from the Urban indicators database of UN Habitat[281], the average share of the built-up area of the City of Niš that is open space for public use for all for the year 2020 is presented in Figure 40. The low share of public open space of 3.7% (excluding streets) in the built-up area of Niš also implicates poor access to these spaces to a significant share of Niš population. The same source lists that only 57.2% of Niš population has access to public open spaces.

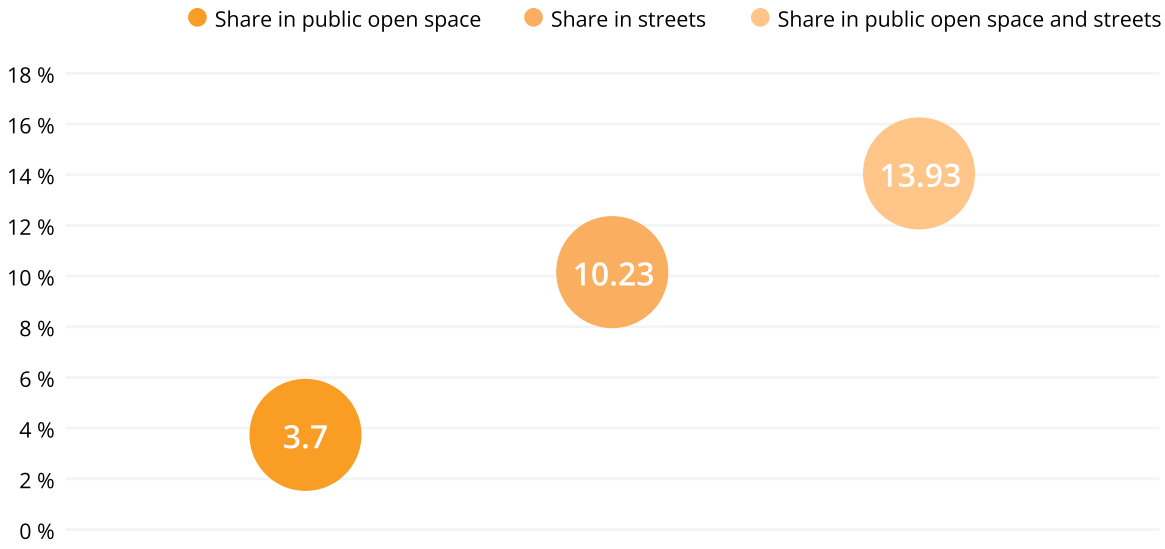

Figure 40. Average share of the built-up area of the City of Niš in 2020 that is open space for public use: public open space and streets.

Source: Urban indicators database of UN-Habitat, 2020.

The City of Niš arranges and maintains public open spaces that are areas of public use. Apart from the street network, these include the following public open spaces: parks, forest parks, squares, pedestrian streets and a quay along the River Nišava. The total park surface in Niš built-up area amounts to 49 ha, and the largest city parks are Čair park and the park in Tvrđava. There are also two forest parks in the built-up area of the city: Bubanj forest park (40 ha) in the urban area of Niš, and Koritnik forest park (40 ha) in the urban area of Niška Banja. Other forest parks are

[280] Based on a survey conducted in February 2023 performed by the Standing Conference of Towns and Municipalities, the share of POS in the construction area of Niš (plazas, squares, parks and other open spaces, including streets) is estimated at 25%. This value refers to POS in the construction area, which is developed or undeveloped urban land zoned for construction.

[281] https://data.unhabitat.org/datasets/GUO-UN-Habitat::11-7-1-provision-and-access-to-open-spaces-in-cities-2020/explore

located outside the built-up area. In the area of the General Urban Plan, which encompasses a much larger territory than the built-up area, the largest part of green zones consists of protective greenery and forests with forest land, while the share of parks and recreational areas that are available to citizens is small[282]. The share of green areas of only 1.2 m^2 of greenery per inhabitant[283] indicates not only that green areas are insufficiently represented on the territory of the City, but also corroborates low representation of public open spaces that accommodate these green areas. There are several city squares, and the largest being King Milan Square in the central city zone. The two most important pedestrian streets, Obrenovićeva street and Kazandžijsko sokače, are located in the central zone.

Although the existing areas of public use in Niš are accessible to all regardless of age, gender, ethnicity or socio-economic status, not all population groups may feel comfortable in using them. Recent research performed by the Centre for Girls investigated the safety of women in public places in Niš, within the project "SAFE: Empowering girls and women to feel safer in public places in Niš", supported by UN Women[284]. The results of an anonymous survey show that as many as 51.9% of the 241 girl respondents feel moderately safe in public places in Niš, while only 6.6% of them feel completely safe. When asked in which public places and public facilities they do not feel safe, the respondents singled out Tvrđava (52.7%), quay of Nišava River (47.7%) and the main bus station (44.8%) as the most unsafe places. Other public open places and streets were also identified, but to a smaller percentage, such as park Čair (19.5%) (Figure 41). Based on the selected locations, an interactive Google Maps map of unsafe locations in the city was created[285].

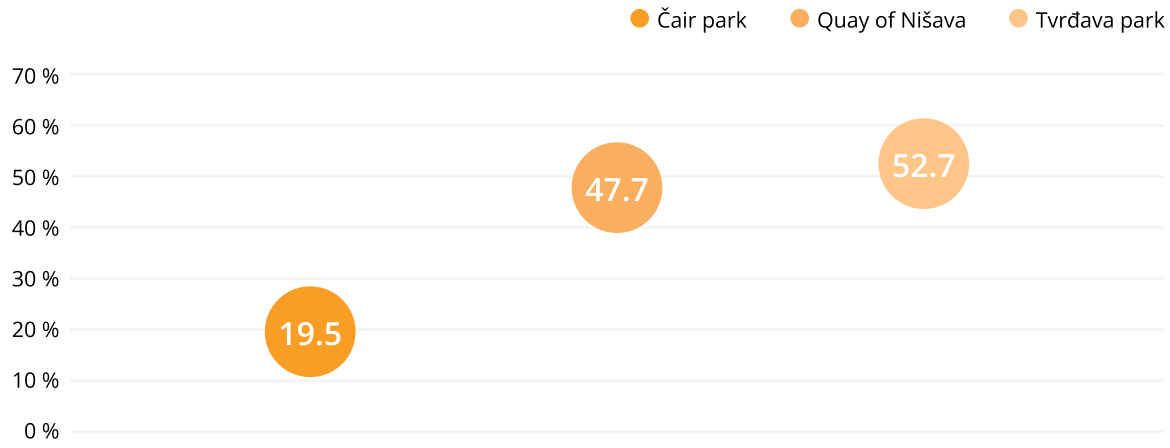

Figure 41. The three public open spaces that were identified as most unsafe in the City of Niš and the percentage of girls that felt unsafe in them.
Source: Centre for Girls, 2023.

Gaps and challenges. Intensive or uncontrolled urbanization in post-socialist development patterns in Niš led to urban decay, or even complete disappearance of public open spaces[286]. Some implications upon the urban landscape were obvious immediately after the first post-socialist developments were completed, such as the infrastructure and parking overload, commercialization/privatization of public open space[287], decrease in greenery and unattractive urban landscape, while others were grasped much later, like the negative effects of reducing public open space/green

282 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.
283 Air Quality Plan for the Agglomeration of Niš, 2020.
284 https://www.centarzadevojke.org.rs/index.php/en/news/702-project-safe-successfuly-implemented
285 https://www.google.com/maps/d/u/0/viewer?mid=1uVYJPxp7yRZ_rcHiIFQUDKjaAwSPKV8&ll=43.319175170830891%2C21.89682215&z=14
286 Vasilevska, Lj. et al. (2014). The effects of changes to the post-socialist urban planning framework on public open spaces in multi-story housing areas: A view from Nis, Serbia.
287 Dinic Brankovic, M. et al. (2018). Postsocialist restructuring of city subcenters and the role of shopping centers in Nis, Serbia.

areas on the environment and microclimate[288],[289] (air pollution, heat island effect, flooding risk, etc.), or the implications on peoples' health due to the lack of shared spaces for outdoor activities and contact with nature. The stakeholders also call attention to the irregular distribution of public spaces in the territory of the city, stemming from new residential developments in the post-socialist period created without any new parks or central amenities. Current issues in maintaining and providing public open space are particularly visible at the neighbourhood level, in residential areas.

Most of the challenges in providing quality public open space in the City of Niš are actually related to the treatment of public open space in legislation at the national level, and the failure to recognize the concept of "public open space". Particularly, undeveloped land and green areas in housing zones that are located on "other land" (non-public land) represent a major challenge for the City of Niš. Since they are not considered "areas of public use" by Law, they cannot be managed by other actors (city institutions, private companies), except for the inhabitants themselves. This is a crucial point for their quality, maintenance and usage. An unclear management regime of open spaces in the residential environment and the lack of precise instruction on both rights of use and duties involving this land and multiple stakeholders, all result in frequent disputes between the City and the residents. In the opinion of stakeholders, deficiencies in regulation, poor participatory approach in the planning process and lack of public debate, all result in unsustainable planning solutions. The joint action of these factors, coupled with personal interests that prevail over public interest and failure to comply with planning documents, cause degradation and loss of public open space in Niš.

The other important impediment for the sustainability of public open spaces concerns limited financial recourses. In the City of Niš, there are no stable sources of funding, nor sufficient human capacity for the efficient organization of public open spaces and financing their arrangement and maintenance. Local self-governments in Serbia, including the City of Niš, mostly deal with the arrangement of public parks, squares and streets only, which are publicly owned, according to the limitations of their budgets[290]. They do not have enough resources to invest in the arrangement of other spaces that do not represent areas of public use, but have the character of public open space. It is therefore necessary to identify all public spaces in the City of Niš - both those that are in public ownership (areas of public use), and all other public spaces that are used by the everyone, regardless of their sex, age or other limitations. Lack of financial resources often results in insufficient maintenance of public open spaces, particularly in poor lighting, which is often associated with discomfort and unsafety.

An additional problem is the low social and environmental awareness of citizens, who often do not accept responsibility for arranging, preserving and improving public open spaces in their living environment. This disregard for the extended living environment often results in neglected and devastated spaces in the immediate surroundings of residential buildings.

In line with all the above, it is clear that the issue of public open space must first be regulated at the national level by the fundamental law in urban planning, design and construction, as well as by accompanying regulations[291], especially regarding the open spaces in residential zones. The possibilities of the City for acting in the current circumstances involve potential cooperation with investors on the arrangement of public open spaces, by motivating them to improve also the environment of newly constructed structures (through tax benefits, benefits in obtaining a building permit, square footage bonuses, etc.), and developing local regulations that would support such mechanisms.

288 Dinić-Branković, M. et al. (2022). Impact of post-socialist vertical extensions of buildings on outdoor microclimate in collective housing areas: A study of Niš, Serbia.

289 Đekić, J. et al. (2018). The study of effects of greenery on temperature reduction in urban areas.

290 Marković, D. (2022). Analysis: The possibility of introducing a policy of managing public spaces in the City of Niš.

291 Marković, D. (2022). Analysis: The possibility of introducing a policy of managing public spaces in the City of Niš.

Regarding the existing public spaces that are publicly owned, and where the City of Niš has instruments for implementation already established, these spaces should be reshaped to become more inclusive and better suited to all user groups, as perceived by the stakeholders. Additionally, action is required in residential areas in order to restore the traditional character of the street as a public space.

Local efforts and initiatives. Problems in the functioning of public open spaces adjacent to multi-family housing in Niš were recognized more than a decade ago, and the City of Niš started some activities in addressing this issue. With the initiative of the Chief Urban Planner in 2021, the City has begun the process of recording public open spaces in its territory. So far, a comprehensive list of cadastral plots with open spaces in residential zones is completed for the city municipality Medijana. This list only involves "land in public use that serves the buildings within that residential block", and excludes the street network and "areas of public use" (parks, squares, etc.). There are 124 such plots covering 76.85 ha of land in the city municipality Medijana[292]. The identified plots are of various sizes, with different urban forms, different character, various right of use and different share of green areas. Regarding the ownership, the plots are owned by the City or State, or have mixed ownership, and are located within different land uses. A significant portion of this land indeed has the character of public open space (shared recreational spaces and green areas), but parts of it are also occupied by parking lots and areas that cannot be associated with the term public open space. Therefore, areas having the character of public open space yet need to be accurately defined, and data on public open spaces in other city municipalities remains to be collected in the future.

Other local efforts in reclaiming public open space in the urban fabric of the City of Niš involve the cooperation of the City and the Faculty of Civil Engineering and Architecture of Niš[293]. Three joint actions on the remodelling of public open space in residential areas were realized in the past several years[294]. The first two were initiated by Chief Urban Planners (2018 and 2020), and the third by the local residents' association Zeleni zid (2021). In 2018 and 2021, the public open spaces chosen for remodelling were both located within large housing estates from the socialist period, which were designed in an open system of spatial organization. These involved urban blocks in Pasterova Street (2018) and in Knjaževačka Street (2021) (Figure 42). In 2020, four locations were selected in the area of Niš central zone, involving residential courtyards in an enclosed or semi-closed system of spatial organization in Nade Tomić Street and Genrala Tranijea Street. Student projects resulted in inspiring proposals, which were presented to a wider audience in the exhibitions of works that were organized after project completion. Until today, these proposals have remained only on paper. Lack of financial resources and lack of effective planning instruments have delayed the actual implementation of revitalization projects.

292 Data obtained from the Office of the Chief Urban Planner of the City of Niš, 2022.

293 The cooperation between the City and the Faculty was first established in 2000's, included different topics and continued throughout the years.

294 The idea was carried out by engaging the students of the IX semester of integrated academic studies of the Architecture programme, within the elective course *Urban Design and Composition*. Under mentor supervision, the students performed the analysis of standing planning documents and existing state, identified user's needs by conducting a survey and interviewing key actors in the area (tenants, users, local administration), and finally proposed urban design for the explored sites.

Figure 42. Student's design for public open spaces in Pasterova Street.
Source: University of Niš - Faculty of Civil Engineering and Architecture, elective course *Urban design and composition*, student Marija Kondić.

The City of Niš has also endorsed the project entitled "Reclaiming Public Open Space in Residential Areas: Shifting Planning Paradigms and Design Perspectives for a Resilient Urban Future" (RePOS), with a Letter of support. RePOS project is financed by the Science Fund within the Prisma programme, and started its implementation in January 2024. The project carrier is the Faculty of Civil Engineering and Architecture of the University of Niš[295], and the partner institution is the Faculty of Architecture of the University of Belgrade. The project aims to re-introduce public open space into residential areas of Serbian cities, through a novel integrated approach in urban planning and design. Project results will inspire updating of legislation and planning regulations, help local governments with decision-making, assist planners in guiding (re)development processes and benefit local communities by enhancing the quality of housing. The new public open space concept generated by the Project will serve both as an "urban oasis" that brings prosperity and well-being to urban residents, and a "mitigation spot" that aids cities in coping with climate change challenges. RePOS is expected to result in scaling-up of the created model of public open space in residential areas across Serbian cities.

Link to the VNR and national level. The government of the Republic of Serbia is continually working on developing a system for prevention, adjustment and increasing local resilience to climate change. As stated in the VNR, the competences of local self-governments within this domain involve urban planning, utility services, transformation of local economy to carbon neutral and environment friendly production and new services. Public open spaces have a significant potential to contribute to all of these segments of urban life.

295 The RePOS project's Principal Investigator is Milena Dinić Branković, Associate Professor.

Indicator 11.b.2. Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies

UMF Domain: Governance and Implementation - Resilient; UMF Indicator 5.3.3. (UMF-74)

The Law on Disaster Risk Reduction and Emergency Management of the Republic of Serbia[296] prescribes three types of documents for each local self-government: Disaster Risk Assessment (Article 15), Disaster Risk Reduction Plan (Article 16), Protection and Rescue Plan (Article 17), as well as and one document for local self-governments where SEVESO facilities are located: External Major Accident Protection Plan (Article 18). According to the Law on Environmental Protection[297], the SEVESO complex implies a spatial entity under the control of the operator where hazardous substances are present in one or more plants. The SEVESO plant is a facility within the SEVESO complex where activities are carried out in which hazardous substances are present or may be present, in equal or greater quantities than prescribed, and where hazardous substances are produced, used, stored, or handled. The Law specifies that the local self-government, on whose territory the SEVESO complex is located, is obliged to draw up an External Major Accident Protection Plan, with measures to be taken outside the complex, in accordance with the regulations governing environmental protection.

Overview. The City of Niš envisages measures and activities to increase the capacity of local self-government for prevention and response in the event of natural disasters and other accidents. The Disaster Risk Assessment of the City of Niš was prepared in 2021 as a basic document for the creation of an optimal protection and rescue system. The Disaster Risk Assessment is prepared for the following hazards that were identified: earthquakes, landslides, floods, extreme weather events - hail, lack of drinking water, epidemics and pandemics, animal diseases, outdoor fires, and technical and technological accidents. This document also proposes measures for risk treatment, as defined for the Disaster Risk Reduction Plan.

Based on the analysis of the two scenarios and risk assessments, the levels of risk are established in the City of Niš. The results are shown in Table 9.

Table 9. Ranking of dangers in the territory of the City of Niš according to the level of risk.

No.	Hazard	Risk level	
		For the most likely adverse event	For an adverse event with the worst possible consequences
1.	Earthquakes	Moderate	High
2.	Landslides and erosion	Low	High
3.	Floods	Low	High
4.	Extreme weather events - hail	Low	Moderate
5.	Lack of drinking water	Moderate	High
6.	Epidemics and pandemics	Moderate	High
7.	Animal diseases	Moderate	High
8.	Outdoor fires and explosions	Low	High
9.	Technical and technological accidents	Low	High

Source: Disaster Risk Assessment of the City of Niš, 2021.

296 "Official Gazette of Republic of Serbia", No. 87/2018.

297 "Official Gazette of Republic of Serbia", No. 135/2004, 36/2009, 36/2009-other law, 72/2009-other law, 43/2011, 14/2016, 76/2018, 95/2018-other law and 95/2018-other law).

The City Administration for Property and Sustainable Development Niš also initiated the preparation of the Protection and Rescue Plan and the External Major Accident Protection Plan. The procedure for the development of these documents has started. The Protection and Rescue Plan is being drawn up based on the results of Disaster Risk Assessment. It is the basic planning document that enables protection and rescue entities to organize, prepare and participate in the execution of measures and tasks for the protection and rescue of the endangered population, cultural assets and environment. The External Major Accident Protection Plan is to be created for the three SEVESO complexes located in City of Niš territory[298]: 1) Storage of petroleum products and plant for liquid petroleum gas, operated by "NIS" a.d. Novi Sad, 2) Storage for liquid petroleum gas, operated by "S.A.B. Trade" d.o.o. Niš, and 3) "Krivi Vir" heating plant, operated by Public Utility Company City Heating Plant Niš.

Gaps and challenges. Limited guidance and development control over the expansion of built-up areas increases disaster risks[299]. Several neighbourhoods in the City of Niš are exposed to critical flood risks and landslides (see Figures 43 and 44 provided in this report within the Indicator 13.1.1). The majority of such settlements are located in suburban and rural areas, where urban expansion occurred in the past three decades within informal settlements and regardless of disaster risk. Niš has 23% of its built-up area under a potential fluvial flood risk[300], and eight landslide sites[301]. The objects in flood-prone zones and structures located on landslides are mostly developed without building permits in informal settlements. Regulating the status of informal settlements requires urgent action by local authorities. Risk of flooding is exacerbated in urban areas because a separate sewer system for stormwaters is underdeveloped.

The challenges highlighted by the stakeholders involve the lack of analysis in this area, and insufficient use of obtained data due to poor intersectoral cooperation in the planning process. Building land is not properly valorised during the planning process. Unplanned construction of residential objects near the SEVESO plant located in urban area presents a major disaster risk, as noted by the stakeholders.

Local efforts and initiatives. According to the records of issued approvals for the Disaster Risk Assessment, the Protection and Rescue Plan and the Accident Protection Plan, which are available from the Administration for Emergency Situations Niš, these documents are also approved for the particular business companies and other legal entities in the City of Niš. The number of issued Consents for business companies and other legal entities in Niš territory is as follows[302] (as of 20 January 2024):
1) Disaster Risk Assessment: 114 consents
2) Protection and Rescue Plan: 115 consents
3) Accident Protection Plan: 7 consents

It is a noteworthy achievement for the Republic of Serbia that a digital platform with the disaster risk register has been launched in 2022[303]. However, the platform needs to have more data input, as well as to incorporate disaster risk reduction strategies from the local self-governments. From the perspective of stakeholders, resilience to disasters is a crucial topic for future development of Niš.

298 https://www.ekologija.gov.rs/sites/default/files/2024-01/registar_seveso_postrojena_na_teritori-ji_republike_srbije_0.pdf
299 World Bank Group. (2023). Green, Livable, and Resilient Cities, Serbia: Strengthening Sustainable and Resilient Urban Development.
300 World Bank Group. (2023). Green, Livable, and Resilient Cities, Serbia: Strengthening Sustainable and Resilient Urban Development.
301 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.
302 http://prezentacije.mup.gov.rs/svs/HTML/EvidencijaOIzdatimSaglasnostima.html
303 https://drr.geosrbija.rs/drr/home

Link to the VNR and national level. Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies is being monitored at the national level[304]. The City of Niš contributes to the number of local self-governments in Serbia that have adopted a Disaster Risk Assessment, but still needs to develop other crucial documents in line with national legislation. In the VNR, emergency management and natural and other disasters risk reduction represent priority tasks of local communities, which need to focus on increasing local resilience to natural and human-made disasters in line with the national legal framework. The VNR highlights measures for local governments to adequately and timely respond to the challenges in the field of risk management and emergencies, such as: strengthening the capacities of employees, building a civil protection system at local level, identifying tasks in this field and providing staff resources, and inclusion of risk management in local strategic documents and plans.

304 https://sdg.indikatori.rs/en-us/area/sustaniable-cities-and-communities/?subarea=SDGUN110902&indicator=01050401IND01

13 CLIMATE ACTION

SDG 13: Climate Action

Take urgent action to combat climate change and its impacts

Indicator 13.1.1. Number of deaths, missing persons and directly affected persons attributed to disaster per 100,000 population

UMF Domain: Society - Resilient; UMF Indicator 1.3.4. (UMF-20)

So far, Serbian cities, including Niš, have been more exposed to natural than to technical-technological disasters. The floods of 2014 particularly stand out in terms of the scope of consequences. The City of Niš is aware of its vulnerability to natural and other disasters, and has therefore undertaken measures and activities to increase the local self-government's capacity for prevention and adequate response. The first step was the preparation of the Disaster Risk Assessment, as a basic document for the creation of an optimal system of protection and rescue, which was adopted in 2021.

Overview. In the territory of the City of Niš, there were no events that could be characterized as catastrophic and attributed to natural disasters in the past 10 years[305]. For this reason, there is no statistical data on the dead, injured and missing persons in the defined period. Notwithstanding, hazardous events that occurred within this timeframe in Niš territory and affected people directly, involve two natural hazards - landslides and floods. Also, two technological hazards occurred in Niš territory in 2019.

Landslides. In the City of Niš territory, larger sliding of the terrain was recorded on the stretch between rural settlements Mramor and Krušac, in a part of the urban area of the city municipality Palilula, in Niška Banja, as well as in the area of suburban/rural settlements Gabrovac, Prva Kutina, Matejevac and Prosek[306] (Figure 43).

305 Administration for Emergency Situations in Niš, 2023.

306 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.

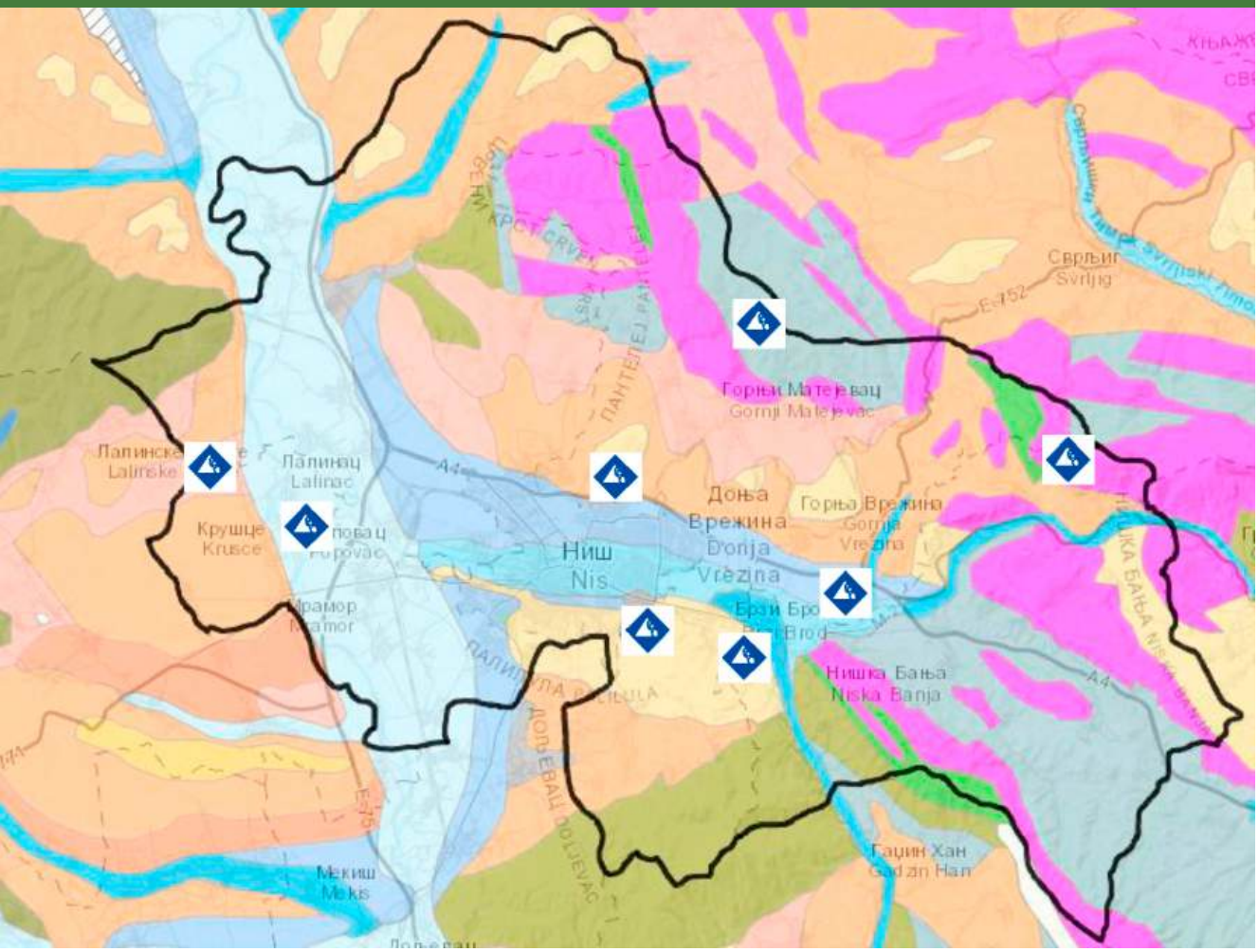

Figure 43. Sites of major landslides in the territory of the City of Niš.
Source: Disaster Risk Assessment of the City of Niš, 2021.

Sliding of the terrain in the Maramor-Krušce stretch was first registered in 1987. Since then, the landslide has been activated on several occasions, and the largest activities were recorded in 2005, 2008, 2010 and 2016. As a result of landslides, around 90 residential, business and auxiliary buildings have been damaged or destroyed so far[307]. Landslides have repeatedly caused damage and even disrupted the traffic on the main road connecting Niš to Merošina.

In 2009, the City established a commission to assist the residents of the Mramor and Krušce villages, whose buildings were declared unfit for habitation. The damage to the buildings alone was then estimated at RSD 115,000,000, and the damage to the critical infrastructure was added to that number. Entire families were displaced to other locations for safety reasons. In cooperation with the national government, the City of Niš provided some of the families with other dwellings through programmes for housing support, while for other families housing costs are still being financed by the City.

Landslides in Niška Banja are small and medium in size, but appear in several locations. So far, they have been activated on several occasions, mostly after heavy rainfall and snow melting. In 2005, one of the landslides in the central part of the settlement threatened the stability of the main street and surrounding buildings. By regulating surface and underground drainage, the terrain was stabilized and its original use was reestablished.

307 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.

A landslide in the settlement of Gabrovac appeared in 2014. In 2015, it was activated again, when it damaged five houses and the road infrastructure through Gabrovac. The landslide was repaired, and the damage amounted to RSD 10,915,261.20.

In 2014, after heavy rains in the rural settlement Gornji Matejevac, the sliding of terrain occurred. Landslide caused the breaking of water network pipes, as well as damage of housing structures and auxiliary buildings. The landslide interrupted waters supply to 300 houses, a clinic and a kindergarten, which were without water for several days.

Landslide in the urban area of the city municipality Palilula was activated in 2014. Due to the large slope of the terrain, the long-term wetting of the soil by unregulated stormwater, and the pressure on soil in the upper zone of the landslide, three residential buildings were endangered. Sliding continued in 2015, but the landslide was repaired in 2016.

The landslide in the settlement Prva Kutina appeared in 2020. After extensive rainfall, there was a sliding of the terrain and of the settlement's main road. The landslide led to the collapse of the right lane of the road, and disabled the traffic of freight vehicles. Landslide rehabilitation is still ongoing.

Floods. Catastrophic flooding events in the territory of the City of Niš were recorded in 1897, 1926 and 1948, with the latter being the biggest one. Even thought Niš was also affected by major flooding that occurred in Serbia in 2014, the proportions of that event in the city were not as grand as in the rest of country.

Most of the watercourses in the territory of the City of Niš are regulated, in order to protect the coast from the harmful effects of high-water levels. In order to prevent floods and the harmful effects of flood waters, protective water structures are built and maintained, and protective works are carried out in the City territory. The localities that are endangered by flood waters are established in the General Urban plan of Niš 2010-2025 (Figure 44). All potential flood sites are located along small urban streams, which significantly contribute to flooding due to their abundance and torrential character.

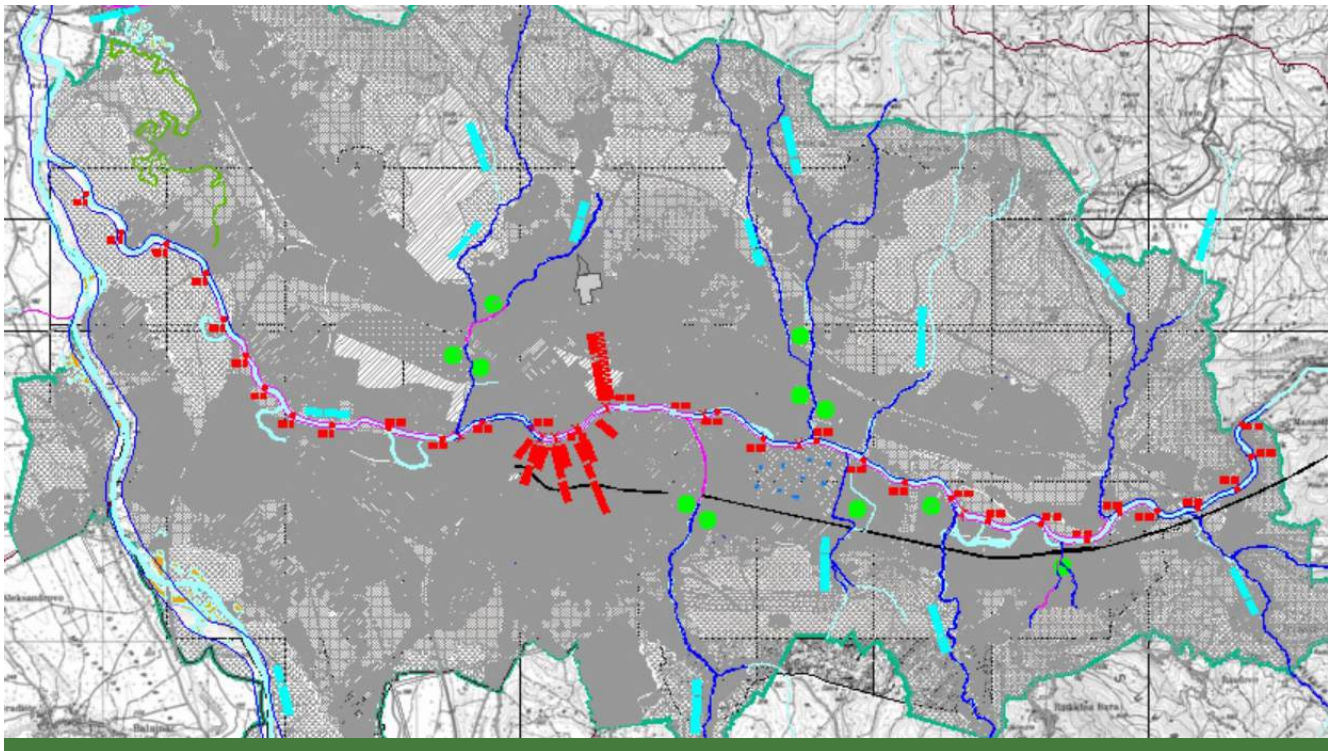

Figure 44. Watercourses in the area of the General Urban Plan, with localities endangered by flood waters.

Source: Genral Urban Plan of Niš 2010-2025, 2010. Graphic: Infrastructure - Plan of regulation of watercourses.

Technical-technological hazards. In 2019, two technical-technological hazards occurred, both on the Niš-Zaječar railway[308]. In the first accident, two tank wagons slipped and overturned on a railway section near the village of Jasenovik. The tanks were filled with 40 tons of ammonia each. The site of the accident was located 350 m from the nearest residential houses and 1,000 m from the regional road Niš-Svrljig. Coordination and management of activities in this situation was carried out by the City Headquarters for Emergency Situations of the City of Niš. A complete evacuation of the village of Jasenovik (339 inhabitants and 73 livestock) was carried out due to a possible hazard situation during the removal of the tank wagons with ammonia (Figure 45). The care of the evacuated population was carried out in collective centers in Niš territory. The animals were transported by trucks from the endangered area to a safe location.

The second accident happed soon after, on a railway section between the villages of Jasenovik and Vrelo. Five phosphorus tank wagons derailed, but they did not overturn. The cisterns were not damaged and there were no leaks. Therefore, the population and the environment were not threatened by this hazardous event.

The system for observation, early warning, notification and alarm exists in the City of Niš, but it is outdated[309]. As stated by the stakeholders, the operational centre within the Administration for Emergency Situations notifies all city institutions via e-mail, primarily the City Headquarters for Emergency Situations of the City of Niš, which then forwards the warning to all subjects[310]. There is also a public alert system that is owned by the City of Niš and managed by the Ministry of Interior.

Gaps and challenges. Given that the Maramor-Krušce landslide is still active, it is necessary to take urgent measures to rehabilitate it. It is necessary to prohibit any construction in the endangered area, stabilize the terrain and regulate the draining of sewage[311]. One of the suggested land uses for this area involves creating a large park with forest plantations. This would however require prior resettling of the population and the removal of all built structures, which appears to be unrealistic since it requires large financial investments.

Regarding flood protection, despite local efforts, there are still sections of unregulated watercourses in Niš territory, both on the waters of the first order and waters of the second order[312]. Additional works are necessary to maintain the stability of riverbanks and riverbeds, as well as improving the cleaning of riverbeds from deposits and pruning vegetation. Also, small urban streams in the City of Niš are a particularly underused resource for channelling excessive waterflow[313] and contributing to the overall resilience of the city[314]. They are often neglected because of illegal waste disposal and poor maintenance, polluted and with an endangered ecological capacity. Illegal developments along these watercourses also pose significant constraints when landscaping and designing small urban streams. Finally, a major issue is the low ecological awareness of the citizens of Niš, who dispose of municipal waste and debris next to rivers and streams, thereby amplifying the risk of flooding when high water levels occur. The City of Niš has operational plans for flood defence on small streams as watercourses of the second order, but the adopted solutions are not fully implemented due to a lack of financial resources[315].

308 Administration for Emergency Situations in Niš, 2023.
309 Development Plan of the City of Niš 2021-2027.
310 Administration for Emergency Situations in Niš, 2023.
311 City of Niš and Tehpro d.o.o. (2021). Disaster Risk Assessment of the City of Niš.
312 According to the Water Law of the Republic of Serbia (2018), in line with their importance for water management, surface waters in Serbian territory are divided into waters of the first and second order.
313 Dinić Branković et al. (2020). Exploring the potentials of small urban streams in creating blue-green infrastructure in the City of Niš, Serbia.
314 Dinić Branković, M. and Marković, M. (2021). Revitalizing small urban streams as an instrument of urban planning in creating resilient cities.
315 Development Plan of the City of Niš 2021-2027.

The challenge highlighted by the stakeholders also involves fires in open space. These are attributed to low awareness of the citizens, and are a significant potential hazard, particularly in slum settlements.

Local efforts and initiatives. At the national level, a text message warning system is being developed that will send alerts via text messages to citizens regarding hazardous situations, which was announced at the Stakeholders' Forum. The City of Niš is also expected to set up an early warning system in cooperation with the institutions at the national level, which would be fully operational and provide full security to citizens in hazardous situations[316].

Link to the VNR and national level. The number of people directly affected by disasters is recorded at the national level, and ranges from 3 per 100,000 population in 2021, to 2,832 per 100,000 population in 2014[317]. The value of missing persons and deaths due to disasters per 100,000 population is zero, and the number for the City of Niš fit into this statistic. The VNR highlights the importance of fighting climate change at the local level, along with providing support to towns and municipalities in Serbia to find ways of adjustment to, and mitigation of, negative effects of climate change in their regions.

Figure 45. Evacuation and taking care of population of Jasenovik village in 2019.
Source: Administration for Emergency Situations in Niš, 2023.

316 Development Plan of the City of Niš 2021-2027.
317 https://sdg.indikatori.rs/en-us/area/climate-action/?subarea=SDGUN130101&indicator=01050101IND01

SDG 15: Life on Land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Indicator 15.1.1. Forest area as a proportion of total land area

In statistical calculations in Serbia, the term "forest" refers to a land area of over 5 acres, overgrown with forest trees with a minimum land cover of 30%, regardless of its economic significance, protection function or potential use for special purposes[318]. Given the fact that the administrative area of the City of Niš involves areas with significant differences in altitude, very different plant communities are to be found in the area. However, forests are the most dominant type of green areas. Forest areas are a valuable protective, aesthetic and sanitary belt for the urban area of Niš, and a significant resource for exploitation in the economy. They also have a very important role in improving the quality of the environment and preserving biodiversity. Beech forests and mixed deciduous forests are most common in the territory of the City of Niš, and they are mostly located on city outskirts. In the proximity of populated areas and at lower altitudes, there are mostly oak and hornbeam forests. The management of forests and forest land in the territory of the City of Niš is carried out by the Public Company Srbijašume, for both state and privately-owned forests.

Overview. In the territory of the City of Niš, forests mostly spread out in the north and southeast in the hilly-mountainous zone, on the mountain slopes of surrounding mountains (Figure 46). The best-preserved and stable forests are located mainly at the periphery of urban areas, which is the result of an intensive urbanization process. In the north of the local self-government area, the main forest complexes are located in the area of the settlements of Paligrace, Kravlje, Cerje, Leskovik, Rujnik and Kamenica, while in the southeastern part they are located within the cadastral municipalities of Berbatovo, Vukmanovo, Gabrovac, Donje Vlase and Lazarevo Selo.

318 SORS. (2023). Municipalities and Regions in the Republic of Serbia, 2023.

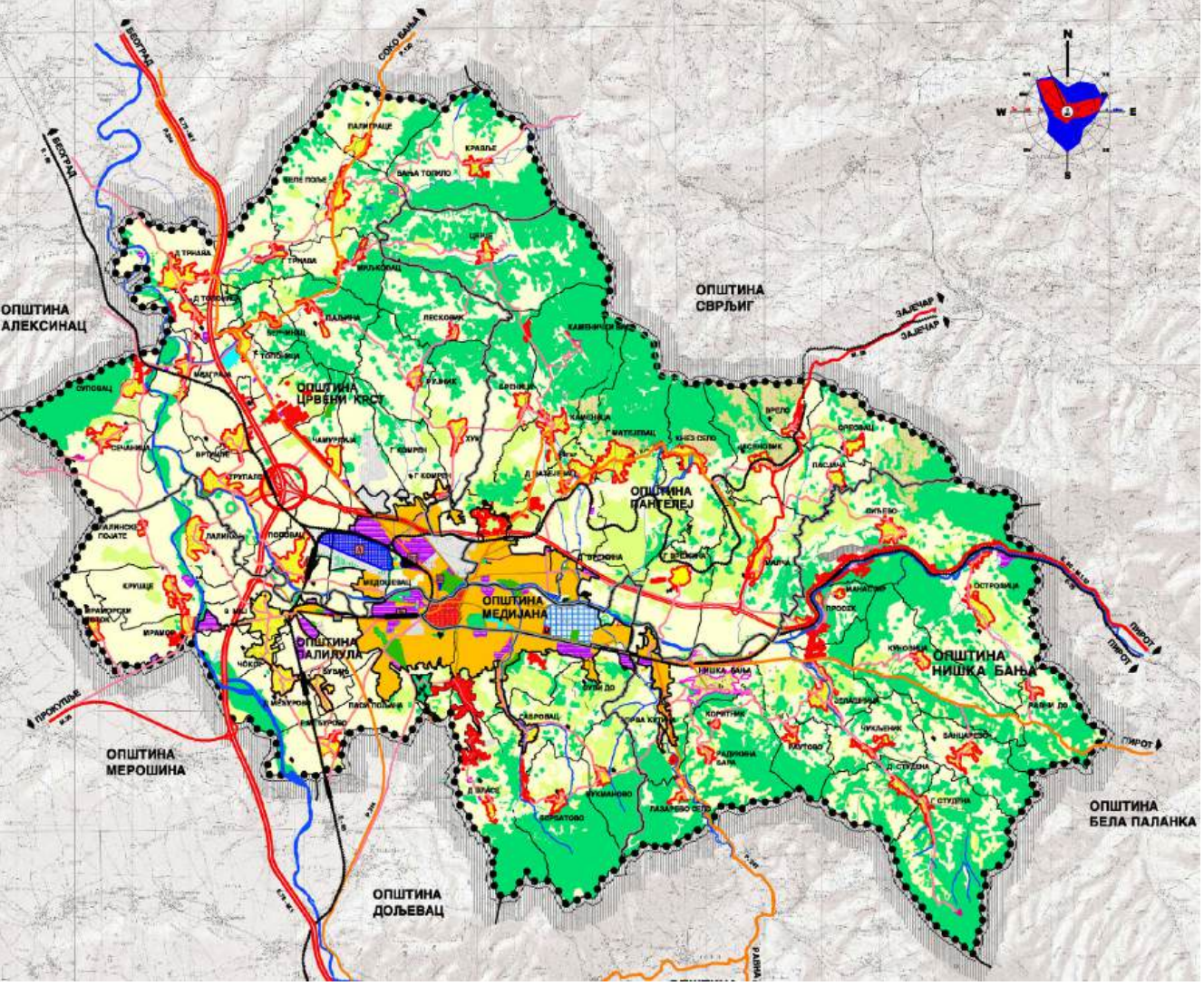

Figure 46. Current land use in the administrative area of the City of Niš, with forest areas in dark green.

Source: Spatial Plan of the City of Niš Administrative Area 2021 - Concept. Map: Use of space.

Overgrown forest area in the territory of the City of Niš amounts to a total of 23,099.67 ha[319] in year 2023. Given that the Niš administrative area covers 596.78 km^2, the overgrown forest area covers 38.71% of the City of Niš territory. The proportion of city territory under forest area is measured in three-year intervals and has been increasing in the past decade (Figure 47). Out of the total overgrown area, 4,314.57 ha of forests are owned by the state (18.68%), while the majority of 18,785.1 hectares are private property (81.32%).

Regarding city municipalities, the forest coverage differs a lot between the municipalities and within the last several years. As illustrated in Figure 48, the largest forest area nowadays is present in city municipalities Niška Banja (8394.15 ha) and Pantelej (6760.94), while Crveni Krst and Palilula have smaller forest area, (5315.08 ha and 2629.5 ha respectively)[320]. There are no forest areas in city municipality Medijana. When reviewing recent changes in overgrown areas, Municipality Medijana as the most urbanized area of Niš presents a radical decrease in forest area to 0%, Municipalities Niška Banja and Palilula show none or small change, while Municipalities Pantelej and Crveni Krst present significant increases in the proportion of their forest areas[321] (Figure 49). The disappearance of forests in city municipality Medijana occurred within privately owned forest land[322].

319 SORS. (2023). Municipalities and Regions in the Republic of Serbia, 2023.
320 http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx
321 http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx
322 http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx

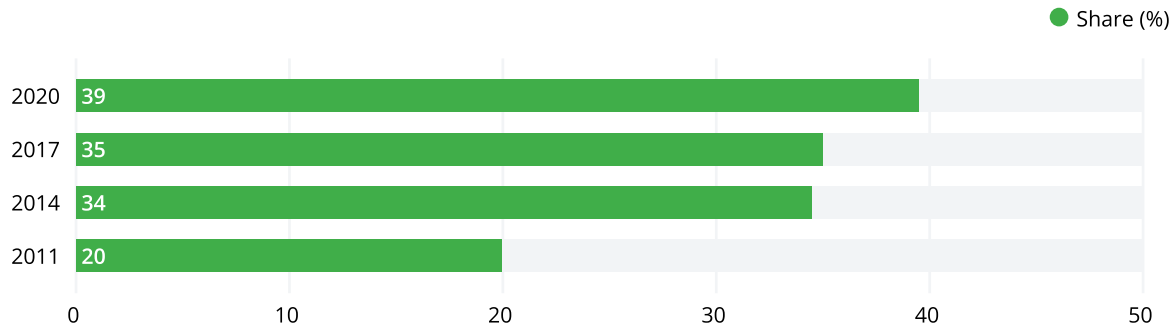

Figure 47. Forest area as a proportion of total land area in the past decade.
Source: http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx

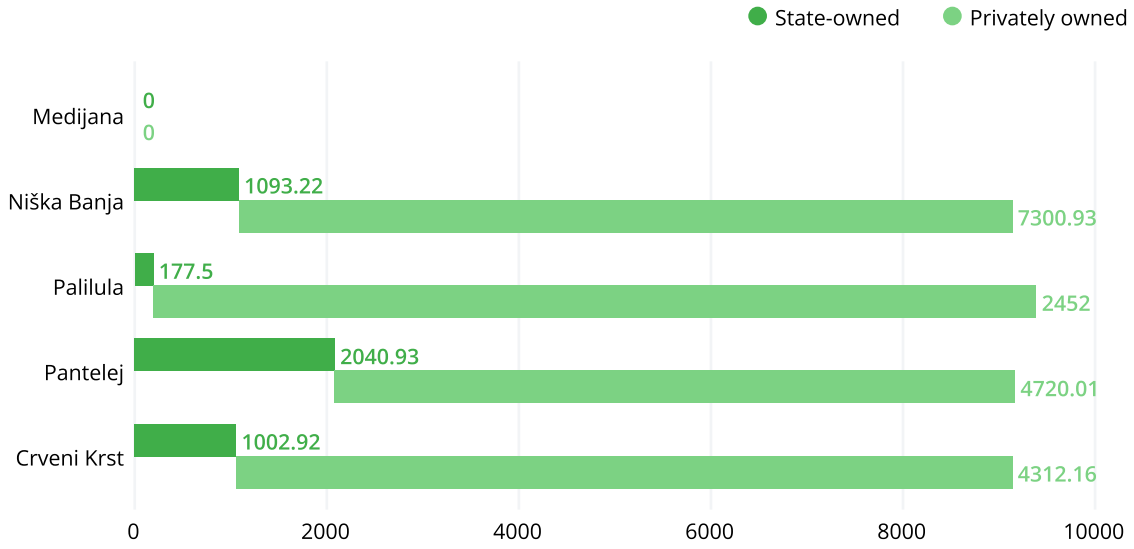

Figure 48. Total forest area by Niš city municipalities and ownership status.
Source: http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx

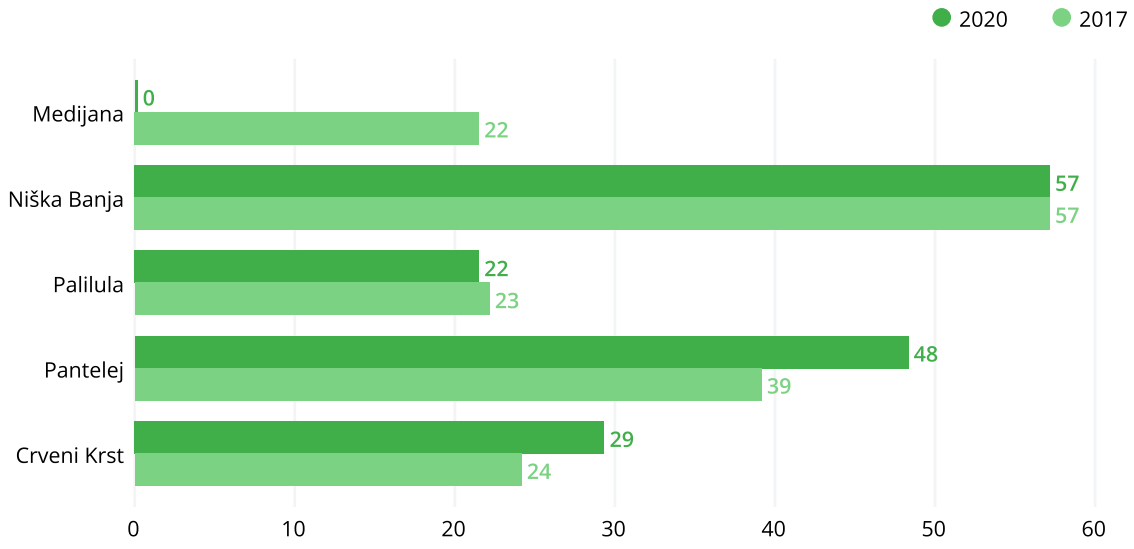

Figure 49. Recent changes in the shares of forest area in city municipalities of Niš as a proportion of their total land area.
Source: http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx

Within the urban area alone, forest areas are present to a significantly smaller extent, so their share in the scope of the General Urban Plan is 8.38%[323].

Gaps and challenges. The uneven representation of forest complexes on the territory of the City of Niš, as well as the low level of forests in the urban area, represent a significant problem from the aspect of improving air quality and enhancing the quality of the environment in general. The vulnerability of forest land is mostly reflected in uncontrolled logging, uncontrolled construction and insufficient systemic reforestation[324]. The planning documents of the City of Niš stipulate that new forests should be planted on devastated and neglected agricultural lands of lower quality categories.

Regarding forest management, the main challenges listed by the stakeholders involve insufficient data exchange between institutions, staff deficit and the funding issues.

Local efforts and initiatives. In 2022, the company Srbijašume carried out rehabilitation of forests that suffered major damage from natural disasters (snow and ice) during the winter period of 2021. The rehabilitation was carried out on a stretch of about 3 km on Suva Mountain, including both private and state forests.

During 2022 and 2023, afforestation actions were organized in several locations in the city as part of the project "Increasing benefits for the environment through urban afforestation in Niš"[325]. The City of Niš has accepted co-financing and is participating in the implementation of this project, which was adopted in 2022 based on the Public Competition of the Ministry of Environmental Protection of the Republic of Serbia, for the allocation of funds for co-financing of afforestation projects. The project aspires to contribute to solving the long-standing problem of excessive ambient air pollution in the City of Niš.

From the stakeholders' standpoint, the main strengths in managing forest areas in Niš territory are the existence of precise spatial data and regular updating of the database.

Link to the VNR and national level. The share of forest area within total land area at the national level is monitored and presents a constat value in the decade 2010-2020 (31.1%) in the Republic of Serbia[326]. The VNR identifies forests as one of the sectors most affected by climate change, and stresses that management of all types of forests is a crucial activity, particularly regarding the preservation of mountain ecosystems.

323 General Urban Plan of Niš 2010-2025.
324 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.
325 https://www.eupropisi.com/dokumenti/NIS_2022_93.pdf
326 https://sdg.indikatori.rs/en-us/area/life-on-land/?subarea=SDGUN150101&indicator=15010101IND01

Indicator 15.1.2. Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type

Niš area is characterized by a variety of natural potentials, such as agricultural land, forests, water bodies and natural rarities and assets. All water bodies of the area (underground and surface) represent an exceptional potential, but there is a lack of accumulations[327]. Surface waters are heavily polluted, but the waters of mountain springs are of exceptional quality[328]. Natural assets are concentrated on the brim of Niš basin, around Niška Banja and in the area of Sićevo gorge. These assets are located in the proximity of the urban area, in a radius of 10 to 25 km. The proximity of international transit routes represents an excellent potential for the development of tourism.

Overview. There are 15 protected natural assets in total in the City of Niš territory[329] (Figure 50). Sićevo gorge is the only nature park[330] located in Niš territory, with a total area of 7,746 ha. A protection regime of levels II and III is established for Sićevo gorge. With a flora of 1138 species, this area is a significant habitat for Balkan endemic plants, such as the Serbian and Natalija's ramondas (*Ramonda serbica* and *Ramonda nathaliae*), as well as the strictly protected bird species the Golden eagle (*Aquila chrysaetos*)[331].

In the City of Niš territory there are also two special nature reserves[332], Jelašnica gorge and Suva Mountain. A level II protection regime was established in the entire area of the Jelašnica gorge nature reserve, covering 115.72 ha. In Jelašnica gorge there are habitats of numerous relict and endemic species, especially plants, Serbian and Natalija's ramondas (*Ramonda serbica* and *Ramonda nathaliae*), which are also a symbol of the gorge[333]. Suva mountain is an area of biodiversity with a large number of species of flora and fauna, which is in the protection regime of levels I, II and III.

Finally, 12 nature monuments[334] are located in Niš territory. The three nature monuments include Cerjanska cave, Lalinačka slatina and Kamenički vis forest park. Other nature monuments involve nine protected trees: Ajkin brest in Matejevac, Novoselski brest zapis, Dud zapis in Medoševac, Rajkovićev hrast, Hrast zapis by Banjičko lake, Cer zapis in Leskovik, Beli dud in Niška Banja, Hrast lužnjak in Donja Trnava, and Zapis in Leskovik.

The total area of protected natural assets in the territory of the City of Niš is 6,426,1927 ha, which is 10.77% of City territory[335].

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327 Development Plan of the City of Niš 2021-2027.

328 Development Plan of the City of Niš 2021-2027.

329 Institute for Nature Protection of Serbia, 2023.

330 A nature park is an area of well-preserved natural values, with predominantly preserved natural ecosystems and picturesque landscapes, intended to preserve the overall geological, biological and landscape diversity, as well as to satisfy scientific, educational, spiritual, aesthetic, cultural, touristic, health-recreational needs and other activities, which are aligned with the traditional way of life and the principles of sustainable development.

331 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.

332 A special nature reserve is an area with unaltered or slightly altered nature, of particular importance due to its uniqueness, rarity or representativeness, and which includes the habitat of endangered wild species of plants, animals and fungi, without settlements or with rare settlements where humans live in harmony with nature, intended for the preservation of existing natural features, gene pool, ecological balance, monitoring of natural phenomena and processes, scientific research and education, controlled visits and preservation of traditional way of life.

333 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.

334 A nature monument is a smaller unaltered or partially altered natural spatial entity, object or phenomenon, physically clearly expressed, recognizable and/or unique, representative of geomorphological, geological, hydrographic, botanical and/or other features, as well as human-made botanical value of scientific, aesthetic, cultural or educational significance.

335 Institute for Nature Protection of Serbia, 2023.

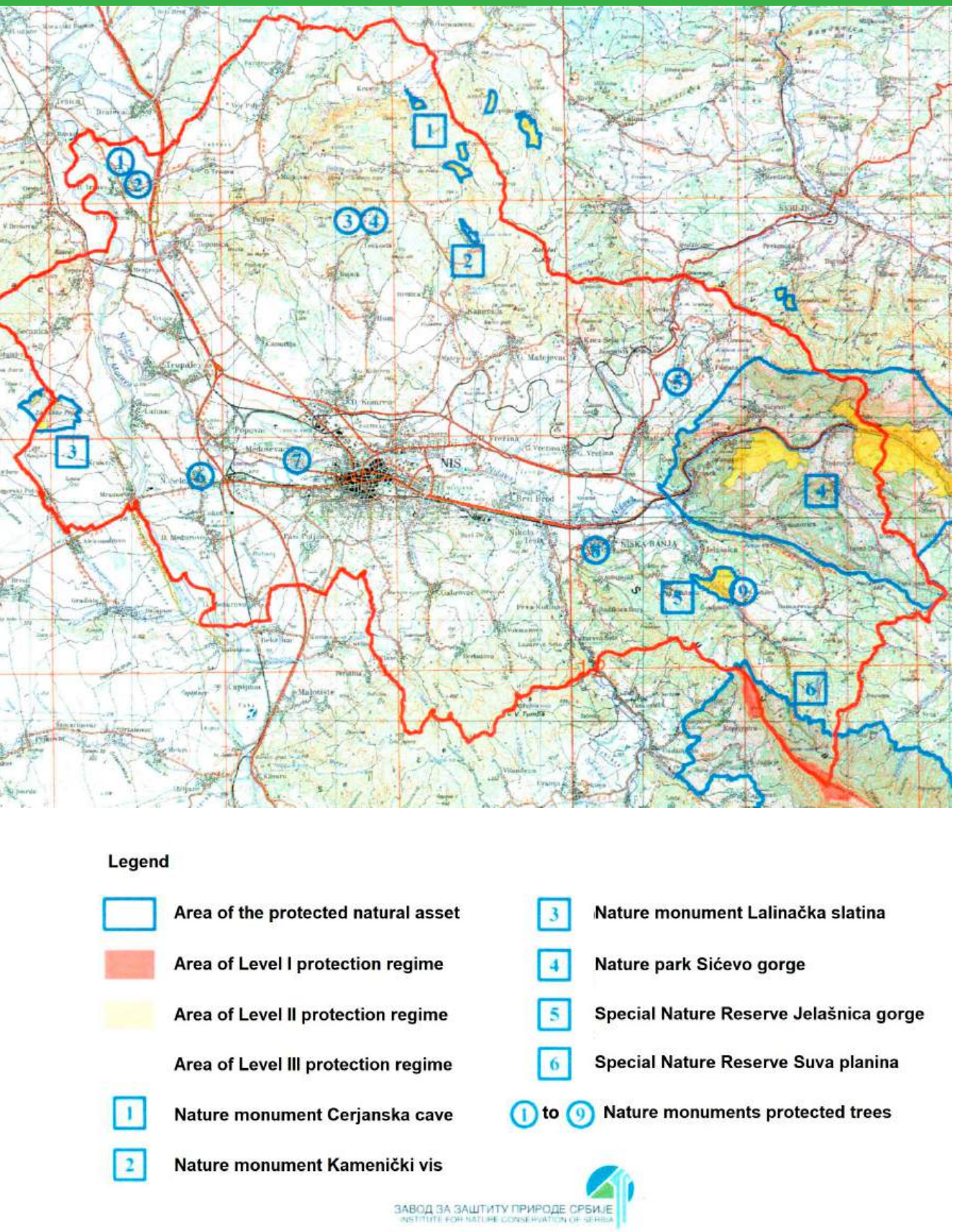


Figure 50. The location of protected natural assets on the territory of the City of Niš.
Source: Institute for Nature Protection of Serbia, 2023.

Gaps and challenges. The extensive potential of natural assets in the territory of the City of Niš is underused, primarily from the aspect of improving tourism and generating economic development. The main impediments to better use of protected areas with natural assets are[336]: 1) spatial – a major part of the territory under protection and in the process of protection is inaccessible; 2) regulatory – the concept of using natural resources and space in protected natural areas is restrictive, without development measures; and 3) socioeconomic - participation of the local community in managing the development of protected natural areas is insufficient, while the compensation system for the local community is inadequate, since development options are limited due to public interest. In the opinion of stakeholders, poor interest of citizens also results from the low awareness on this target and the SDG in general.

Despite its great potential in natural watercourses, the City of Niš has not established important sites for freshwater biodiversity, which would be designated as protected areas. The stakeholders attest to the dedication of the local authorities to managing protected areas and safeguarding biodiversity, but highlight that additional efforts are needed for the protection of forest ecosystems, forest and other land, water, individual trees, and micro-locations.

Local efforts and initiatives. In line with the Regulation on the National Ecological Network[337], several natural areas within Niš territory have been included into international lists concerning nature protection[338]. Nature park Sićevo gorge, special nature reserves Suva mountain and Jelašnica gorge, as well as nature monuments Lalinačka slatina and Kamenički vis, are included in the List of Important Bird and Biodiversity Areas (IBA), the List of Important Plant Areas (IPA) and the List of Prime Butterfly Areas (PBA). Sićevo gorge nature park and Suva Mountain special nature reserve are included in the EMERALD network, as part of the European ecological network for the preservation of flora and fauna and their habitats.

Link to the VNR and national level. The proportion of the Terrestrial Key Biodiversity Areas covered by protected areas at the national level is 31.6% (2021-2023)[339], while the percentage of the territory of Serbia under protected natural assets is 7.66%[340]. The latter is comparable with the value obtained for the City of Niš, and is somewhat lower at the country level than in the case of Niš. The VNR singles out the preservation of biodiversity as the most important point related to environmental protection in Serbia, which is an obligation for both present and future generations.

336 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.
337 "Official Gazette of the Republic of Serbia", No. 102/2010.
338 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.
339 https://sdg.indikatori.rs/en-us//area/life-on-land/?subarea=SDGUN150102&indicator=150102IND01
340 Spatial Plan of the Republic of Serbia 2021-2035 (Draft).

Indicator 15.3.1. Proportion of land that is degraded over total land area

In the Republic of Serbia, systematic monitoring of soil quality is being carried out in order to protect the land, in line with the goals defined in national programmes and strategies. Monitoring is legally established from 2010 onwards, by the Regulation on the Programme of Systematic Monitoring of Land Quality, Indicators for Assessing the Risk of Soil Degradation and the Methodology for Remediation Programmes[341], which was replaced by a new regulation in 2020. The Law on Land Protection (2015)[342] regulates the protection of land, systematic monitoring of the condition and quality of soil, measures for remediation and re-cultivation, inspection oversight and other related issues of importance for the protection and preservation of the soil as a natural resource of national interest, regardless of the form of land ownership, its purpose and use. Consequently, the state of soil quality is also systematically monitored within the City of Niš territory. Non-agricultural land contamination is tested on an annual level (in spring and autumn), at predefined sites on the territory of all five City Municipalities[343].

Overview. In Niš area, the land endangered by degradation to a certain extent involves various types of land use: agricultural, water, forest and construction land. The most significant factors contributing to degradation are both natural and anthropogenic factors[344].

Natural factors are manifested through erosion and drought. In addition to the hilly parts of Niš, the plain areas are also affected by erosion, and landslides frequently occur, as mentioned above. The erosive processes of agricultural land are prominent in confluence areas of tributaries of Nišava River.

Anthropogenic factors include the combined effect of several agents. Traffic causes an increased level of lead in the soil next to traffic roads, as well as slightly increased salinity due to the sprinkling of roadways with industrial salt and paddy during winter season. Excessive use of mineral fertilizers and pesticides in agriculture leads to increase in the nitrite content in the soil. The communal landfill and a large number of unregulated illegal rural landfills (garbage dump sites) degrade the soil by leaching landfill filtrate. Illegal construction of buildings and occupation of land reduces biological and aesthetic values of space and leads to permanent loss of fertile land. Numerous industrial facilities are also land polluters, and the Electronic Industry and Mechanical Industry complexes have been identified as priority locations for remediation of contaminated land[345].

The City of Niš prepared the Elaborate on the state of land for the period 2009 - 2015[346], which provides a detailed insight into soil condition in the City of Niš territory, including agricultural land. The results of a soil pollution test indicate that there are locations with degraded land in Niš, primarily in the surface layer of the soil. In most of the examined samples, either deviations from the border values were registered, or some of the polluting substances were present in the surface layer of the soil.

Previous research on land quality[347] has identified degraded localities in the territory of the City of Niš (Figure 51). According to the data for the 2019 reporting period, the area of degraded land covers 2645.54 ha in total, while the proportion of land that is degraded over total land area is 4.4%.

341 "Official Gazette of the Republic of Serbia", No. 88/2010.
342 "Official Gazette of the Republic of Serbia", No. 112/2015.
343 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.
344 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.
345 Serbian Environmental Protection Agency. (2018). Toward soil decontamination in the Republic of Serbia, 2018.
346 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.
347 https://www.unccd.int/resources/prais4-reporting-platform

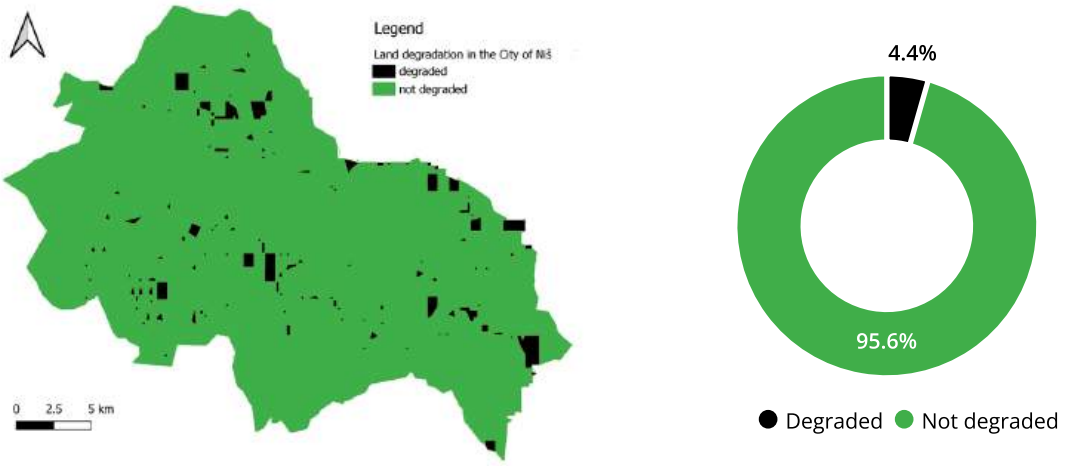


Figure 51. Proportion of land that is degraded over total land area for the City of Niš.
Source: https://www.unccd.int/resources/prais4-reporting-platform

Gaps and challenges. Stone quarry "Ostrovica" with its accompanying facilities is located in the nature park Sićevo gorge, covering an area of about 5 ha. It is the most significant form of degradation in the Sićevo gorge, which represents a major challenge for land recultivation. Planning documents propose the closure of Ostrovica quarry and remediation of the degraded canyon sides of Sićevo gorge in the quarry zone, in cooperation with the Institute for Nature Protection of Serbia[348]. However, the quarry complex is still operational.

From the standpoint of stakeholders, challenges are also related to the poor cross-departmental cooperation and limited funds for environmental protection.

Local efforts and initiatives. The rehabilitation and remediation of the "Nitex" factory site in Niš was implemented in 2014, thereby stopping the pollution and further degradation of the environment, and preventing a serious threat to human health[349]. From the aspect of environmental protection, the existing location is safe for further use.

Link to the VNR and national level. At the national level, the share of degraded land over total land area was determined at 4.18% in the year 2019[350], which is close to the City of Niš value. Land is identified in the VNR as a valuable national resource. The VNR also stresses that sustainability cannot be achieved in areas where the soil is barren.

Indicator 15.5.1. Red List Index

In Serbia, there is a scientific database of species that are at risk of extinction, which is published in the form of Red Books[351]. Six red books have been published in Serbia so far – the first one about flora, and the remaining on fauna: diurnal butterflies, amphibians, reptiles, birds and orthopterans[352].

There are four species inhabiting Serbia that are featured in the International Union for

348 Spatial Plan of the City of Niš Administrative Area 2021.
349 https://www.futura.edu.rs/assets/images/novosti/2014/13122014/8.%20Ekoremedijacije%20Nitex%20T.%20Obradovic.pdf
350 https://sdg.indikatori.rs/en-us//area/life-on-land/?subarea=SDGUN150301&indicator=150301IND01
351 The main aim of Red Books is to use expert arguments and collected scientific methods to highlight the need to preserve endangered species, point out the shortcomings in the existing protection system, and propose potential solutions for improving the existing situation or at least slowing down negative processes.
352 https://zzps.rs/

Conservation of Nature's Red List of Threatened Species[353]: Serbian Ant-cricket (*Myrmecophilus nonveilleri*), Serbian Stick Grasshopper (*Pyrgomorphula serbica*), Serbian Spruce (*Picea omorika*) and Serbian ramonda (*Ramonda serbica*).

Overview. The species that are found within the area of Niš are Serbian Ant-cricket and Serbian ramonda. Serbian Ant-cricket and Serbian ramonda were assessed for *The IUCN Red List of Threatened Species* in 2015 and 2011, respectively. Both of these species are listed as "least concern". The Red List Index for the City of Niš territory is 0.535[354].

Gaps and challenges. Climate change threatens the territory of the City of Niš, thereby increasing the risk of extinction of endangered species. Additional challenges for the survival of endangered species are environmental pollution and illegal construction in the outskirts of suburban and rural settlements.

Local efforts and initiatives. In the Republic of Serbia, the preparation of several new Red Books and the adoption of the Red List of flora, fauna and fungi are underway[355]. The Red Books will explore: algae, fungi and lichens, as well as various species of flora and fauna (mosses and vascular plants; invertebrates - insects, crustaceans, shells, snails; vertebrates – mammals). At the local level, the preservation of endangered species is suggested in the Environmental Protection Programme[356]. This document proposes protection of the population of endangered, rare and other significant species of wild flora and fauna, by establishing small protected areas in the form of habitats or nature monuments, in locations identified in the "Red Book of the Flora of Serbia" and other research documents.

Link to the VNR and national level. The value of Red List Index calculated for the City of Niš by the Institute for Nature Protection of Serbia is a valuable contribution to the enhancement of biodiversity in Serbia, since this indicator is not being monitored at the national level. The VNR recognizes biodiversity as one of the sectors most affected by climate change, and therefore promotes that an investment in environmental protection should be considered a capital investment.

353 https://www.iucnredlist.org/search?query=serbia&searchType=species
354 Institute for Nature Protection of Serbia, 2023.
355 Nature Protection Programme of the Republic of Serbia 2021-2023.
356 Environmental Protection Programme of the City of Niš with Action Plan 2017-2027.

SDG 16: Peace, Justice and Strong Institutions

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Indicator 16.3.1. Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms

UMF Domain: Governance and Implementation - Safe and Peaceful; UMF Indicator 5.1.4. (UMF-65)

Typically, forms of violence that attract the most attention in Serbian social discourse are domestic violence, violence against women and violence at sports events. Two current laws deal with the most common forms of violence in society: the Law on Prevention of Domestic Violence[357], and the Law on Prevention of Violence and Misbehaviour at Sports Events[358]. The legislative framework has significantly been improved in the last decade, particularly regarding the violence against women and children. The current Law on the Prevention of Domestic Violence is gender neutral and focuses on domestic violence, as opposed to targeting all forms of violence against women. In line with the initiative of the "Tijana Jurić Foundation", a life sentence was introduced in 2019 for the criminal offences of rape, rape of an incapacitated person, statutory rape of a minor and exploitation of public office to commit rape[359],[360]. The Ministry of Justice of the Republic of Serbia also launched the website *Exclude violence*[361] in 2016, with the aim of raising social awareness on domestic violence.

357 "Official Gazette of the Republic of Serbia", No. 94/2016 and 10/2023-other law.

358 "Official Gazette of the Republic of Serbia", No. 67/2003, 101/2005-other law, 90/2007, 72/2009-other law, 111/2009, 104/2013-other law and 87/2018.

359 Articles 178(4), 179(3), 180(3) and 181(5) of the Criminal Code.

360 Voluntary National Review of the Republic of Serbia, 2019.

361 https://iskljuci-nasilje.rs/

Domestic violence is unfortunately still a widespread phenomenon in Serbia, despite intensive efforts of state institutions in the fight against violence in the last decade, and the victims are most often women, children, the elderly and the weak. This can be attributed to the regional conflicts in the 1990s and the transition period to post-socialism, which was marked by great insecurity and a perennial economic and social crisis, as well as other risks specific to the local context[362]. Research on violence against women in Serbia conducted in the last few years has shown a high frequency of violence against women. Research on a nationally representative sample[363] identified that some kind of psychological/physical/sexual violence by a partner or non-partner was experienced by 46% of women after the age of 15[364]. When it comes to the frequency of violence against women in family relationships, according to a 2022 survey on a representative sample[365], 35% of women experienced some form of violence after the age of 15[366].

Some data on the number of women who reported their victimization to the police is available at the national level. These are generally low values because very few women who experienced violence decided to reach out to the authorities[367]. When it comes to reporting the most serious violence cases, survey data show that violence by non-partners was reported to the police by 26% of women, while 25% of women reported violence involving a former partner, and 9% only from the current partner (Figure 52). The main reasons for not reporting the crime to the police are shame, economic dependence, fear of revenge from the perpetrator and distrust in institutions[368].

Regarding domestic violence, survey results show that 39% of respondents reported violence to the authorities, while 61% of them has indeed told someone close about the violence they endured, but did not report it to any institution[369]. The key reasons why victims of violence reported they did not contact officially recognized conflict resolution mechanisms after experiencing domestic violence are: fear of consequences and even greater violence (38%), shame and embarrassment (35%) and the desire to preserve marriage and family (28%).

Overview. The City of Niš formed the Council for Safety in 2016, and developed the Strategy for Safety of the City of Niš for the period 2017-2020, in order to ensure and enhance the level of safety of its population. This Strategy defines measures and actions for different safety fields: economic, health, personal, political, information, food, and environmental safety. Within the area of *Personal safety*, domestic violence, violence at sport events and peer violence were identified as topics of interest[370].

Domestic violence. In the territory of the City of Niš, the police intervene whenever domestic violence is reported, and the Centre for Social Work is also involved in cases of a criminal offense, a risk to the victim's safety and placement in a safe house, as well as when the victims are directly or indirectly children[371].

The number of reported cases of domestic violence against women has increased in the last 12 years, from 27 reported cases in 2011 to 647 reported cases in 2022 (Figure 2). There is a particularly big jump in the number of reported cases since 2017, when the value almost doubled compared to 2016 (from 288 to 554). Such high reporting trend in cases of domestic violence against women has been constant since 2017. This can be attributed to the effects of the new Law on the Prevention of Domestic Violence, which introduced new emergency measures - removing the abuser from the family and prohibiting access to the victim.

When it comes to the number of reported cases of domestic violence against children, it is relatively uniform, with a small linear decline in the value over the 12-year period (2011-2022) (Figure 53).

362 Petrušić, N. Gender-based Domestic Violence in Rural Areas.
363 The sample included 2,023 women aged 18 to 74.
364 OSCE. (2019). Women's Well-being and Safety: Serbia - background report.
365 The sample included 1,004 women aged 18 to 92 years.
366 Antović, T. et al. (2023). Why do women not report domestic violence? Research results.
367 Women's Well-being and Safety: Serbia - background report, 2019.
368 OSCE. (2019). Women's Well-being and Safety: Serbia - background report.
369 Antović, T. et al. (2023). Why do women not report domestic violence? Research results.
370 Strategy for Safety of the City of Niš for the period 2017-2020 (Draft). (2017).
371 Strategy for Safety of the City of Niš for the period 2017-2020 (Draft). (2017).

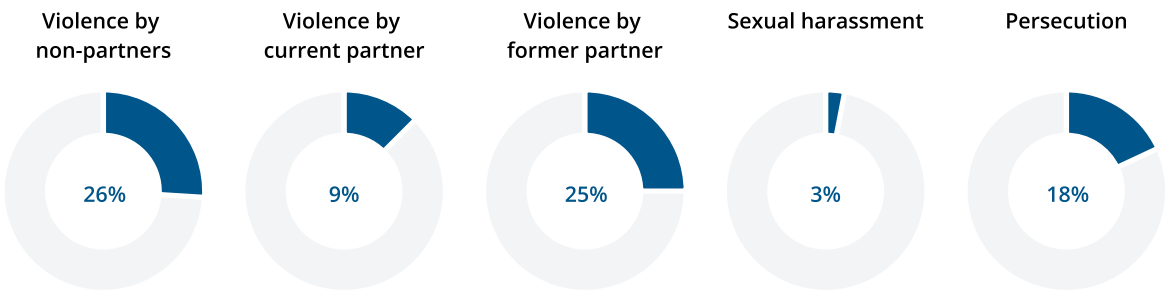


Figure 52. Percentage of women in the Republic of Serbia who contacted the police after experiencing the most severe case of violence.

Source: Women's well-being and safety: Serbia - background report, 2019

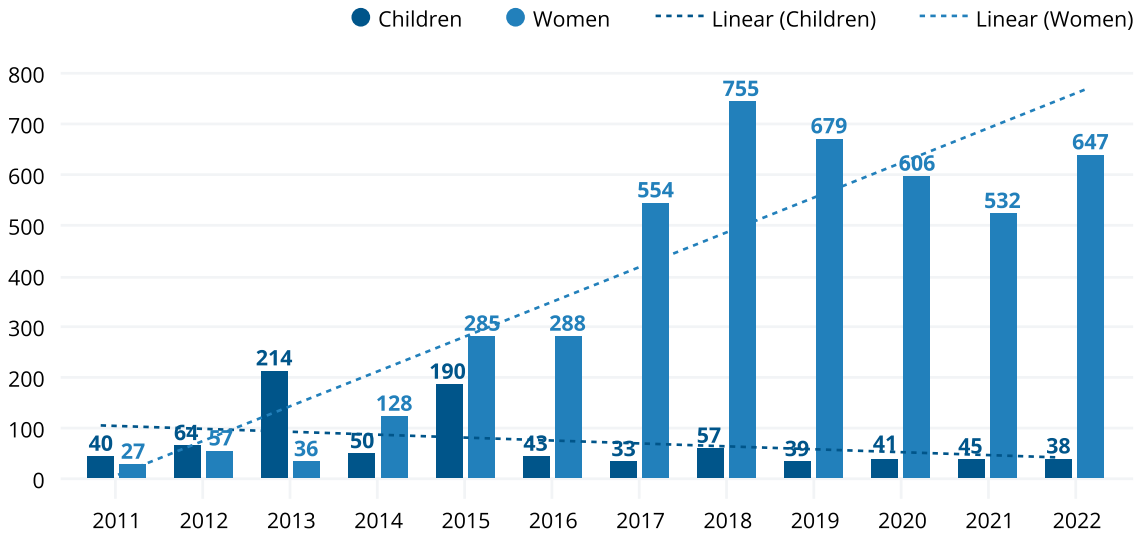


Figure 53. Number of reported cases of domestic violence against children and women in the City of Niš from 2011 till 2022.

Source: http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx

Peer violence. The Strategy for Safety points out that one of the growing problems in Niš is the increase in peer violence, which occurs at younger and younger ages. An analysis of the security situation found that a total of 59 misdemeanours were recorded in school areas in the school year 2015/2016, and the most common way of endangering the safety of students in schools was student fights[372]. In 2016, individual cases of abuse of social networks by students were also recorded[373]. Students' quarrels and arguments actually begin on social networks and later culminate in violence at school.

Violence at sport events. There are no violent incidents with local fan groups, but violent behaviour occurs in Niš during the visits of popular football clubs from Belgrade. Therefore, the Police Department in Niš plans, monitors and coordinates security measures during sports events.

Gaps and challenges. Domestic violence in rural areas has been a completely neglected topic until recently. This type of violence still represents a great challenge because it is almost invisible, and victims rarely report it due to strong patriarchal patterns[374]. Similarly, violence against women from vulnerable social groups, especially against Roma women, is insufficiently visible in society[375].

372 Strategy for Safety of the City of Niš for the period 2017-2020 (Draft). (2017).
373 Strategy for Safety of the City of Niš for the period 2017-2020 (Draft). (2017).
374 Petrušić, N. Gender-based domestic violence in rural areas.
375 Antović, T. et al. (2023). Why do women not report domestic violence? Research results.

A continuous strong campaign is needed to encourage women to report cases of violence, as well as to strengthen social awareness of the criminal nature of acts of domestic violence. It is also necessary to strengthen the city's police and judicial institutions, through effective investigation of cases of violence against women, criminal prosecution and punishment of perpetrators[376]. The stakeholders point out that inter-institutional cooperation needs to be enhanced in order to provide better support to victims of domestic violence.

The increase in the number of perpetrators of peer violence is an additional challenge[377]. Improving the existing and developing new programmes for the prevention of peer violence is advised in order to adapt to the times of thriving technologies and social networks.

Local efforts and initiatives. A Safe House for women and children who are victims of domestic violence was opened in 2011[378]. So far, more than 950 users, i.e. mothers with children, have found refuge in it.

In 2014, the City of Niš ratified the Pact of Cities and Regions to Stop Sexual Violence Against Children, which, like many European cities, made it one of the responsible cities that protect and promote the safety of children and young people living on its territory. As part of the Safe House, a Counselling Centre for children who are victims of violence was also opened in 2023. Professional teams work with children and their parents or guardians in the Counselling Centre to provide psychological support and work on education and prevention.

The project "School Policeman" has been active for many years in Serbia. In the City of Niš, 10 police officers are employed in 46 schools. They work to protect the safety of students, teaching staff and schools, as well as to prevent crimes and misdemeanours[379].

Link to the VNR and national level. The proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms in the Republic of Serbia was established at 40% for 2019[380]. Regarding the areas that require advice and support, the VNR singles out the problem of gender-based violence, and the need for full protection of children victims of domestic violence. The VNR also emphasizes the need to raise awareness about violence among children and improve protection of children against violence in different settings.

Indicator 16.6.1. Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)

The City of Niš finances the needs of its direct and indirect users for the purposes determined by the Law on Local Self-Government[381], the Law on the Budget System[382], the Decision on the Budget of the City of Niš (adopted by the City Assembly), mayor's decisions and other acts. Budget execution enables the smooth functioning of all public institutions founded by the City of Niš, as well as the implementation of capital and other development projects.

376 OSCE. (2019). Women's Well-being and Safety: Serbia - background report.
377 Development Plan of the City of Niš 2021-2027.
378 https://sigurnakucanis.rs/
379 Strategy for Safety of the City of Niš for the period 2017-2020 (Draft). (2017).
380 https://sdg.indikatori.rs/sr-latn/area/peace-justice-and-strong-institucions/?subarea=SDGUN160303&indicator=160303IND01
381 "Official Gazette of the Republic of Serbia", No. 129/2007, 83/2014-other law, 101/2016-other law, 47/2018 and 111/2021-other law.
382 "Official Gazette of the Republic of Serbia", No. 54/2009, 73/2010, 101/2010, 101/2011, 93/2012, 62/2013, 63/2013, 108/2013, 142/2014, 68/2015-other law, 103/2015, 99/2016, 113/2017, 95/2018, 31/2019, 72/2019, 149/2020, 118/2021, 138/2022, 118/2021-other law and 92/2023.

The budget of the City of Niš is adopted within a participatory process and published on the city's website[383]. The city's budget consists of *Incomes* and *Revenues*, as well as *Expenditures* and *Expenses*. A segment of budget expenditures covers regular expenditures of budget beneficiaries, that is, expenditures of both direct and indirect users of budget funds. Expenditures represent all costs of the city: salaries of budget users, procurement of goods and services, subsidies, grants and transfers, social assistance and other costs. Expenses represent the costs of construction or investment maintenance of already existing facilities, acquisition of land, machines and equipment necessary for the work of budget beneficiaries.

Overview. The total extent of the budget of the City of Niš for 2022, including the transferred funds that were unspent in the previous period, was determined in the amount of RSD 12,815,431,266[384]. For 2021, this amount was established at RSD 11,950,645,743[385] (Figure 54).

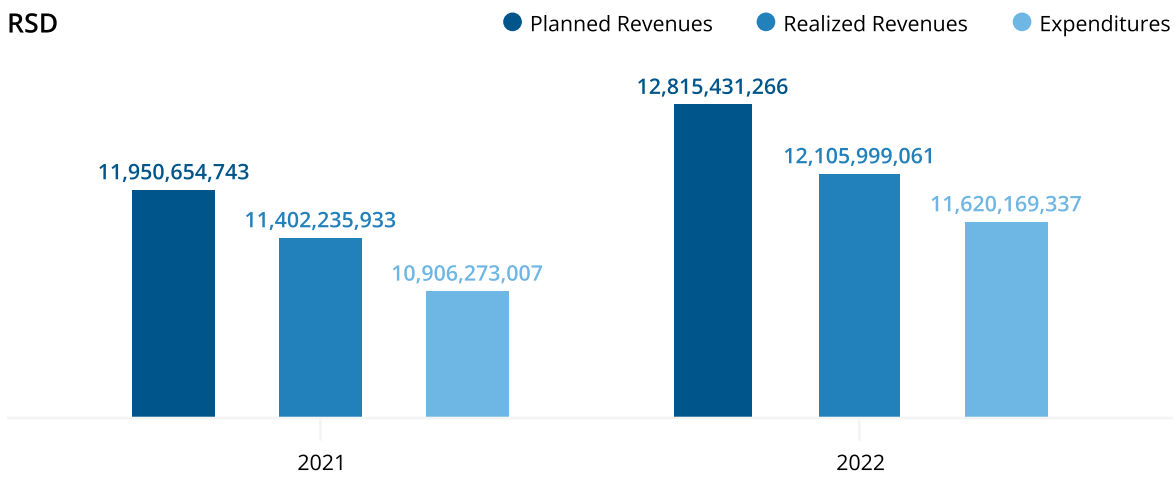


Figure 54. The amounts of approved budgets, realized incomes and executed budgets of the City of Niš in 2021 and 2022.
Source: https://www.ni.rs/budzet-grada/

According to budget reports[386],[387], in the 2022 fiscal year the planned range of budget revenue was realized in the amount of RSD 12,105,999,061, or 94.46%. The extent of expenses and expenditures within the approved budget was realized in the amount RSD 11,620,169,337, or 90.67%. Numbers are similar for the preceding year - in the 2021 fiscal year, the planned range of budget revenue was realized in the amount of RSD 11,402,235,933, i.e. 95.41%, while the extent of expenses and expenditures within the approved budget was realized in the amount of RSD 10,906,273,007, or 91.26% (Figure 55).

When considering the budget segment covering the expenditures of budget beneficiaries alone in the last couple of years (Figures 56 and 57), it is evident that the local self-government allocates the least amount of budget funds for art, entertainment and recreation (2% for both fiscal years). A larger percentage is allocated to education and public administration/social insurance, whereby these two budget categories receive approximately equal funding. The largest percentage is allocated to health and social protection (42% and 43%, for 2022 and 2021 respectively). However,

383 https://www.ni.rs/budzet-grada/
384 City Administration for Finance. (2023). Report on the Execution of the Budget of the City of Niš, for the period 1. January – 31. December, 2022.
385 City Administration for Finance. (2022). Report on the Execution of the Budget of the City of Niš, for the period 1. January – 31. December, 2021.
386 City Administration for Finance. (2023). Report on the Execution of the Budget of the City of Niš, for the period 1. January – 31. December, 2022.
387 City Administration for Finance. (2022). Report on the Execution of the Budget of the City of Niš, for the period 1. January – 31. December, 2021.

it must be noted that there is a big discrepancy in allocations for these two purposes. According to available data[388], the share of expenditures for health care in the total expenditures of beneficiaries of budget funds was 41.4% (2021) and 41.2% (2022), while the share of expenditures for social protection was only 1.2% (2021) and 1.1% (2022).

Gaps and challenges. Until 2020, the City of Niš had the documents of public policy[389] prepared within the participatory planning process, which did not provide an adequate system for monitoring the effects of public policies due to the lack of indicators[390]. These documents were unable to establish the link between public policies and the budget, and were therefore considered non-binding. Owing to the adoption of the Law on the Planning System in 2018, as well as the by-laws necessary for its implementation in 2019, a legal framework for development planning, public policy planning and medium-term planning was established for the first time[391].

However, strategic planning and implementation of public policies in the City of Niš remain underdeveloped, with several crucial issues involving budget development and execution[392]. The first challenge that the City of Niš faces is the alignment of the planning framework with the assessment of financial capacities. This is crucial for the development of the mid-term plan, which is supposed to establish a direct link between public policies and the budget. Another important issue involves the lack of administrative capacities for managing public finances, given the fact that the level of budget execution is directly related to the planning system. Finally, it is necessary to further enhance the transparency of the budgeting process, amplify the funds for social protection, strengthen the capacity for budget planning, as well as to strengthen the mechanisms for the distribution of budget funds.

Local efforts and initiatives. The initial efforts for strengthening the budgeting process were made by the local government in 2013, when the city's budget became easily accessible to the public on the web. In the opinion of stakeholders, upgrading of public policies, development of plans and strategies and responsible budgeting are the main strengths of the City of Niš in the domain of government expenditures.

Link to the VNR and national level. Primary government expenditures as a proportion of original approved budget for the Republic of Serbia amount to 95.3% for fiscal year 2022 and 94.7% for 2023[393]. The City of Niš therefore needs to enhance the alignment of executed and approved budgets to approach the national values. The VNR underlines the significance of budget transparency, since it is one of the crucial measures for the prevention of corruption in local governments.

388 http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx

389 City of Niš Development Strategy (2007) and Action Plan for Sustainable Development of the City of Niš 2015-2020 (2014).

390 Development Plan of the City of Niš 2021-2027.

391 Development Plan of the City of Niš 2021-2027.

392 Development Plan of the City of Niš 2021-2027.

393 https://sdg.indikatori.rs/en-us//area/peace-justice-and-strong-institucions/?subarea=SDGUN160601&indicator=160601IND01

Figure 55. Share of executed budget compared to the approved budget of the City of Niš in 2021 and 2022.
Source: https://www.ni.rs/budzet-grada/

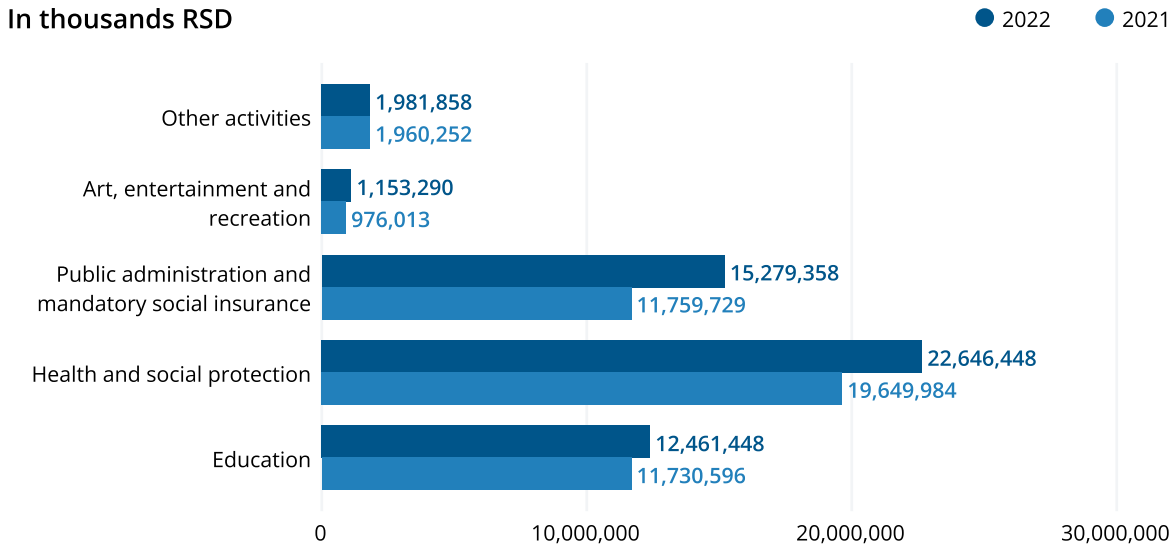


Figure 56. Expenditures by beneficiaries of budget funds in the City of Niš in 2021 and 2022.
Source: Municipalities and Regions in the Republic of Serbia, 2022 and 2023.

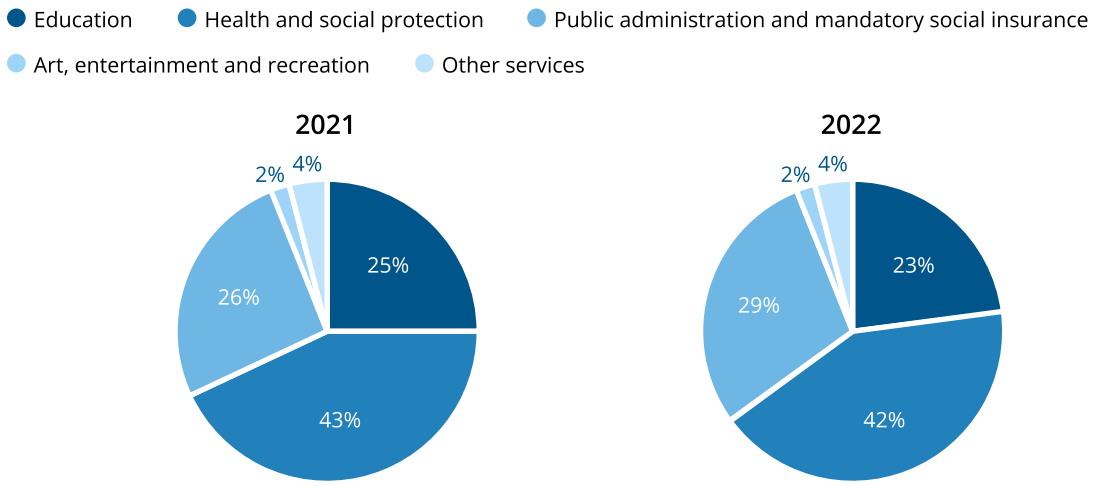
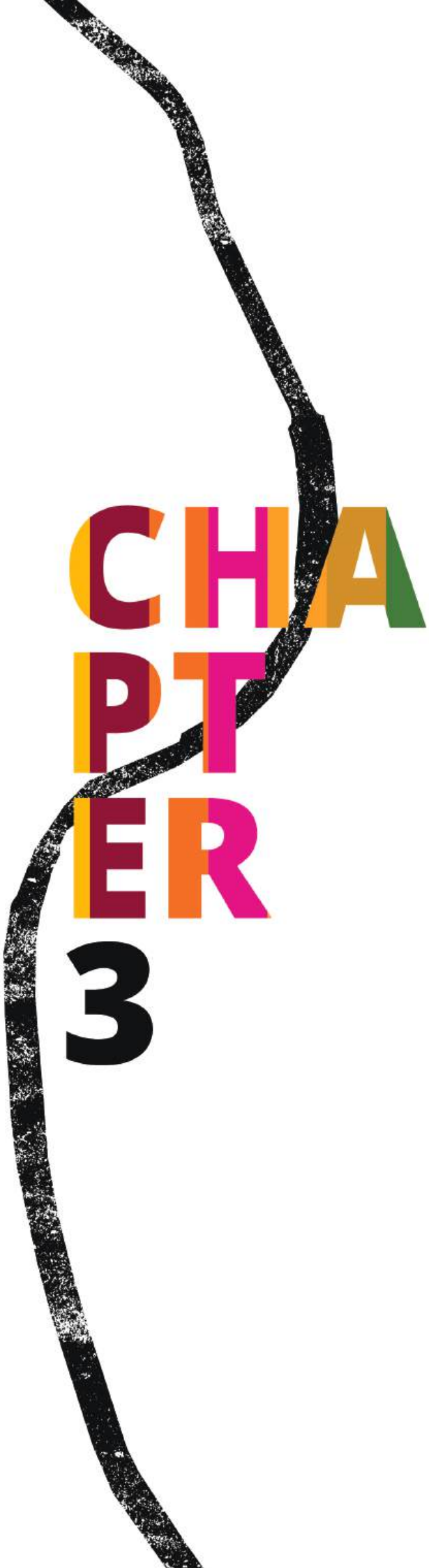


Figure 57. Share of expenditures by activities in the total expenditures of budget beneficiaries in the City of Niš in 2021 and 2022.
Source: Municipalities and Regions in the Republic of Serbia, 2022 and 2023.


CHAPTER
3

ACTION-ORIENTED RECOMMENDATIONS AND CONCLUSION

SDG 1: No Poverty

End poverty in all its forms everywhere

Indicator 1.4.1. Proportion of population living in households with access to basic services

UMF Domain: Society - Inclusive; UMF Indicator 1.2.1. (UMF-09)

PROPOSED ACTIONS AND PROJECTS

The City of Niš needs to undertake a set of activities to modernize utility services, optimize work processes and improve capacities for quality and efficient provision of these services to all citizens. In that sense, the priority project is digitization and the introduction of smart services and networks in the field of communal services, which should enable faster implementation of projects. The project of utmost priority is also to develop modern gas infrastructure, in order to complete the system for thermal energy provision in Niš and provide environmental benefits as the added value. Other projects that are vital for the quality of life of the citizens of Niš focus on rural areas, and are related to the development of sewage/wastewater system, integration of rural water supply networks into the City's system, and improvement of public transport.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.3. Accelerate energy transition towards low-carbon, climate-neutral development while ensuring energy security.

Measure 2.3.6. Development of integral and complementary local energy infrastructure systems, with special focus on city heating system and gas supply system.
Priority goal 4.3. Strengthening transparency, ethics and responsibility in the performance of public administration duties.
Measure 4.3.9. Improvement of institutional capacities for quality and efficient provision of administrative, communal and public services to all users.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Completion of the loop of the primary urban gas pipeline network, along with the connection of all industrial and business facilities, and the construction of consumption networks in urban areas where no centralized heating system is planned.

Indicator 1.4.2. Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure

UMF Domain: Society - Inclusive; UMF Indicator 1.2.2. (UMF-12)

PROPOSED ACTIONS AND PROJECTS

Despite the progress made with the data availability on real estate ownership, it is necessary to conduct activities for empowering formal ownership of land and other resources for rural women in the City of Niš. In that respect, better connection and integration of information systems of various institutions, such as Centre for Social Work, Tax Administration and Real Estate Cadastre, could help alleviate the problems of gender inequality in ownership structure. The project of absolute priority is to establish a system of intersectoral cooperation, so to connect different services into an integrated system in the City of Niš. Furthermore, promotional campaigns and education are needed actions, and should target the women in rural areas.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 3.3. Ensure a healthy life, social equality and inclusion for all people of all generations.
Measure 3.3.4. Encouraging social inclusion within the community and greater intersectoral cooperation in the field of social protection.

SDG 2: Zero Hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Indicator 2.4.1. Proportion of agricultural area under productive and sustainable agriculture

PROPOSED ACTIONS AND PROJECTS

Bearing in mind the significant unemployment in the territory of the City of Niš, the weekly migrations from urban area to the surrounding villages, as well as the fact that in rural areas considerable opportunities exist for the development of small and medium-sized enterprises in the production and processing of agricultural products, the priority activity for rural development is to improve the quality of life and of work in the countryside. This should be done through the improvement of agriculture and the development of other economic (non-agricultural) activities on farms. Priority projects include raising the level of grain, fruit and vegetable production along with better technical equipment in agriculture, and developing small plants for processing agricultural products in suburban and rural settlements. Within the development of non-agricultural activities and improvement of the rural economy, priority projects involve the development of rural tourism, as well as the development of small traditional craft shops, catering and recreation supporting tourism. Implementation of the proposed projects would create conditions for the revitalization of rural areas and reverse the current negative demographic trends in rural areas.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 1.3. Competitive agriculture and dignified quality of life in rural areas.
Measure 1.3.4. Diversification of agricultural holdings and business development.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.

3.4. Priority planning solutions and projects.

- Development of agriculture based on natural and spatial advantages with reliance on local development resources within primary rural settlements.

SDG 3: Good Health and Well-Being

Ensure healthy lives and promote well-being for all at all ages

Indicator 3.6.1. Death rate due to road traffic injuries

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.8. (UMF-08)

PROPOSED ACTIONS AND PROJECTS

Given the number of people and children killed and seriously injured in traffic accidents in Niš, as well as significant efforts invested by the local government in the last decade, promotional activities in the field of traffic safety are a needed action. Promotional campaign that will improve knowledge and behaviour of traffic participants should target particularly pedestrians and young parents, in order to enhance the safety of their children. A wide campaign in the media, social networks and in public space, along with strict control and sanctioning of traffic offenses, could contribute to more responsible traffic behaviour, particularly of the young people. With the SUMP under development for the City of Niš, its adaptation and implementation are also priority actions that should add value to long-term traffic safety. Priority projects should entail improving pedestrian infrastructure, and traffic calming in areas of conflicting pedestrian and vehicle traffic. All of these measures and activities should lead to reducing the number of traffic injuries and traffic fatalities in Niš.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.2. Improve the accessibility and quality of life of citizens by transitioning to sustainable mobility solutions
Measure 2.2.1. Development measures of the Sustainable Urban Mobility Plan.

Link to the Project Preparation Technical Assistance for Urban Mobility and Railway Corridor Regeneration in Niš (Serbia) – SUMP Measures.
Measure 3.5. Implementation of promotional campaigns on traffic safety; Measure 4.9. Traffic calming and slow traffic zones; Measure 6.1. Improvement of existing and construction of new pedestrian infrastructure.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Rehabilitation and construction of the traffic network in order to create a hierarchically homogeneous system of settlements and centres.

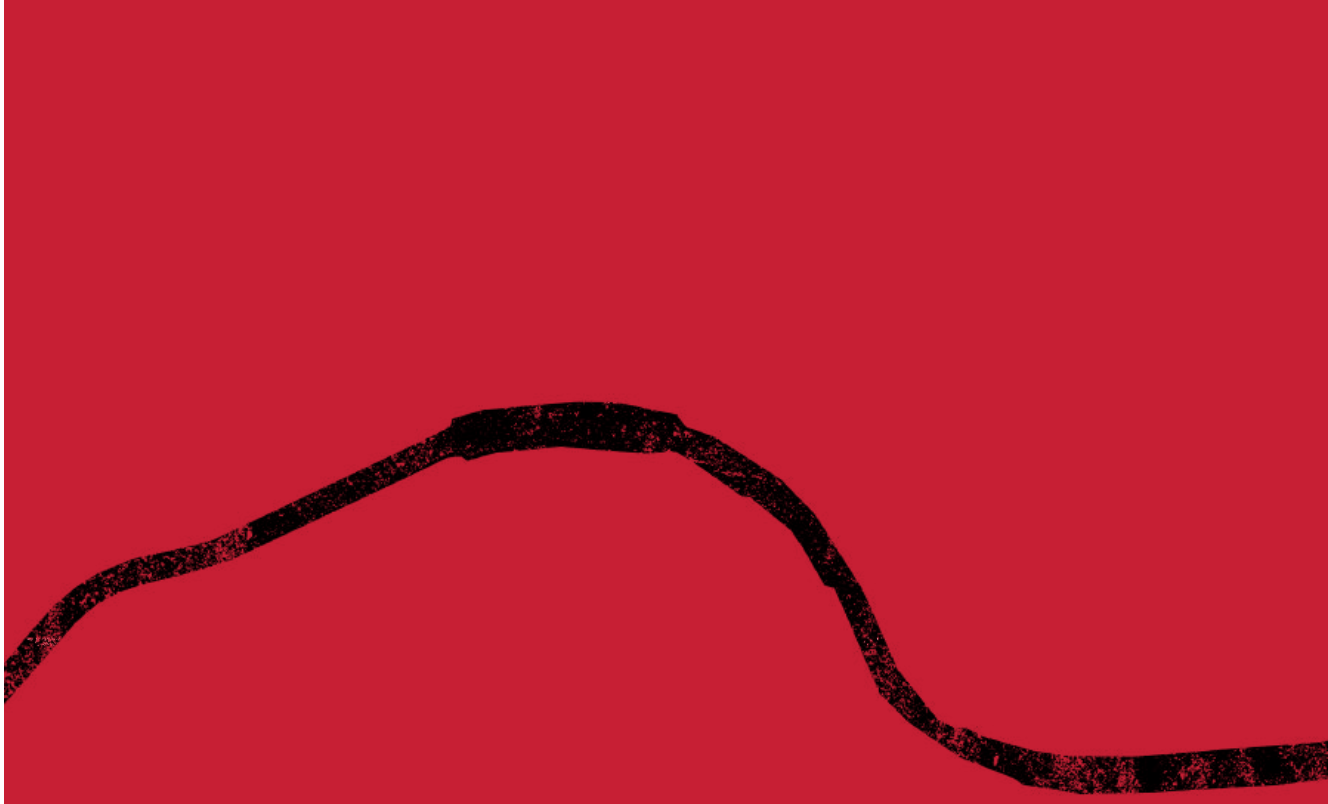
Indicator 3.9.1. Mortality rate attributed to household and ambient air pollution

PROPOSED ACTIONS AND PROJECTS

Morbidity and mortality rates from respiratory diseases, cardiovascular diseases and tumors, which are associated with polluting particles in the air, require prompt and comprehensive action in the City of Niš. Priority activities should be aimed at improving the public infrastructure that directly affects air quality, shutting down small furnaces in individual households and individual small-capacity boiler rooms in public institutions, and greening of public open spaces in endangered areas. It is an absolute priority to continue the ongoing project that provides incentive measures for replacement of inefficient heating devices in households, or their connection to the city heating system. Furthermore, priority projects should also include the expansion of heating distribution network and gas network, conversion of small boiler rooms to natural gas, and reconstruction of larger boiler rooms with the use of modern technologies in order to enhance their efficiency.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.3. Accelerate energy transition towards low-carbon, climate-neutral development while ensuring energy security.
Measure 2.3.1. Development and improvement of energy infrastructure by improving energy efficiency while ensuring energy security and supply of renewable, “clean” and locally available energy; Measure 2.3.2. Incentive measures for reducing air pollution; 2.3.6 Development of integral and complementary local energy infrastructure systems, with special focus on city heating system and gas supply system.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Reducing the pollution of air, soil, water and habitats, and establishing the monitoring on the entire territory covered by the Spatial Plan.



SDG 4: Quality Education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Indicator 4.1.2. Completion rate (primary education, lower secondary education, upper secondary education)

UMF Domain: Society - Inclusive; UMF Indicator 1.2.3. (UMF-11)

PROPOSED ACTIONS AND PROJECTS

In line with the basic postulates of education in Serbia, which include accessibility, quality education for all and the democratization of education, priority activities in the City of Niš should be aimed at ensuring quality conditions for primary education. In line with that, it is necessary to reevaluate the current needs and capacities of this public service, and align the primary education infrastructure with the General Urban Plan of Niš. Priority projects are the construction of elementary schools within settlements that are experiencing intensive urban growth, as well as the reconstruction of existing school buildings throughout city territory.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 3.2. Creating conditions for the development of modern, quality and accessible education for all.
Measure 3.2.1. Investment in physical property of educational institutions.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Raising the educational level of the population

SDG 5: Gender Equality

Achieve gender equality and empower all women and girls

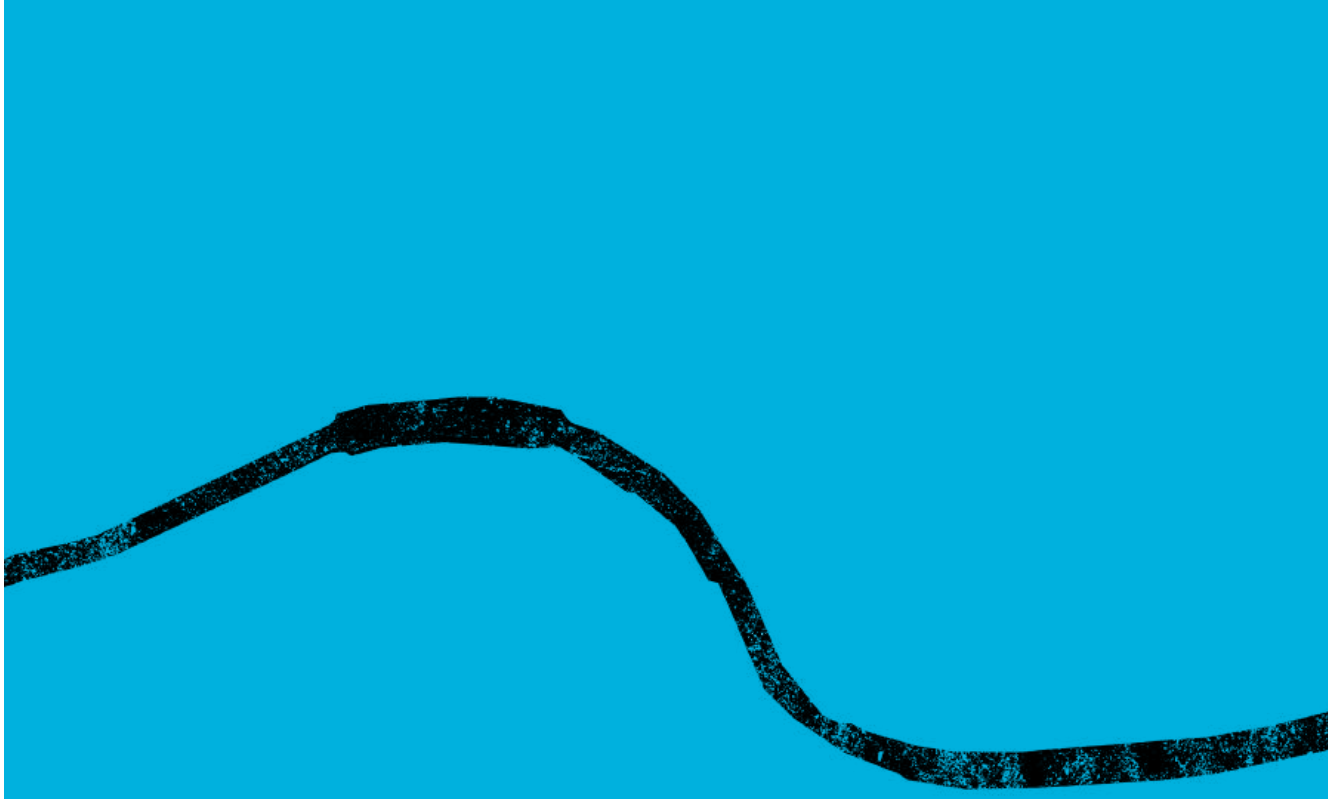
Indicator 5.5.1.b. Proportion of seats held by women in local governments

UMF Domain: Governance and Implementation - Inclusive; UMF Indicator 5.2.3. (UMF-69)

PROPOSED ACTIONS AND PROJECTS

In order to improve the overall position of women in the local community, the City of Niš should support activities aimed at improving the position and quality of life of vulnerable and marginalized women, with a particular focus on women living in rural areas. Priority projects include continuous training in the area of good governance of personnel in local mechanisms for gender equality, and promotion of gender equality in all segments of socio-political engagement, primarily in political action and in leadership positions.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 4.3. Strengthening transparency, ethics and responsibility in the performance of public administration duties.
Measure 4.3.8. Strengthening mechanisms for gender equality.



SDG 6: Clean Water and Sanitation

Ensure availability and sustainable management of water and sanitation for all

Indicator 6.1.1. Proportion of population using safely managed drinking water services

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.2. (UMF-02)

PROPOSED ACTIONS AND PROJECTS

Inadequate public infrastructure for water supply in suburban and rural areas of Niš adversely affects the communal equipment of existing housing zones and development of new business zones. In line with that, priority activities for the City of Niš are directed towards completing the existing network for public water supply throughout its territory, and establishing full control over rural/local water supply systems. Priority projects are the construction of public water supply network and necessary infrastructure in areas without this service, and the connection of rural water supply networks and local springs to the City's public supply system wherever possible. Until rural systems are integrated into public supply system of the city, urgent action is needed to improve the quality of drinking water in these areas. Furthermore, a priority project is to designate the persons responsible for the management of rural/local water supply systems, and to carry out regular monitoring of water quality.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.4. Ensuring zero environmental pollution, with preservation and restoration of ecosystem and biodiversity.
Measure 2.4.2. Protection of water sources and water quality, rationalization of the consumption of high-quality drinking water and orientation of the industry towards supply from watercourses.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Construction and expansion of the city's water supply system and connection of designated rural settlements to the city's water supply system, according to the Construction Land Development Programme and the Investment Programme for the period 2009-2013.

Indicator 6.2.1.a. Proportion of population using safely managed sanitation services

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.3. (UMF-03)

PROPOSED ACTIONS AND PROJECTS

Since insufficient communal infrastructure for wastewaters in the City of Niš has a negative impact on the environment, priority activities are aimed at regulating the overall disposal of wastewater. In this regard, the priority projects are the development and expansion of the sewage/wastewater system to suburban and rural areas of Niš, and the development of sewage system for atmospheric water throughout the city territory. Separating atmospheric from faecal water is urgently needed in the City of Niš in order to reduce the flooding risk during intense rainfall.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.4. Ensuring zero environmental pollution, with preservation and restoration of ecosystem and biodiversity.
Measure 2.4.3. Improving the sewage system development in the urban and rural core, introducing adequate procedures and devices for the wastewater treatment from urban settlements according to the specific implementation plan for the Urban Waste Water Directive.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Continuing the construction of sewage systems within urban and suburban settlements, where the construction of sewage for the collection and removal of wastewater and stormwater has begun according to the Construction Land Development Programme.

Indicator 6.3.1. Proportion of domestic and industrial wastewater flow safely treated

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.1. (UMF-40)

PROPOSED ACTIONS AND PROJECTS

With environmental quality in mind, it is evident that the construction of the Wastewater Treatment Plant is one of the crucial projects for the City of Niš. Therefore, all activities should be channelled towards this priority project, along with accompanying construction of collectors that will take this wastewater to the planned Plant. Priorities are set correctly and fully aligned with the planning documents, so securing funding for the proposed projects is needed for continuation of planned activities.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.4. Ensuring zero environmental pollution, with preservation and restoration of ecosystem and biodiversity.

Measure 2.4.3. Improving the sewage system development in the urban and rural core, introducing adequate procedures and devices for the wastewater treatment from urban settlements according to the specific implementation plan for the Urban Waste Water Directive.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Construction of the central Wastewater Treatment Plant at the location “Ciganski Ključ”.
- Continuing the construction of the collectors for wastewaters named “Nišavski”, “Moravski” and “Međurovački”.

SDG 7: Affordable and Clean Energy

Ensure access to affordable, reliable, sustainable and modern energy for all

Indicator 7.2.1. Renewable energy share in the total final energy consumption

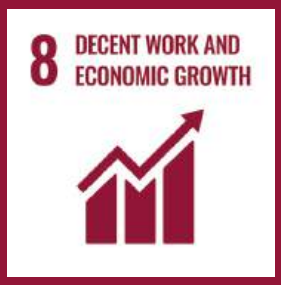
UMF Domain: Environment - Resilient; UMF Indicator 3.3.1. (UMF-46)

PROPOSED ACTIONS AND PROJECTS

Given the low awareness on the significance of renewable energy in total energy consumption in Niš, the affirmation of use of renewable and clean forms of energy is a priority action. Affirmative and promotional actions should be aimed at general population, with additional training and permanent education of employees in the energy sector, as noted by the stakeholders. Priority projects include the ongoing good practice of installing photovoltaic and thermosolar panels, located on both existing structures (stadiums, halls, residential buildings) and unproductive land. Priority is also given to the preparation of Feasibility Studies for the use of the existing potential of locally available renewable energy sources, such as geothermal energy, biomass, agricultural and municipal waste.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.3. Accelerate energy transition towards low-carbon, climate-neutral development while ensuring energy security.
Measure 2.3.1. Development and improvement of energy infrastructure by improving energy efficiency while ensuring energy security and supply of renewable, "clean" and locally available energy; Measure 2.3.7. Establishment of organizational infrastructure for implementation of energy transition and capacity improvement through permanent education of employees and exchange of experiences; 2.3.6 Development of integral and complementary local energy infrastructure systems, with special focus on city heating system and gas supply system.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Use of new renewable energy sources.



SDG 8: Decent Work and Economic Growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Indicator 8.5.2. Unemployment rate, by sex, age and persons with disabilities

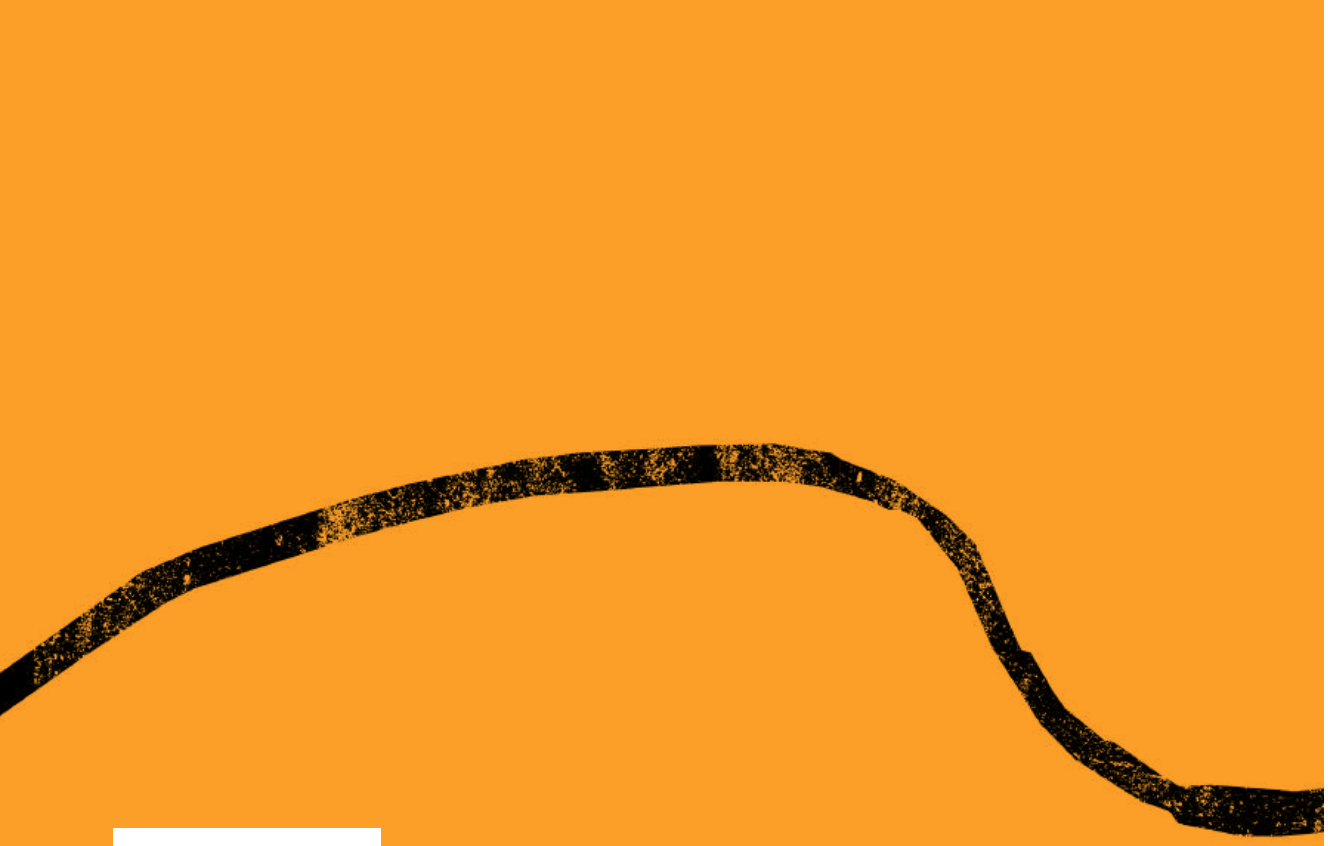
UMF Domain: Economy - Inclusive; UMF Indicator 2.2.1. (UMF-27)

PROPOSED ACTIONS AND PROJECTS

Given the high unemployment rates in the City of Niš, priority actions of the local self-government must be directed towards enhancing local employment policies, with a particular focus on the employment of young professionals and vulnerable categories. In that sense, the priority projects are to continue with the ongoing specific support programmes for the unemployed young people up to 30 years of age and persons with disabilities, as well as to create special programmes that support women's entrepreneurships. Additionally, the project of crucial importance is to provide subsidies for self-employment through start-up loan programmes. At the same time, developing mechanisms of inter-institutional cooperation and strengthening institutional capacities are needed actions to improve the employment process.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 1.1. Improvement of the business environment and competitiveness of the economy of the City of Niš.
Measure 1.1.5. Establishment of programmes aimed at the development of female and youth entrepreneurship.
Measure 1.1.6. Creation of employment support measures and improvement of the institutional framework for employment support.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Permanent reduction of unemployment.



SDG 11: Sustainable Cities and Communities

Make cities and human settlements inclusive, safe, resilient and sustainable

Indicator 11.1.1. Proportion of urban population living in slums, informal settlements, or inadequate housing

UMF Domain: Society - Sustainable; UMF Indicator 1.4.1. (UMF-23)

PROPOSED ACTIONS AND PROJECTS

Given the significant challenges involving slums and informal settlements, coupled with insufficiently developed mechanisms for the realization of social housing at the local level, the City of Niš needs to implement an active policy of support for social housing. City activities are to be directed primarily towards the establishment of a comprehensive, sustainable and economically viable institutional system that will implement non-profit housing programmes and secure funding for social housing. In that regard, the project of top priority is to develop a study of buildings without permits in slums, informal settlements and inadequate housing. A priority projects is also to perform geodetic surveying of Roma settlements and slum zones, and to devise accurate maps with ownership status, which would serve as a baseline for developing the Plans of Detailed Regulation as crucial documents in improving slums, with enhanced citizen participation.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.1. Improved process of preparation and implementation of planning documents.
Measure 2.1.2. Developing studies, analyses, scientific and professional papers as well as their use in the preparation of planning documents.
Priority goal 2.3. Accelerate energy transition towards low-carbon, climate-neutral development while ensuring energy security.

Measure 2.3.3. Measures to support the improvement of the city's housing policy.
Priority goal 3.3. Ensure a healthy life, social equality and inclusion for all people of all generations.
Measure 3.3.8. Improvement of social housing policy.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Provision of the necessary housing area for accommodating the total population increase until 2021 with the development of a social housing model.

Indicator 11.2.1. Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

UMF Domain: Society - Inclusive; UMF Indicator 1.2.2. (UMF-10)

PROPOSED ACTIONS AND PROJECTS

Given its urban growth and the capacity of traffic infrastructure, priority activities in the City of Niš should be directed towards limiting the flow of individual motor vehicles in the urban area and fostering sustainable mobility options. These actions should also help the city with resource efficiency and adaptation to climate change. The highly prioritized project is therefore to relocate the railway corridor from the urban core, thus enabling the introduction of light rail traffic and enhancing the public transport system. Additionally, priority projects involve the improvement of public passenger transport with the use of modern technologies and accessibility solutions, so to make its use comfortable for all citizens.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.2. Improve the accessibility and quality of life of citizens by switching to sustainable mobility solutions.
Measure 2.2.4. Measur es to support cleaner, cheaper and healthier forms of individual, private and public transport.
Measure 2.2.5. Improving accessibility, safety and parking.

Indicator 11.4.1. Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)

UMF Domain: Culture - Resilient; UMF Indicator 4.3.2. (UMF-58)

PROPOSED ACTIONS AND PROJECTS

Considering the abundant cultural legacy of Niš and its underused potential, necessary actions should be aimed at strengthening the city's cultural policy, investing in research and promoting the cultural heritage via modern technologies and digital presentations. The project of utmost priority involves the proper conservation of a newly discovered site of Early Christian tombs, along with the continuation of archaeological research. A priority project is also to perform digitization of the materials and collections of museums, libraries and archives in the City of Niš,

as well as digitization of cultural assets with the aim of their virtual presentation. Additionally, the project suggested by the stakeholders is to apply for the UNESCO list of cultural heritage with cultural properties of great/exceptional importance.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 3.1. Develop and promote culture and creativity.
Measure 3.1.2. Improving the cultural and historical offer of Niš through the development of cultural heritage infrastructure and the valorisation of cultural and historical heritage.
Measure 3.1.3. Digitization of cultural and historical heritage and contemporary creativity.
Measure 3.1.5. Measure of contemporary presentation of cultural heritage and contemporary creativity using advanced technologies.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Preparing a study "Conditions for preservation, maintenance and use of the cultural heritage and determination of protection measures within the boundaries of the City of Niš", with the valorisation of immovable cultural assets.

Indicator 11.6.1. Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal solid waste generated, by cities

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.2. (UMF-41)

PROPOSED ACTIONS AND PROJECTS

In terms of solid waste management in the City of Niš, activities should prioritize planning and implementing sustainable practices in the management of MSW. A project of the utmost priority is the construction of a new landfill, along with continuation of the ongoing efforts in rehabilitation of the existing landfill site. Additionally, priority activities imply improving waste collection and its separation into key waste streams, coupled with a shift in paradigm to perceive waste as a resource. In order to implement the sustainable waste management system, informed citizens are needed as active participants in the process. Promotional campaigns and awareness raising should focus on the reduction of the amount of generated waste via prevention, reuse and recycling. In line with that, two projects are also outlined as crucial: 1) the project for primary selection of all waste types, based on the analysis of current state and the assessment of collected raw materials, and 2) the project to devise incentives to support interested individuals and local communities to separate and recycle their generated waste.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.4. Ensuring zero environmental pollution, preservation and restoration of ecosystems and biodiversity.
Measure 2.4.7. Establishing a sustainable, inclusive and long-term waste management system.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Establishment of the „Regional Center No. 23 for waste management".
- Improvement of waste collection and rehabilitation of existing dump sites.
- Introducing activities of recycling.

Indicator 11.6.2. Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.3. (UMF-42)

Proposed actions and projects

Further substantial efforts from the City of Niš are needed to limit the excessive emissions of fine particulate matter PM2.5 and PM10. Priority activities should target individual households as the dominant source of air pollution, but also include individual small-capacity boiler rooms in public institutions, and improve the city's heating supply infrastructure. It is an absolute priority to continue with the ongoing project that provides incentive measures for replacement of inefficient heating devices in households or their connection to the city heating system. Furthermore, a priority project should be to provide stable and sustainable sources of funding for implementing additional measures that could stimulate citizens with individual furnaces to switch to other sources of heating. Priority projects should also include further expansion of the gasification and heating system, conversion of small boiler rooms to natural gas, and reconstruction of larger boiler rooms with the use of modern technologies in order to enhance their efficiency.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.3. Accelerate energy transition towards low-carbon, climate-neutral development while ensuring energy security.
Measure 2.3.1. Development and improvement of energy infrastructure by improving energy efficiency while ensuring energy security and supply of renewable, "clean" and locally available energy; Measure 2.3.2. Incentive measures for reducing air pollution; 2.3.6. Development of integral and complementary local energy infrastructure systems, with special focus on city heating system and gas supply system.
Priority goal 2.4. Ensuring zero environmental pollution, preservation and restoration of ecosystems and biodiversity.
Measure 2.4.1. Development of innovative and integral systems for qualitative-quantitative assessment of air quality.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Reducing the pollution of air, soil, water and habitats, and establishing the monitoring on the entire territory covered by the Spatial Plan.

Indicator 11.7.1. Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities

UMF Domain: Environment - Inclusive; UMF Indicator 3.2.1. (UMF-44)

PROPOSED ACTIONS AND PROJECTS

Given the number and significance of residential open spaces within the system of public open spaces of the City of Niš, priority activities should focus on the revitalization of existing public open spaces to become quality focal points accessible to all, and implementing new public open spaces in booming neighbourhoods. A priority project is therefore to develop a comprehensive and realistic model of (re)creation of public open spaces, along with mechanisms for the

implementation of that model, which the RePOS project is expected to accomplish in multi-family housing areas. Equally important, the City of Niš needs to perform a study of all areas having the character of public open space throughout its territory, regardless of ownership status, so to establish a valid database of these spaces, and to enable their interlinking via blue-green grids. Therefore, the preparation of the cadastre of green areas is needed. Simultaneously, priority projects include enhancing the existing legislation and introducing new modalities of land management at the local level, with new management solutions, new allocation of duties and responsibilities among the stakeholders, and providing sustainable funding options.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.2. Improve the accessibility and quality of life of citizens by switching to sustainable mobility solutions.
Measure 2.2.6. Increasing the attractiveness and quality of the urban environment.

Indicator 11.b.2. Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies

UMF Domain: Governance and Implementation - Resilient; UMF Indicator 5.3.3. (UMF-74)

PROPOSED ACTIONS AND PROJECTS

The main activities of the City of Niš need to focus on developing and adopting all disaster risk strategies at the local level in line with national legislation, and enhancing risk management by coordinating these local strategies with urban development policies. Priority projects involve preparing and adopting the two crucial documents, Protection and Rescue Plan and the External Major Accident Protection Plan. Also, a priority project is to devise urban planning documents for potentially endangered residential areas in the immediate vicinity of the SEVESO plant, which are a threat to the local population.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.5. Preserving the potential of adaptation and mitigation measures, established at the national level until 2030, by increasing resistance to climate change in priority sectors and establishing response in risky and emergency situations in urban and rural settlements.
Measure 2.5.2. Forming specialized units for responding to risks and accidents in urban settlement.
Measure 2.5.3. Preventing major chemical accidents and limiting consequences for human health and the environment in the planning and implementation of urban development policies.

SDG 13: Climate Action

Take urgent action to combat climate change and its impacts

Indicator 13.1.1. Number of deaths, missing persons and directly affected persons attributed to disaster per 100,000 population

UMF Domain: Society - Resilient; UMF Indicator 1.3.4. (UMF-20)

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Since landslides and floods are the most prominent hazards for the City of Niš, priority actions must be aimed at preventing these accidents. Necessary activities also include permanent training of human resources (both professionals and general population) of the protection and rescue system in the territory of Niš, in order to gain knowledge about natural disasters and other accidents, as well as procedures in emergency situations. The priority project is to develop a fully operational early warning system in Niš, which would enable prompt response to natural and other disasters. Additionally, prioritized projects involve increasing the resilience to flooding from small urban streams in the City of Niš, by implementing contemporary integrated stormwater management approaches (such as LID, BMP, WSUD) and developing special zoning and building codes in flood hazard zones.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.5. Preserving the potential of adaptation and mitigation measures, established at the national level until 2030, by increasing resistance to climate change in priority sectors and establishing response in risky and emergency situations in urban and rural settlements.
Measure 2.5.1. Reducing the risk of flooding by external waters and internal waters.
Measure 2.5.3. Preventing major chemical accidents and limiting consequences for human

health and the environment in the planning and implementation of urban development policies. Measure 2.5.6. Improving the system for observation, data collection and early warning for extreme climatic and hydrological events.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Constructing facilities for protection against flood waters of Nišava and its tributaries.

SDG 15: Life on Land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Indicator 15.1.1. Forest area as a proportion of total land area

PROPOSED ACTIONS AND PROJECTS

Having in mind the poor air quality in the City of Niš, priority actions need to be directed towards afforestation, in order to increase the absorption of carbon dioxide in forests and parks, as well as protection of existing forests from illegal logging and fire. Priority projects involve preparing the cadastre of green areas in City territory, including forest areas, and planting new forests on unutilized agricultural land of low-quality classes.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 2.5. Preserving the potential of adaptation and mitigation measures, established at the national level until 2030, by increasing resistance to climate change in priority sectors and establishing response in risky and emergency situations in urban and rural settlements.
Measure 2.5.4. Formation of green and blue infrastructure.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Afforestation and planting protective greenery.
- Recultivation and afforestation of degraded land.

Indicator 15.1.2. Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type

PROPOSED ACTIONS AND PROJECTS

Given the variety and abundance of natural resources in the City of Niš, the primary action is to strengthen the documentation base on biological diversity, in order to enhance the maintenance of existing protected natural assets and introduce new localities. Furthermore, enhancing the budget fund for environmental protection is a necessary action. The project of utmost priority is to create a study of biodiversity in the City of Niš with detailed mapping of areas rich in biodiversity and SWOT analysis, which will incorporate important sites for freshwater biodiversity. The projects that implement natured-based solutions into the urban landscape should be prioritized, since they contribute to the preservation of urban biodiversity. Additionally, the project of great importance is to include natural assets into the tourist offer of the city and improve the tourist infrastructure, by highlighting natural landmarks, implementing signage, and enhancing access to landmark sites where appropriate. Finally, the priority is to create a programme for implementing sustainable tourism and sustainable agriculture in protected areas, with incentive measures that will ensure active support from the local population.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 1.4. Improvement and promotion of the tourist offer and potentials of the City of Niš.
Measure 1.4.9. Investing in the tourist infrastructure of protected natural assets (Sićevo gorge, Jelašnica gorge, Suva Mountain, Lalinačka slatina).
Priority goal 2.4. Ensuring zero environmental pollution, preservation and restoration of ecosystems and biodiversity.
Measure 2.4.9. Biodiversity improvement measures.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Arrangement of footpaths, viewpoints and rest areas in the Sićevo gorge nature park.
- Preparation of a study on the valorization of natural assets in the territory of the City of Niš.

Indicator 15.3.1. Proportion of land that is degraded over total land area

PROPOSED ACTIONS AND PROJECTS

For the identified localities of degraded land, the City of Niš needs to devise comprehensive rehabilitation plans, with a set of measures for sustainable land management. Priority projects involve the repurposing of abandoned agricultural land, afforestation of degraded forest land, and remediation of contaminated land within industrial complexes.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 1.3. Competitive agriculture and dignified quality of life in rural areas.
Measure 1.3.1. Preservation and improvement of the environment and natural resources in agriculture.
Priority goal 2.4. Ensuring zero environmental pollution, preservation and restoration of ecosystems and biodiversity.

Measure 2.4.5. Protection and improvement of soil quality in urban settlements.

Link to the Spatial Plan of the City of Niš Administrative Area 2021.
3.4. Priority planning solutions and projects.
- Cultivating devastated and degraded agricultural land.
- Recultivation and afforestation of degraded land.

Indicator 15.5.1. Red List Index

PROPOSED ACTIONS AND PROJECTS

Priority activities should be directed towards the protection of the population of endangered, rare and important species of flora and fauna, especially in the peripheral areas of settlements where they are directly threatened by the development. The priority project is to establish small-scale protected areas for flora and fauna in localities identified through studies and research.

SDG 16: Peace, Justice and Strong Institutions

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Indicator 16.3.1. Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms

UMF Domain: Governance and Implementation - Safe and Peaceful; UMF Indicator 5.1.4. (UMF-65)

PROPOSED ACTIONS AND PROJECTS

Priority activities of the City of Niš should focus on improving the local social protection system, through better cross-departmental coordination, strengthening the capacities of professional staff and improving the availability of services throughout city territory, especially in rural areas. Priority projects include promotional campaigns to raise awareness of the problem of domestic violence, continuous education of young people on the prevention of risky behaviour and peer violence, and education of victims of domestic violence, particularly women, with the aim of their economic empowerment.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 3.3. Ensure a healthy life, social equality and inclusion for all people of all generations.
Measure 3.3.1. The development of integrative and sustainable social protection that advances services to preserve and improve the quality of life and well-being of vulnerable and marginalized groups and individuals.
Measure 3.3.7. Support for improving the position of women in the community.
Priority goal 3.4. To provide young people with an active role and equality in social life and equal

rights and opportunities to develop their potential.
Measure 3.4.6. Prevention of risky behaviour and peer violence among young people

Indicator 16.6.1. Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)

PROPOSED ACTIONS AND PROJECTS

Considering the insufficiently effective functioning of the budget system and limited resources for budget planning in the City of Niš, priority activities are aimed at linking public policies with the budget planning process and increasing the overall transparency of the process. Also, increasing the expenditures for culture and social protection are needed actions in order to improve the provision of these services in city territory. Priority projects involve improving the process of allocating funds for financing projects of public importance, capacity building of the city administration, and enhancing participation in budget creation by developing easy-to-use digital platforms for participatory democracy.

Link to the Development Plan of the City of Niš 2021-2027.
Priority goal 4.3. Strengthening transparency, ethics and responsibility in the performance of public administration duties.
Measure 4.3.2. Support for harmonization and improvement of public policies' coordination.
Measure 4.3.4. Improving the transparency of the budget process and strengthening the capacity for budget planning and mechanisms for the distribution of funds from the city budget.
Measure 4.3.5. Improving the efficiency and effectiveness of public finances.

CONCLUDING REMARKS

This Voluntary Local Review offers valuable insights on the City of Niš as an administrative centre and a regional hub of South-East Serbia. The review finds that, over the past decade, Niš has piloted several innovative sustainability solutions and prepared a significant body of public policy and strategic documents that are incorporating sustainability principles of the 2030 Agenda. The barriers that may hinder the advancement of sustainable solutions are identified in the areas of urban planning, transport and communal infrastructure, environmental pollution, climate action and local self-government capacities, and will be addresses by the city in the years to come. As a participatory process, the VLR has enabled proactive involvement of stakeholders with different backgrounds, and promoted multilevel governance in localizing SDGs. The creation of a dedicated Monitoring Unit was a significant achievement that facilitated stakeholder cooperation and helped to trace the path towards the first Serbian VLR.

The VLR of Niš goes beyond the evaluation of the city's advancements towards achieving the selected SDG targets, and also assesses their implications for public policy and planning practice, with the overarching aim to enhance Niš's performance across the analysed SDGs. Several key recommendations were developed to guide the sustainable development of Niš in the forthcoming years, and to fortify the commitment of the local authority and the society as a whole to accelerating SDG progress. The proposed actions and project focus on improving communal infrastructure and land management, implementing renewable energy, fostering sustainable mobility, implementing the "leave no one behind" principle in housing and employment strategies, enhancing planning processes, exploiting tourism potential based on natural and cultural heritage, preserving biodiversity, improving legislation, and strengthening the local self-government capacities and cross-departmental cooperation.

The contribution of the VLR of Niš holds great significance. The process has raised awareness among local authorities and stakeholders about the importance of SDGs and their advancement prospects. The VLR has highlighted the critical role of the monitoring and evaluation process to set the context for evidence-based planning and decision-making. The local perspective of collecting, exchanging and providing information is shifted towards creating an overarching and unique database. The development potentials of Niš are showcased in the VLR to attract domestic and international investments. As a pioneer process in Serbia, the VLR of the City of Niš can be scaled up into a nationwide process. Niš's experience will enable other cities to use and build on the applied methodology and set of indicators for conducting VLRs across Serbian municipalities, with support of the Ministry of Construction, Transport and Infrastructure and the Agency for Spatial Planning and Urbanism.

ANNEX

ANNEX 1. DEFINITIONS OF SDG INDICATORS

Adapted from the SDG Indicator Metadata

Indicator 1.4.1. Proportion of population living in households with access to basic services

UMF Domain: Society - Inclusive; UMF Indicator 1.2.1. (UMF-09)

The proportion of population living in households with access to basic services is defined as the proportion of population using public service provision systems that meet basic human needs including drinking water, sanitation, hygiene, energy, mobility, waste collection, health care, education and information technologies. The basic services indicator is therefore based on 9 components. These components are captured in various standalone indicators of the SDGs, which means that the concepts and definitions of SDG indicator 1.4.1 will be derived from or are the same as those of these specific SDG indicators.

The term 'access to basic services' implies that sufficient and affordable service is reliably available with adequate quality.

1) *Access to Basic Drinking Water Services refers to the use of drinking water from an improved source with a collection time of not more than 30 minutes for a round trip, including queuing.*
2) *Access to Basic Sanitation Services refers to the use of improved facilities that are not shared with other households.*
3) *Access to clean fuels and technology refers to use of fuels and technology that are defined by the emission rate targets and specific fuel recommendations included in the normative guidance WHO guidelines for indoor air quality: household fuel combustion.*
4) *Access to Basic Mobility refers to having convenient access to transport in a rural context (SDG 9.1.1) or having convenient access to public transport in an urban context (SDG 11.2.1).*
5) *Access to Basic Waste Collection Services refers to the access that the population have to a reliable waste collection service, including both formal municipal and informal sector services.*

This indicator is a combination of various components of basic services which on their own are mostly existing as standalone indicators of the SDGs. As a result, the team of experts advised and agreed that these should be presented as a dashboard. Their metadata provide the specific methodologies for computing each of the constituent measures used to report on this indicator.

Indicator 1.4.2. Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure

UMF Domain: Society - Inclusive; UMF Indicator 1.2.2. (UMF-12)

This indicator measures the relevant part of Target 1.4 (ensure men and women have equal rights to economic resources, as well as access to, ownership of, and control over land and other forms of property, inheritance, natural resources). It measures the results of policies that aim to strengthen tenure security for all, including women and other vulnerable groups.

This indicator covers (a) all types of land use (such as residential, commercial, agricultural, forestry, grazing, wetlands based on standard land-use classification) in both rural and urban areas; and (b) all land tenure types as recognized at the country level, such as freehold, leasehold, public land,

customary land. An individual can hold land in his/her own name, jointly with other individuals, as a member of a household, or collectively as member of group, cooperative or other type of association.

Indicator 2.4.1. Proportion of agricultural area under productive and sustainable agriculture

The scope of this indicator is the agricultural farm holding, and more precisely the agricultural land area of the farm holding, i.e. land used primarily to grow crops and raise livestock. This choice of scope is fully consistent with the intended use of a country's agricultural land area as the denominator of the aggregate indicator.

The indicator is defined by the formula:

$$SDG2.4.1 = \frac{\text{Area under productive and sustainable agriculture}}{\text{Agricultural land area}}$$

This implies the need to measure both the extent of land under productive and sustainable agriculture (the numerator), as well as the extent of agriculture land area (the denominator).

Through a consultative process that has lasted over two years, 11 themes and sub-indicators have been identified, which make up SDG 2.4.1.

No.	Themes	Sub-indicators
1.	Land productivity	Farm output value per hectare
2.	Profitability	Net farm income
3.	Resilience	Risk mitigation mechanisms
4.	Soil health	Prevalence of soil degradation
5.	Water use	Variation in water availability
6.	Fertilizer pollution risk	Management of fertilizers
7.	Pesticide risk	Management of pesticides
8.	Biodiversity	Use of agro-biodiversity-supportive practices
9.	Decent employment	Wage rate in agriculture
10.	Food security Food Insecurity	Experience Scale (FIES)
11.	Land tenure	Secure tenure rights to land

Indicator 3.6.1. Death rate due to road traffic injuries

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.8. (UMF-08)

Death rate due to road traffic injuries as defined is the number of road traffic fatal injury deaths per 100,000 population. The methods used for the analysis of causes of death depend on the type of data available from countries.

Indicator 3.9.1. Mortality rate attributed to household and ambient air pollution

The mortality rate attributable to the joint effects of household and ambient air pollution can be expressed as: crude death rate or age-standardized death rate. Crude rates are calculated by dividing the brut number of deaths by the total population (or indicated if a different population group is used, e.g. children under 5 years), while the age-standardized rates adjust for differences in the age distribution of the population by applying the observed age-specific mortality rates for each population to a standard population.
Evidence from epidemiological studies have shown that exposure to air pollution is linked, among others, to the important underlying causes of death taken into account in this estimate:
- Acute lower respiratory infections (estimated in all age groups; ICD-10: J09-J22, P23, U04);
- Cerebrovascular diseases (stroke) in adults (estimated above 25 years; ICD-10: I60-I69);
- Ischaemic heart diseases (IHD) in adults (estimated above 25 years; ICD-10: I20-I25);
- Chronic obstructive pulmonary disease (COPD) in adults (estimated above 25 years; ICD-10: J40-J44); and
- Lung cancer in adults (estimated above 25 years; ICD-10: C33-C34).
The mortality resulting from the exposure to ambient (outdoor) air pollution and household (indoor) air pollution from polluting fuels used for cooking and/or heating was assessed. Ambient air pollution results from emissions from industrial activity, households, cars and trucks which are complex mixtures of air pollutants, many of which are harmful to health. Of all these pollutants, fine particulate matter has the greatest effect on human health. By polluting fuels is understood kerosene, wood, coal, animal dung, charcoal, and crop wastes.

Indicator 4.1.2. Completion rate (primary education, lower secondary education, upper secondary education)

UMF Domain: Society - Inclusive; UMF Indicator 1.2.3. (UMF-11)

Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade.

The intended age for the last grade of each level of education is the age at which pupils would enter the grade if they had started school at the official primary entrance age, had studied full-time and had progressed without repeating or skipping a grade.

Indicator 5.5.1.b. Proportion of seats held by women in local governments

UMF Domain: Governance and Implementation - Inclusive; UMF Indicator 5.2.3. (UMF-69)

Indicator 5.5.1(b) measures the proportion of positions held by women in local government. It is expressed as a percentage of elected positions held by women in legislative/deliberative bodies of local government.

The method of computation is as follows:

$$\text{Indicator 5.5.1(b)} = \frac{\text{(Number of seats held by women) x 100}}{\text{Total number of seats held by women and men}}$$

Indicator 6.1.1. Proportion of population using safely managed drinking water services

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.2. (UMF-02)

The proportion of the population using safely managed drinking water services is defined as the proportion of population using an improved drinking water source which is accessible on premises, available when needed and free from faecal and priority chemical contamination. 'Improved' drinking water sources include: piped supplies, boreholes and tubewells, protected dug wells, protected springs, rainwater, water kiosks, and packaged and delivered water.

Indicator 6.2.1.a. Proportion of population using safely managed sanitation services

UMF Domain: Society - Safe and Peaceful; UMF Indicator 1.1.3. (UMF-03)

The proportion of the population using safely managed sanitation services is defined as the proportion of the population using an improved sanitation facility which is not shared with other households and where excreta are safely disposed of in situ or removed and treated off-site. 'Improved' sanitation facilities are those designed to hygienically separate human excreta from human contact. These include wet sanitation technologies such as flush and pour flush toilets connected to sewers, septic tanks or pit latrines, and dry sanitation technologies such as dry pit latrines with slabs, ventilated improved pit latrines and composting toilets.

For the purposes of SDG monitoring, treatment of wastewater and faecal sludge is assessed based on the treatment plant design technology, using categories defined by the System of Environmental-Economic Accounting (SEEA) and the International Recommendations for Water Statistics and following a laddered approach (primary, secondary and tertiary treatment). Wastewater and faecal sludge receiving secondary or higher levels of treatment are considered 'safely managed'. Primary treatment is not considered safely managed, unless the effluent is discharged in a way that precludes further human contact (e.g. through a long ocean outfall). If data are available for conventional classes (primary, secondary, tertiary, advanced) as well as for ambiguous categories (e.g. "other"), ambiguous categories are generally not considered as safely managed. Where treatment classes are not specified (e.g. "treated") the JMP assumes at least secondary treatment but seeks clarification during country consultations. Treatment of excreta in faecal sludge treatment plants is classified as safely managed if both the liquid and solid fractions are treated.

Indicator 6.3.1. Proportion of domestic and industrial wastewater flow safely treated

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.1. (UMF-40)

This indicator measures the volumes of wastewater which are generated through different activities, and the volumes of wastewater which are safely treated before discharge into the environment. Both of these indicators are measured in units of 1000 m^3/day, although some data sources may use other units that require conversion. The ratio of the volume treated to the volume generated is taken as the 'proportion of wastewater flow safely treated'.

Wastewater flows will be classified into industrial, services, and domestic flows, with reference to the International Standard Industrial Classification of All Economic Activities Revision 4 (ISIC). To the extent possible, the proportion of each of these waste streams that is safely treated before discharge to the environment will be calculated.

Indicator 7.2.1. Renewable energy share in the total final energy consumption

UMF Domain: Environment - Resilient; UMF Indicator 3.3.1. (UMF-46)

The renewable energy share in total final consumption is the percentage of final consumption of energy that is derived from renewable resources. Renewable energy consumption includes consumption of energy derived from: hydro, wind, solar, solid biofuels, liquid biofuels, biogas, geothermal, marine and renewable waste. Total final energy consumption is calculated from balances as total final consumption minus non-energy use.

This indicator is based on the development of comprehensive energy statistics across supply and demand for all energy sources – statistics used to produce the energy balance. Once an energy balance is developed, the indicator can be calculated by dividing final energy consumption from all renewable sources by total final energy consumption.

Indicator 8.5.2. Unemployment rate, by sex, age and persons with disabilities

UMF Domain: Economy - Inclusive; UMF Indicator 2.2.1. (UMF-27)

The unemployment rate conveys the percentage of persons in the labour force who are unemployed.

Unemployed persons are defined as all those of working age (usually aged 15 and above) who were not in employment, carried out activities to seek employment during a specified recent period and were currently available to take up employment given a job opportunity.

The computation is:

$$\textit{Unemployment rate} = \frac{\textit{Total unemployment}}{\textit{Total labour force}} \textit{ x 100}$$

Indicator 11.1.1. Proportion of urban population living in slums, informal settlements, or inadequate housing

UMF Domain: Society - Sustainable; UMF Indicator 1.4.1. (UMF-23)

The agreed definition of slums classified a 'slum household' as one in which the inhabitants suffer one or more of the following 'household deprivations':

1. *Lack of access to improved water source,*
2. *Lack of access to improved sanitation facilities,*
3. *Lack of sufficient living area,*
4. *Lack of housing durability, and*
5. *Lack of security of tenure.*

By extension, the term 'slum dweller' refers to a person living in a household that lacks any of the above attributes.

Informal settlements are usually seen as synonymous of slums, with a particular focus on the formal status of land, structure and services. They are defined by three main criteria, according to Habitat III

Issue Paper #22, which are already covered in the definition of slums.

For housing to be adequate, it must provide more than four walls and a roof, and at a minimum, meet the following criteria:

1. *Legal security of tenure,*
2. *Availability of services, materials, facilities and infrastructure,*
3. *Affordability,*
4. *Habitability,*
5. *Accessibility,*
6. *Location, and*
7. *Cultural adequacy.*

Criteria for defining slums, informal settlements and inadequate housing			
	Slums	*Informal Settlements*	*Inadequate Housing*
Access to water	*X*	*X*	*X*
Access to sanitation	*X*	*X*	*X*
Sufficient living area, overcrowding	*X*		*X*
Structural quality, durability and location	*X*	*X*	*X*
Security of tenure	*X*	*X*	*X*
Affordability			*X*
Accessibility			*X*
Cultural adequacy			*X*

Indicator 11.2.1. Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

UMF Domain: Society - Inclusive; UMF Indicator 1.2.2. (UMF-10)

The access to public transport is considered convenient when a stop is accessible within a walking distance along the street network of 500 meters from a reference point such as a home, school, work place, market, etc. to a low-capacity public transport system (e.g. bus, Bus Rapid Transit) and/or 1 km to a high-capacity system (e.g. rail, metro, ferry). Additional criteria for defining public transport that is convenient include:

a) *Public transport accessible to all special-needs customers,*
b) *Public transport with frequent service during peak travel times, and*
c) *Stops present a safe and comfortable station environment.*

The method to estimate the proportion of the population that has convenient access to public transport is based on five steps (core indicator):

a) *Delimitation of the urban area/ or city which will act as the spatial analysis scope,*
b) *Inventory of the public transport stops in the city or the service area,*
c) *Network analysis based on street network to measure walkable distance of 500 m and/or 1 km to nearest transport stop ("service area"),*
d) *Estimation of population within the walkable distance to public transport, and*
e) *Estimation of the proportion of the population with convenient access out of the total population of the city.*

Indicator 11.4.1. Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)

UMF Domain: Culture - Resilient; UMF Indicator 4.3.2. (UMF-58)

Total funding from government (central, regional, local), private sources (household, corporate & sponsorship and international sources) in the preservation, protection and conservation of cultural and/or natural heritage for a given year per capita. The results should be express in Purchasing Power Parities (PPP) in constant $.

Cultural heritage includes artefacts, monuments, a group of buildings and sites, museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance. It includes tangible heritage (movable, immobile and underwater), intangible heritage (ICH) embedded into cultural, and natural heritage artefacts, sites or monuments. The definition excludes ICH related to other cultural domains such as festivals, celebration etc. It covers industrial heritage and cave paintings. Mixed heritage that refer to sites containing elements of both natural and cultural significance are including in cultural heritage.

Indicator 11.6.1. Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal solid waste generated, by cities

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.2. (UMF-41)

SDG 11.6 targets an improved environmental performance of cities and SDG indicator 11.6.1. measures the progress of the performance of a city's municipal solid waste management. It quantifies the following parameters, which are essential for planning and implementing sustainable Municipal Solid Waste (MSW):

a) *Total MSW generated in the city (tonnes/day),*
b) *Total MSW collected in the city (tonnes/day),*
c) *Proportion of population with access to basic MSW collection services in the city (%),*
d) *Total MSW managed in controlled facilities in the city (tonnes/day),*
e) *MSW composition.*

It is important to realize that part (b) total MSW collected and (c) proportion of the population with access to basic MSW collection services are two different concepts. While part (b) refers to amounts of waste reaching waste management facilities, part (c) considers the population who receive waste collection services. In some cities it is common to dump waste 'collected' from households into the surrounding areas instead of transporting it to a disposal or recovery facility. In this case the household has waste collection services, but the collected waste is polluting the environment. Therefore, it is possible that a city has a high proportion of population with access to basic waste collection services, but the amount of MSW collected and transported to waste management facilities is low.

Indicator 11.6.2. Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)

UMF Domain: Environment - Safe and Peaceful; UMF Indicator 3.1.3. (UMF-42)

The mean annual concentration of fine suspended particles of less than 2.5 microns in diameters (PM2.5) is a population-weighted average for urban population in a country and is expressed in micrograms per cubic meter [µg/m3].

Indicator 11.7.1. Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities

UMF Domain: Environment - Inclusive; UMF Indicator 3.2.1. (UMF-44)

Public Space is defined as all places that are publicly owned or of public use, accessible and enjoyable by all, for free and without a profit motive, categorized into streets, open spaces and public facilities. Public space in general is defined as the meeting or gathering places that exist outside the home and workplace that are generally accessible by members of the public, and which foster resident interaction and opportunities for contact and proximity. This definition implies a higher level of community interaction and places a focus on public involvement rather than public ownership or stewardship. For the purpose of monitoring and reporting on indicator 11.7.1, public space is defined as all places of public use, accessible by all, and comprises open public space and streets.

Open public space is any open piece of land that is undeveloped or land with no buildings (or other built structures) that is accessible to the public without charge, and provides recreational areas for residents and helps to enhance the beauty and environmental quality of neighbourhoods. UN-Habitat recognizes that different cities have different types of open public spaces, which vary in both size and typology. Based on the size of both soft and hard surfaces, open public spaces are broadly classified into six categories: national/metropolitan open spaces, regional/larger city open spaces, district/ city open spaces, neighbourhood open spaces, local/pocket open spaces and linear open spaces. Classification of open public space by typology is described by the function of the space and can include: green public areas, riparian reserves, parks and urban forests, playground, square, plazas, waterfronts, sports field, community gardens, parklets and pocket parks.

The share of land occupied by open public space is calculated using the formula:

$$\text{Share of occupied land by OPS (\%)} = \left[\frac{\text{Total area covered by OPS}}{\text{Total area of the city}} \right] \text{x } 100$$

Indicator 11.b.2. Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies

UMF Domain: Governance and Implementation - Resilient; UMF Indicator 5.3.3. (UMF-74)

In line with the Sendai Framework for Disaster Risk Reduction 2015-2030, disaster risk reduction strategies and policies should mainstream and integrate disaster risk reduction within and across all sectors, across different timescales and with targets, indicators and time frames. These strategies

should be aimed at preventing the creation of disaster risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience.

Local governments are determined by the reporting country for this indicator, considering sub-national public administrations with responsibility to develop local disaster risk reduction strategies. It is recommended that countries report on progress made by the lowest level of government accorded the mandate for disaster risk reduction, as the Sendai Framework promotes the adoption and implementation of local disaster risk reduction strategies in every local authority.

Indicator 13.1.1. Number of deaths, missing persons and directly affected persons attributed to disaster per 100,000 population

UMF Domain: Society - Resilient; UMF Indicator 1.3.4. (UMF-20)

This indicator measures the number of people who died, went missing or were directly affected by disasters per 100,000 population.

Death: The number of people who died during the disaster, or directly after, as a direct result of the hazardous event.

Missing: The number of people whose whereabouts is unknown since the hazardous event. It includes people who are presumed dead, for whom there is no physical evidence such as a body, and for which an official/legal report has been filed with competent authorities.

Directly affected: The number of people who have suffered injury, illness or other health effects; who were evacuated, displaced, relocated or have suffered direct damage to their livelihoods, economic, physical, social, cultural and environmental assets. Indirectly affected are people who have suffered consequences, other than or in addition to direct effects, over time, due to disruption or changes in economy, critical infrastructure, basic services, commerce or work, or social, health and psychological consequences.

Indicator 15.1.1. Forest area as a proportion of total land area

Forest is defined as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

Land area is the country area excluding area under inland waters and coastal waters.

$$\frac{\textit{Forest area (reference year)}}{\textit{Land area (reference year)}} \textit{ x 100}$$

Indicator 15.1.2. Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type

The indicator shows temporal trends in the mean percentage of each important site for terrestrial and freshwater biodiversity (i.e., those that contribute significantly to the global persistence of biodiversity)

that is covered by designated protected areas and Other Effective Area-based Conservation Measures (OECMs).

Protected areas, as defined by the IUCN (IUCN; Dudley 2008), are clearly defined geographical spaces, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.

This indicator is calculated from data derived from a spatial overlap between digital polygons for protected areas from the World Database on Protected Areas (UNEP-WCMC & IUCN 2020), digital polygons for Other Effective Area-based Conservation Measures from the World Database on OECMs and digital polygons for terrestrial and freshwater Key Biodiversity Areas (from the World Database of Key Biodiversity Areas, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and other Key Biodiversity Areas).

Indicator 15.3.1. Proportion of land that is degraded over total land area

Land degradation is defined as the reduction or loss of the biological or economic productivity and complexity of rain fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from a combination of pressures, including land use and management practices.

Total land area is the total surface area of a country excluding the area covered by inland waters, like major rivers and lakes.

The indicator is a binary - degraded/not degraded - quantification based on the analysis of available data for three sub-indicators to be validated and reported by national authorities. The sub-indicators (Trends in Land Cover, Land Productivity and Carbon Stocks) were adopted by the UNCCD's governing body in 2013 as part of its monitoring and evaluation approach.

The method of computation is based on the baseline assessment and evaluation of change in the sub-indicators to determine the extent of land that is degraded over total land area.

Indicator 15.5.1. Red List Index

The Red List Index measures change in aggregate extinction risk across groups of species. It is based on genuine changes in the number of species in each category of extinction risk on The IUCN Red List of Threatened Species (www.iucnredlist.org) is expressed as changes in an index ranging from 0 to 1.

Threatened species are those listed on The IUCN Red List of Threatened Species in the categories Vulnerable, Endangered, or Critically Endangered (i.e., species that are facing a high, very high, or extremely high risk of extinction in the wild in the medium-term future). Changes over time in the proportion of species threatened with extinction are largely driven by improvements in knowledge and changing taxonomy.

Indicator 16.3.1. Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms

UMF Domain: Governance and Implementation Safe and Peaceful; UMF Indicator 5.1.4. (UMF-65)

Number of victims of violent crime in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms, as a percentage of all victims of violent crime in the previous 12 months.

Both the number of victims of violent crime as well as the number of all victims of violent crime are measured through sample surveys of the general population, most often dedicated crime victimization surveys.

Indicator 16.6.1. Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)

This indicator measures the extent to which aggregate budget expenditure outturn reflects the amount originally approved, as defined in government budget documentation and fiscal reports. The coverage is budgetary central government (BCG) and the time period covers every fiscal year for the countries.

In order to make the computation and the analysis of data over time easy and applicable for all countries, it was decided that SDG 16.6.1 indicator will be based on the annual data collection on approved and executed budgets for all countries and will be calculated annually.

The simple calculation for every year for every country in the submitted excel sheet is for the:

Aggregate expenditure outturn	=	*Executed Budget/Approved Budget*	*x 100*

ANNEX 2. STAKEHOLDER PARTICIPATION

Stakeholders who participated in VLR consultations by attending the workshops or in-person meetings in the period November 2023 – March 2024 are listed in Table 10.

Table 10. Stakeholder Participation in the development of the VLR of the City of Niš.

	INSTITUTION	DELEGATE
No.	**Public Sector: National Level**	
1.	Statistical Office of the Republic of Serbia	Milutin Radenković
2.	Institute for Nature Protection of Serbia	Marina Šibalić
	Public Sector: Regional Level	
3.	Public Institute for the Protection of Cultural Monuments Niš	Nadežda Rakocija
4.	Public Enterprise Institute of Urban Planning Niš	Mariana Mitić
5.	Public Enterprise Institute of Urban Planning Niš	Biljana Pavlović
6.	Public Enterprise Institute of Urban Planning Niš	Aleksandar Jovanović
7.	Local Office of the National Employment Service in Niš	Jasmina Mitić Videnović
8.	Local Office of the National Employment Service in Niš	Emilija Stojković
9.	Electro distribution Company Niš	Aleksandar Dimitrijević
10.	Electro distribution Company Niš	Ivica Dimitrijević
11.	Institute for Nature Protection of Serbia – the Office in Niš	Bogosav Stojiljković
12.	Institute for Nature Protection of Serbia – the Office in Niš	Ivan Medenica
13.	State Enterprise “Srbijašume” – Forest Estate Niš	Bojan Mitić
14.	Statistical Office of the Republic of Serbia - Department in Niš	Vukica Stojanović
15.	Administration for Emergency Situations in Niš	Miloš Stojanović
16.	Administration for Emergency Situations in Niš	Vladan Ivanović
17.	School Administration of the City of Niš	Predrag Nešović
18.	School Administration of the City of Niš	Valentina Ristić
19.	School Administration of the City of Niš	Jasmina Gejo
20.	School Administration of the City of Niš	Marija Ćirić
	Public Sector: Local Level	
21.	Public Utility Company for Water Supply and Sewerage "Naissus" Niš	Milica Ilić
22.	Public Enterprise Directorate for Development of the City of Niš	Aleksandra Simonović
23.	Public Enterprise Directorate for Development of the City of Niš	Saša Obradović
24.	Public Enterprise City Housing Agency Niš	Miomir Pešić
25.	Local Economic Development Office Niš	Biljana Vujičić
26.	Local Economic Development Office Niš	Marina Jelić
27.	Local Economic Development Office Niš	Ivan Pavlović
28.	Public Enterprise Tourist Organization of the City of Niš	Natalija Živanović
29.	Public Enterprise Tourist Organization of the City of Niš	Bojana Trudić

30.	Office for Youth of the City of Niš	Bojana Pejčić
31.	Office for Youth of the City of Niš	Stefan Stevanović
32.	Office for Youth of the City of Niš	Milena Čanak
33.	Public Utility Company City Heating Plant Niš	Tomislav Žikić
34.	Public Utility Company City Heating Plant Niš	Marina Stojiljković
35.	Public Utility Company Mediana	Milena Stamenković
36.	City Administration for Communal Activities and Inspection Affairs	Miloš Krstić
37.	City Administration for Communal Activities and Inspection Affairs	Slovenka Pavlović
38.	City Administration for Property and Sustainable Development Niš	Igor Đorđević
39.	City Administration for Property and Sustainable Development Niš	Gradimir Bogdanović
40.	City Administration for Property and Sustainable Development Niš	Dejan Vacić
41.	City Administration for Property and Sustainable Development Niš	Milena Mitić
42.	City Administration for Social Activities Niš	Maja Miljković
43.	City Administration for Social Activities Niš	Nemanja Milenković
44.	City Administration for Social Activities Niš	Pavlina Mihajlenko
45.	City Administration for Construction Niš	Goran Terzić
46.	City Administration for Construction Niš	Marko Stefanović
47.	City Administration for Construction Niš	Zorana Miljković
48.	City municipality Niška banja	Marina Jović
49.	City municipality Crveni Krst	Marko Dinić
50.	City municipality Crveni Krst	Ivana Miljanović
	Private Sector	
51.	„Teking Architecture“ Company	Slaviša Kondić
52.	“Kapaprojekt” Company	Teodora Stevanović
	Civil Society And Youth	
53.	Center for Girls	Sara Plazinić
54.	Red Cross Niš	Sanja Stojanović
55.	Association of Urban Planners of Niš	Aleksandra Milošević
56.	NGO Center for Civil Society Development - Protecta	Dejan Milošević
57.	NGO Center for Civil Society Development - Protecta	Aleksandra Savić
58.	NGO Nonprofit Organization “Jedi Movement”	Miloš Antic
59.	Student of University of Niš	Vojin Đorović
60.	Student of University of Niš	Marija Dimitrijević
61.	Student of University of Niš	Julija Ilić
	Academia	
62.	University of Niš – Faculty of Civil Engineering and Architecture	Jelena Đekić
63.	University of Niš – Faculty of Civil Engineering and Architecture	Milica Ljubenović
64.	University of Belgrade - Faculty of Agriculture	Ljubomir Životić
65.	Academy of Applied Technical and Preschool Teacher Studies Niš	Aleksandra Marinković

	Professional Sector: Regional Level	
66.	Regional Chamber of Commerce Niš	Ivana Slavković
67.	Regional Chamber of Commerce Niš	Ana Dimitrijević
68.	Regional Development Agency South	Nataša Andrejević
	International Organizations	
69.	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	Katja Grbić
70.	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	Kristina Kujundžić

ANNEX 3: QUALITY OF LIFE INITIATIVE

Quality of Life Initiative

UN-HABITAT

About the Quality of Life Initiative

Implemented by the United Nations Human Settlements Programme (UN-Habitat), the Quality of Life Initiative 1 is transforming how cities understand and improve urban well-being by harnessing human-centered data to capture what people truly value. Supported by a coalition of countries and the Quality of Life Program, the Initiative aims to empower cities with innovative, cutting-edge tools to measure quality of life and improve living conditions. Central to the Initiative is the Quality of Life Index, a novel tool designed to gauge the state of cities through the objective and subjective measurements of quality of life.

The Quality of Life Index goes beyond typical data tools. It aims to be globally relevant yet locally applicable and to capture universal aspects of quality of life while considering local factors, values, and priorities that define quality of life in different contexts across nine essential domains (see Image 1). Its novel structure incorporates a compulsory "global layer" that captures universal aspects of quality of life; alongside a "local layer" that determines contextual needs and preferences of cities, defined by local authorities, citizens and stakeholders. The bespoke Index is thus uniquely tailored to local values, priorities and cultural nuances. The novelty of the Index lies in the combination of both objective and subjective indicators that measure the state of urban development and the progress using indicators that are uniquely relevant to each city.

Global layer domains

Image 1. The quality of life domains (global layer)
Source: The Quality of Life Initiative (2024).

Contribution to SDG localization and acceleration

The Quality of Life Index is built to accelerate the achievement of the UN Sustainable Development Goals (SDGs), through provision of a comprehensive framework for assessing and enhancing urban well-being in alignment with global development priorities. By integrating indicators that cover various aspects of life, such as health, education, economic stability, environmental sustainability,

and social inclusion, the Quality of Life Index directly contributes to the monitoring and achievement of multiple SDGs, particularly those focused on reducing inequalities (SDG 10), promoting good health and well-being (SDG 3), ensuring quality education (SDG 4), and fostering sustainable cities and communities (SDG 11). The Quality of Life Index serves as a valuable tool for cities to measure progress toward these goals, identify areas of improvement, and implement data-driven policies that align with the broader agenda of sustainable development, ultimately propelling progress towards creating resilient, inclusive, and thriving urban environments. As such, the Quality of Life Initiative and related Index can catalyze the production of timely and disaggregated data, and harmonise policy interventions, as a way of instituting actionable steps to advance sustainable development.

Piloting the Quality of Life Initiative in the city of Nis

To ensure relevance and demonstrate proof of concept, the Initiative piloted the Index and its process in 11 cities worldwide, including in Niš, Serbia. Considering that the city of Niš was undergoing a Voluntary Local Review (VLR) to assess the progress made towards achieving the SDGs, there was both a methodological and policy interest to explore the convergence of the VLR framework and the Quality of Life Initiative. This paved the way for a more comprehensive approach to assessing development challenges and progress made in implementing the 2030 Agenda in Nis with support of people-centered approach strengthened by the Quality of Life Initiative.

Local workshop

A key milestone in developing the Quality of Life Index for the city of Niš was the organization of workshops dedicated to the definition of its “local layer” indicators, leveraging the VLR data where possible and appropriate. The workshop took place on 7-8 May 2024 and brought together a diverse group of stakeholders, including representatives from the City Administration, the Statistical Office of the Republic of Serbia, the Institute of Public Health, PC “City Housing Agency" Niš, the Institute for Nature Conservation, and PC Institute for Urban Planning Niš (see Image 2 and Image 3). The workshop allowed to establish a clear, common understanding of the quality of life priorities for Niš vis-à-vis the Quality of Life domains. It was integral to ensuring the robustness of the Index and reflective of the specific context in Niš, establishing a critical connection to the VLR framework and data.

Image 2. Workshop participants, Niš, 7 May 2024
Source: the city of Niš (2024)

Image 3. Workshop participants, Niš, 8 May 2024
Source: the city of Niš (2024)

The workshop was divided in four blocks (See image 4 below):

1. **Problem Definition:** Identification of key priorities and issues in relation to the quality of life in Niš, including the potential for development.

2. **Benefits Identification:** Confirmation of the benefits of addressing these priorities by documenting causal links between the “issues” and the potential quality of life improvements.

3. **Indicator Selection:** Identifying the "local layer” indicators, complementing the global indicators and providing a nuanced view on the quality of life in the city.

4. **Data discovery:** Discussion on data availability and reliability to inform the chosen indicators.

Local layer identification - interactive workshops

1. Problem Definition
To identify the critical and current priority for quality of life concerns in the City under the nine domains

2. Benefits Identification
To document the benefits to local quality of life that will emerge as a result of addressing the factors identified in Workshop 1

3. Indicator Selection
To commence the process of indicator selection for measuring each indicator in terms of the described benefits (2.) of addressing each problem (1.)

4. Data Discovery
To commence the process of identifying the type of data, data sources and resource implications for measuring the indicators.

Image 4. The interactive workshops on the “local layer” identification
Source: The Quality of Life Initiative (2024).

The logic connecting part 1 and part 4 of the workshop can be tracked with reference to specific examples coming from the city of Nis as outlined below in relation to basic services and mobility (Table 1); economy (Table 2); and environment (Table 3) domains.

Table 1. From Problem Definition to Data Discovery – the Basic Services and Mobility domain.

Basic Services & Mobility

Problem Definition	Benefits Identification	Indicator Selection	Data Discovery
• **Public Transportation:** Inefficiencies in the public transport system. • **Traffic Congestion:** Increased congestion due to the rising number of vehicles. • **Insufficient Parking:** Limited availability of parking spaces and public garages. • **Lack of Wastewater Treatment:** Direct discharge of wastewater into the Nišava River. • **Pedestrian Zones:** Lack of dedicated spaces for pedestrians. • **Coordination Issues:** Poor alignment between urban planning and management. • **Outdated Heating Systems:** Inadequate heating systems.	• **Formation of a Participation System:** Enhancing citizen engagement through formal procedures for handling complaints and initiatives. • **Introduction of New Pedestrian and Bicycle Lanes:** Improving infrastructure for pedestrians and cyclists. • **Design of Public Spaces:** Enhancing the usability and aesthetics of public spaces. • **Transition to Renewable Energy:** Upgrading existing systems to green technologies.	• **Length in kilometers of bicycle lanes:** Measuring the length of new bicycle lanes as an indicator of improved cycling infrastructure. • **Amount of Treated Wastewater:** Tracking progress in wastewater treatment systems. • **Number of New Parking Spaces:** Monitoring the increase in available parking spaces.	• Institute for urban planning of the city of Niš – measurement

Source: The city of Nis (2024).

Table 2. From Problem Definition to Data Discovery – the Economy domain.

Economy

Problem Definition	Benefits Identification	Indicator Selection	Data Discovery
• **Retaining and Attracting Talents:** Niš faces challenges in retaining and attracting skilled professionals due to low wages and brain drain. • **Knowledge-Based Economy:** There's a need to strengthen the knowledge-based economy for better innovation and growth. • **Innovation:** The limited number of start-ups affects the city's innovation capacity. • **Low Average Salary:** Wages in Niš are lower compared to more developed Serbian municipalities, impacting economic stability and quality of life.	• **High Value-Added Products and Services:** Boosting innovation and start-ups will result in higher value-added products and services. • **Increase in Average Wages:** Enhancing economic conditions and attracting talent will likely lead to higher average wages. • **Increase in Productivity:** A more skilled workforce and innovation will drive higher productivity. • **Increase in Competitiveness:** Improved wages and a stronger knowledge-based economy will enhance the city's competitiveness. • **Increase in Living Standards:** All these improvements collectively raise the living standards for residents.	• **Number of qualified workers and number of workers with high professional qualifications** • **Average gross salary of the city as a proportion of national gross salary** • **Number of technology development firms and start-up companies**	• Ministry of Trade • National Employment Service • Science and Technology Park

Source: The city of Niš (2024).

Table 3 . From Problem Definition to Data Discovery – the Enviroment domain.

Enviroment

Problem Definition	Benefits Identification	Indicator Selection	Data Discovery
• **Greenery in the city:** Limited green spaces impact air quality and residents' health. • **Wastewater treatment:** Inadequate treatment systems lead to environmental pollution and health risks. • **Individual combustion sources:** Unregulated combustion sources contribute to air pollution, particularly during the heating season. • **Air pollution:** Poor air quality, exacerbated by heating practices, affects overall health and quality of life. • **Standardization of regulations**: Inconsistent regulations hinder effective environmental management.	• **Reduced pollution and improved health:** Expanding green spaces, improving wastewater treatment, and regulating combustion sources will lower pollution levels and enhance public health.	• **15.1.1 Forest area as a proportion of total land area:** Measures green space development. • **Number of individual combustion sources:** Tracks sources contributing to air pollution. • **Number of illegal dumpsites:** Assesses waste management efficiency.	• VLR: Voluntary Local Reviews. • Institute of Public Health • Statistical Office of the Republic of Serbia

Source: The city of Niš (2024).

Relationship between the Quality of Life Index and SDGs

Several SDG indicators directly informed the creation of the “local layer” indicators of the Quality of Life Index, offering detailed insights into various aspects of living conditions, identifying specific issues, guiding targeted interventions, and ultimately working to improve the quality of life in the community. For example:

- **SDG Indicator 1.4.1:** Measures the proportion of the population living in households with access to basic services, was used to assess the availability of essential utilities to inform the Index's Housing domain within the “local layer” of the Index.
- **SDG Indicator 4.1.2:** Provided data on the completion rates for primary, lower secondary, and upper secondary education, highlighting educational attainment and identifying areas with high dropout rates to inform the Index's Education domain within the "global layer” of the Index, specifically focusing on attainment and school retention metrics.
- **SDG Indicator 15.1.1:** Tracked the forest area as a proportion of total land area, offering insights into environmental conservation and deforestation issues. This informed the Index's Ecological Sustainability and Land Use categories within the Environment domain within the “local layer” of the Index.
- **SDG Indicator 8.5.2 (Unemployment Rate):** Disaggregated by sex, age, and disability status, this indicator revealed employment disparities and informed targeted job creation

and training programs. This indicator falls under the economic domain at the global level.

- **SDG Indicator 11.2.1(Access to Public Transport):** Measured the proportion of the population with convenient access to public transport, identifying gaps in transportation infrastructure.
- **SDG Indicator 11.6.2 (Air Quality):** Assessed the annual mean levels of fine particulate matter (PM2.5 and PM10) in cities, providing crucial information on air quality and pollution. This indicator falls under the environmental domain at the global level.
- **SDG Indicator 11.4.1 (Cultural and Natural Heritage Conservation):** Examined total per capita expenditure on the preservation, protection, and conservation of cultural and natural heritage, highlighting funding levels and gaps in conservation efforts. This indicator is relevant to local layer governance.

As a result of the workshop, 14 "local layer" indicators were selected as the most suitable measures of quality of life for the city of Niš. Of these, 11 indicators were based on data provided both by the and the Statistical Office of the Republic of Serbia. The three remainning indicators from the social cohesion and culture domains will be measured through surveys that actively involving citizens, to gather their opinions on these topics. This people-centred approach to the Quality of Life Index enriches the VLR framework and process by grounding it in the lived experience of residents. It is important to note that no specific indicator was chosen for the education domain, as education is managed at the national level without a direct mandate of the city and its remit.

The selected raw data collected for Niš Quality if Life Index can be found in Tables 4 and 5. The finalized Index will be presented once the results for both local and global indicators have been gathered.

Table 4: „Global layer" of the Quality of Life Index in Niš

NIS QUALITY OF LIFE INDEX - GLOBAL LAYER (6/ 23+1 INDICATORS)						
Domain	**Indicator**	**Raw Data Value**	**Unit**	**Year**	**Administrative Level**	**Source**
Economy	Average annual unemployment rate (by age and gender) (SDG 8.5.2)	15.75	%	2024	City	National Employment Service, Nis Branch
Education	Completion rate (elementary education, lower secondary education, upper secondary education)	98.1 98.7	primary (%) secondary (%)	2022	City	Dev Info, VLR
Environment	Annual mean levels of fine particulate matter (i.e. PM 2.5 and PM 10) in cities (population wieghted) (SDG 11.6.2)	11 days/ PM2.5 1 day/ PM10	Days exceeded	2024	City	Google AQI
	Annual mean levels of fine particulate matter	PM10- 44.3 µg/m3 PM2.5-34.0 µg/m3	µg/m3	2022		VLR, The Institute of Public Health in Niš
Governance	Intentional homicide rate (SDG 16.1.1)	2.00	deaths	2023	City	City of Nis Police Department, Ministry of Interior
Health & Wellbeing	Healthy life expectancy at birth (HALE)	63.90	years	2021	Country	WHO Health Statistics

Table 5: „Local layer" of the Quality of Life Index in Niš

NIS QUALITY OF LIFE INDEX - LOCAL LAYER (7/15 INDICATORS)						
Domain	**Indicator**	**Raw Data Value**	**Unit**	**Year**	**Administrative Level**	**Source**
Economy	Number of qualified workers and number of workers with high professional qualifications (in relation to the total number of active persons looking for work).	75.6 qualified 37.2 higher education	%	2024	City	National Employment Service
Economy	Number of technology development firms and start-up companies	63.00	count	2024	City	Science and Technology Park
Education	Share of illiterate population in total population aged 10 and over	0.31	%	2022	City	Извор података: РЗС - Попис становништва
Environment	Forest areas as a proportion of urban land	38.71	%	2023	City	http://devinfo.stat.gov.rs/Opstine/libraries/aspx/Home.aspx
Health & Wellbeing	Immunization coverage (DTP-3)	95.02	% per annum	2022	City	The Institute of Public Health in Niš.
Housing	Proportion of population living in households with access to basic services (based on population access to safe drinking water from the piped water supply system in their own home)	90.00	%	2023	City	Public Utility Company for Water Supply and Sewerage Naissus Niš, 2023.
Housing	Number of completed apartments	776	count	2022	City	Republic Institute of Statistics

Conclusion

In summary, the Quality of Life Initiative aims to enhance urban living conditions and ensure sustainable development in Niš in line with global sustainability targets. The VLR developed by the city has contributed to this process by providing a robust framework for indicator selection and ensuring alignment with the Sustainable Development Goals (SDGs) across various dimensions:

Alignment with SDGs: The use of the VLR data for the Quality of Life index ensured close alignment of the Index with SDGs, as recalled in the examples above, in relation to improving access to basic services (SDG Indicator 1.4.1), enhancing educational outcomes (SDG Indicator 4.1.2), and increasing green spaces (SDG Indicator 15.1.1). This alignment guarantees that local efforts to improve quality of life also contribute to broader global goals and promote sustainable urban development.

Informed Indicator Selection: The VLR process has provided a structured approach for identifying and prioritizing indicators that reflect the specific context and the needs of Niš, which in turn informed indicator selection. This includes critical areas such as reducing unemployment rates (Indicator 8.5.2), improving public transport access (Indicator 11.2.1), enhancing air quality (Indicator

11.6.2), and investing in cultural heritage (Indicator 11.4.1). By focusing on these indicators, the Quality of Life Initiative could effectively target the key challenges of the city, allowing to design and deliver meaningful improvements.

Enhanced Data Availability and Measurement: The VLR encouraged reliable and measurable indicator selection for the Index of Niš. This ensures that we can effectively track the city's progress in different quality of life areas. With this approach, we can continuously monitor and refine the Quality of Life Initiative to achieve objectives.

Stakeholder Engagement: Engaging various groups of stakeholders has been pivotal in both the VLR and the Quality of Life Initiative. The VLR stakeholders participated in the workshops and consultations and provided input into the selection of relevant quality of life indicators and ensured that the Initiative addresses local priorities. This participatory approach not only allowed aligning the Quality of Life Initiative with community needs in Nis, but provided an opportunity to foster more inclusive and impactful strategies and actions at the local level.

Overall, the VLR has been instrumental in guiding the development of the Quality of Life Initiative by providing a comprehensive framework for indicator selection, ensuring alignment with global goals, and strengthening the participatory process. This support has been vital in creating a targeted, actionable plan that enhances the quality of life for residents of Niš and ensures the promotion of sustainable urban development.

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