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#### **Review of the implementation of the programmes of work 2022 and 2023:**

#### **Implementation of the United for Smart Sustainable Cities initiative**

### **Smart Sustainable Cities Profile: Podgorica**

#### **Note by the Secretariat**

##### *Summary*

This document includes the Smart Sustainable City Profile of Podgorica developed at the request of the city government of Podgorica and supported with funds from the United Nations Development Account (UNDA) 12th tranche project “Smart Sustainable Cities for the 2030 Agenda for Sustainable Development and the New Urban Agenda in the UNECE Region”.

The Committee is invited to welcome the draft of the Smart Sustainable City Profile of Podgorica and approve it as an official publication in digital and print formats.

## Preface

The Smart Sustainable City Profile of Podgorica (Podgorica City Profile) was developed upon the request of the city government of Podgorica, supported with funds from the United Nations Development Account (UNDA) 12<sup>th</sup> tranche project “Smart Sustainable Cities for the 2030 Agenda for Sustainable Development and the New Urban Agenda in the UNECE Region”<sup>1</sup>. The project supports the transition of selected beneficiary cities towards smartness and sustainability with a view to accelerating the implementation of Sustainable Development Goal (SDG) 11 and other urban-related (SDGs).

The Housing and Land Management Unit of the UNECE Division of Forests, Land and Housing led the development of the Podgorica City Profile, in close cooperation with the city government of Podgorica. The Profile provides the outcomes of the evaluation of Podgorica against the Key Performance Indicators (KPIs) for Smart Sustainable Cities (SSC) along with action-oriented recommendations for consideration.

The KPIs for SSC is a public and freely available standard developed by the United Nations Economic Commission for Europe and the International Telecommunication Union (ITU) in the context of the United for Smart Sustainable Cities (U4SSC)<sup>2</sup> initiative. U4SSC is coordinated by UNECE, ITU and the United Nations Human Settlements Programme (UN-Habitat) and is supported by 14 other United Nations agencies.<sup>3</sup>

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<sup>1</sup> UNECE, <https://unece.org/housing/innovativefinancing-sustainablesmartcities>.

<sup>2</sup> The “KPIs for SSC” standard was endorsed by the UNECE Committee on Urban Development, Housing and Land Management in 2016 (ECE/HBP/2016/4) and was brought under the U4SSC initiative. U4SSC brings together 16 United Nations agencies and supports the evaluation of the performance of cities using the KPIs for SSC and the implementation of smart sustainable city solutions through the development of guidelines, studies, city action plans, and capacity-building events. The indicators are outlined in the Collection Methodology for Key Performance Indicators for Smart Sustainable Cities (<https://unece.org/DAM/hlm/documents/Publications/U4SSC-CollectionMethodologyforKPIfoSSC-2017.pdf>).

<sup>3</sup> For up-to-date information on cities under KPI evaluation by UNECE, see

<https://unece.org/housing/sustainable-smart-cities#:~:text=A%20smart%20sustainable%20city%20is,as%20well%20as%20cultural%20aspects.>

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This publication is a result of a joint effort and sets the context for deepening the support of UNECE to Podgorica.

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## Abbreviations and acronyms

AA	Association Agreement
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EU	European Union
EUR	euro
FDI	foreign direct investment
GCAP	Green City Action Plan
GDP	gross domestic product
GHG	greenhouse gas
GIZ	German Corporation for International Cooperation
ha	hectares
ICT	Information and Communications Technology
IPCC	Intergovernmental Panel on Climate Change
IMF	International Monetary Fund
ITU	International Telecommunications Union
KPIs	Key Performance Indicators
MSW	municipal solid waste
MSMEs	micro and small and medium enterprises
NAPR	National Agency of Public Registry
PPP	public-private partnerships
RES	renewable energy sources
SDGs	Sustainable Development Goals
SMEs	small and medium enterprises
SSC	Smart Sustainable Cities
UNDA	United Nations Development Account
USD	United States dollars
VAT	value added tax

## Executive summary

Montenegro is undergoing the European Union (EU) accession<sup>4</sup> process following its application to join the EU in 2008. The government of Montenegro has been ambitious to accelerate implementation of the measures which support the EU accession and promote sustainable development.

This is clearly reflected in the economic and social development of the country's capital, the city of Podgorica, which has demonstrated remarkable progress in several sectors of the economy. The results of the evaluation of the city performance against the KPIs for SSCs demonstrate high performance in the categories of Employment and ICT Infrastructure; moderate to high performance in Housing, Environmental Quality, Safety, Health, Culture and Education; and moderate performance in Social Inclusion, Electricity Supply, Energy, Water and Sanitation, Energy.

The evaluation results also demonstrate the need for improvement in the categories of Transport, Innovation and Buildings (specifically in the energy-efficiency of buildings).

Based on the KPI evaluation results, supported by review of documents and inputs from local experts and stakeholders, this City Profile provides the following key action-oriented recommendations for upscaling efforts to make the city of Podgorica smart and sustainable:

- Improve urban data collection at the city level and ensure accessibility of the collected data to a wider range of stakeholders.
- Based on data collection and analysis, develop a system for evidence-based decision making and planning.
- Develop and update urban cadastre and improve the process of urban and spatial planning documentation preparation.
- Improve the institutional and governance framework for the legalization of informally constructed buildings and support the legalization process.
- Promote energy efficiency of public buildings.
- Introduce measures to increase the share of renewables in energy consumption.
- Strengthen low-carbon emission mobility and transport, including through the increased use of public transport.
- Develop and diversify funding of urban greening measures.

The city government is ambitious in implementing measures to improve the overall living conditions of the inhabitants and this is reflected in the *Strategic Development Plan of Podgorica* for the period 2020-2025. Out of a total of 118 projects foreseen in the Plan, around 69 projects are currently in various stages of implementation.<sup>5</sup> The Plan also shows the focus of the city government on green and environmentally sustainable local development. The city government is committed to promote smart and sustainable urban development which ensures the implementation of the recommendations of this City Profile.

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<sup>4</sup> European Commission, "European Neighbourhood Policy and Enlargement Negotiations (DG NEAR) – Montenegro". Available at [https://neighbourhood-enlargement.ec.europa.eu/enlargement-policy/montenegro\\_en](https://neighbourhood-enlargement.ec.europa.eu/enlargement-policy/montenegro_en).

<sup>5</sup> Capital City of Podgorica, *Report on Strategic Development Plan 2020 – 2025*, 2022a. Available at <http://skupstina.podgorica.me/wp-content/uploads/2022/05/48.Izvje%C5%A1taj-o-sprovo%C4%91enju-Strate%C5%A1kog-plana-razvoja-Glavnog-grada-Podgorica-2020-2025-za-2021.-godinu.pdf>.

## I. Introduction

The Smart Sustainable City Profile of Podgorica, Montenegro aims at supporting the Podgorica city government realize its vision of becoming a smart and sustainable city. The City Profile was developed under the United Nations Development Account (UNDA) 12th tranche project “Smart Sustainable Cities for the 2030 Agenda for Sustainable Development and the New Urban Agenda in the UNECE Region”. It was carried out by the United Nations Economic Commission for Europe (UNECE), in close cooperation with the Secretariat for Spatial Planning and Sustainable Development of Podgorica and the Ministry for Ecology, Spatial Planning and Urbanism of Montenegro.

The preparation of the City Profile started with an evaluation of the performance of Podgorica using the Key Performance Indicators (KPIs) for Smart Sustainable Cities (SSC)<sup>6</sup>. The KPIs for SSC includes 91 indicators which cover four dimensions - economy, environment and society and culture. The evaluation was followed by a desk review of relevant national and local development plans and initiatives and face-to-face interviews with key national and local government officials to gain insights into the city’s immediate and strategic long-term priority needs and development challenges.

The Podgorica City Profile is organized into eight parts. Part I is this introduction and is followed by a general overview of the city of Podgorica in Part II which outlines the city’s location and typology, modern urbanization and economic development trends, urban economic profile and climate change impacts. Part III highlights the socioeconomic impact of the COVID-19 pandemic on both the local and national levels. Part IV is devoted to the legal and institutional framework for urban development. Part V discusses the results of the evaluation of the performance of Podgorica against the four dimensions of the KPIs for SSC – economy, environment and society and culture. The city’s urban development priorities and challenges are highlighted in Part VI. Part VII outlines the funding and financial framework. Part VIII offers policy recommendations to the city government and relevant stakeholders.

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<sup>6</sup> Developed jointly with the International Telecommunication Union (ITU) and tested and implemented globally in over 150 cities. The “Collection Methodology for Key Performance Indicators for Smart Sustainable Cities” provides an overview on how these KPIs came about, what they measure and what they can provide cities (<http://handle.itu.int/11.1002/pub/80fbaa55-en>).

## II. General overview

### Location, topography and hydrography

Podgorica is the largest urban agglomeration and the administrative capital of Montenegro. It is located in the central part of the country, north of the fertile Zeta Plain and is about 50 kilometres from the Adriatic Sea and 20 kilometres north of Lake Skadar. Podgorica covers an area of approximately 1,491 km<sup>2</sup> (about 10.43 per cent of total Montenegrin territory) and borders with the Republic of Albania on the east, the towns of Cetinje and Danilovgrad on the west and the towns of Kolasin and Andrijevica on the north (Podgorica and GIZ, 2020). On the south, Podgorica borders with the city of Bar, where the country's main port, the Port of Bar, is located. In 2021, the port recorded around 1.3 million tons of total trans-shipment (Bar, 2022).

A highway link located along the core of the Trans-European Transport Network (TEN-T) Orient/East Med Corridor connects Podgorica and the port city Bar. The corridor which connects Europe with Turkey, and the Middle East is one of the priority axes of the network and passes many major cities such as Sofia, Budapest, Prague and Berlin (EC, n.d.). Therefore, Podgorica is strategically positioned at the crossroad of several road and trade routes, connecting the Adriatic Sea with the more continental part of the country and the Balkan region. The city's strategic position enabled its current regional and national importance as the administrative, political, economic, traffic, scientific, educational and cultural centre of Montenegro.

The area of Podgorica is flat, located at a low altitude (around 44.5 metres) and surrounded by hills. The mountain range of Montenegro forms some of the world's largest karst systems, characterized by high fracture-controlled permeability, almost total absence of surface water, high infiltration rates and rapid underground flows of groundwater. These provide the Dinaric region, which surrounds Podgorica, and its aquifers with huge amounts of high-quality groundwater (TWRM, n.d.). However, urban, agricultural and industrial development in Podgorica and the Zeta Plain pose a major threat to the regions' aquifers (United Nations, 2015).

Podgorica is rich in rivers that divide the city territory into three distinct parts (Podgorica, 2019, p. 26). These rivers, namely Cijevna, Moraca with its tributary Ribnica, Zeta, Sitnica, Mareza, and Savin Potok, have their sources in the mountains. They provide the city of Podgorica and further agricultural fields in the fertile Zeta Plain with freshwater. The mountains surrounding the city provide it with water, on the other hand, they serve as a natural barrier to the expansion of the city's territory.



## Physical map of Montenegro



Source: General Maps, United Nations Geospatial; see <https://www.un.org/geospatial/mapsgeo/generalmaps>.

### Climate change impacts

The area of Montenegro features a very complex landscape and many natural contrasts. Together, they form a unique geographical whole resulting in different levels of vulnerability to the consequences of the changing climate throughout the country. Large water bodies, changing altitudes, the position of its coastal mountains and the terrain affect local and regional climate conditions. Due to its proximity to the Adriatic Sea and surrounding mountains, Podgorica has a mild and Mediterranean climate, with warm and dry summers and mild and rainy winters (World Bank, 2003, p. 4).

Generally, Montenegro is rich in water resources and is green, with over 60 per cent of the country covered by forests (MSDT and UNDP, 2020). Although the global contribution of Montenegro to climate warming is minor (2.3 Mt CO<sub>2</sub> in 2020)<sup>7</sup>, implementing mitigation and adaptation measures is a high priority for the government. This is reflected in various ratified international Climate Agreements such as the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreement (MSDT and UNDP, 2020).

Depending on the area and its characteristics, Montenegro is particularly vulnerable and exposed to climate hazards like droughts, floods, forest fires and heatwaves (see figure 3). The major drought of 2011 posed social and economic challenges that affected the whole country and has led to an extreme

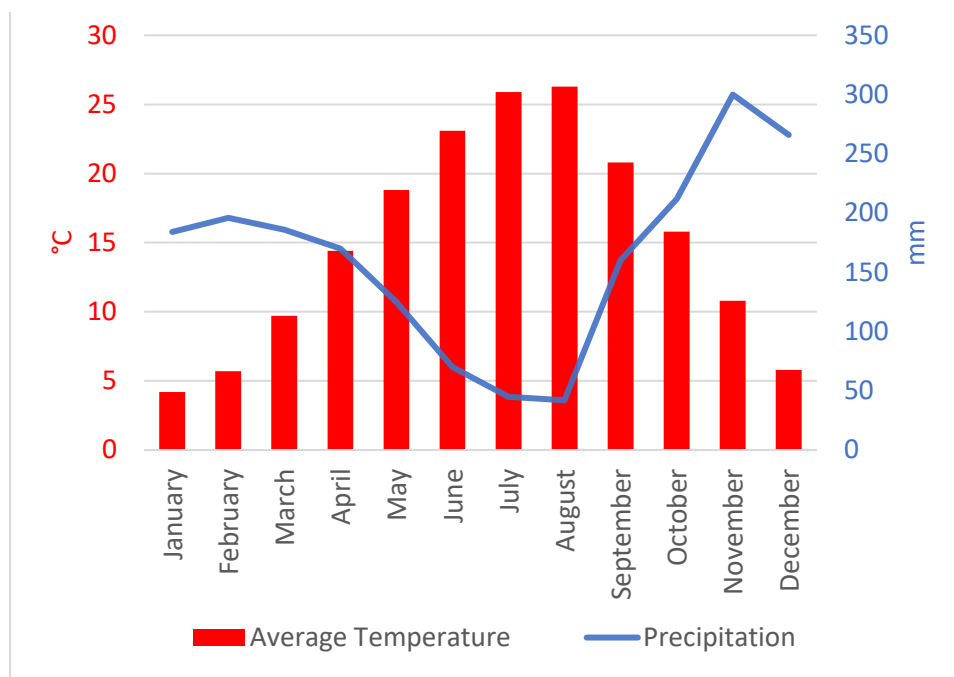
<sup>7</sup> Third Biennial Update Report of Montenegro to the United Nations Framework Convention on Climate Change ([https://unfccc.int/sites/default/files/resource/BUR3\\_Montenegro%20-%202024.%20Jan%20-%20FINAL.pdf](https://unfccc.int/sites/default/files/resource/BUR3_Montenegro%20-%202024.%20Jan%20-%20FINAL.pdf)).

hydrological deficit in the Zeta-Bjelopavlici region (MSDT and UNDP, 2020), the largest agricultural area in Montenegro.

Climate projections for Montenegro show an overall increase of average temperatures 1.5°C to 2°C by 2040. For Podgorica, estimates show an increase up to 3°C in 2070 and 5°C in 2100. Climate change projections for Podgorica, based on medium scenarios (A1B), show an average annual temperature increase of 0.9°C from 2001 to 2030, and 2.6°C from 2071 to 2100. This will lead to longer heat waves lasting up to 9.6 days (2001 to 2030) and 12 days (2071 to 2100). Projections using strong scenarios (A2) suggest a higher temperature increase of 3.5°C from 2071 to 2100, with heat waves lasting 14.6 days.<sup>8</sup>

In Podgorica, the average annual temperature is 15.1°C, with temperatures in winter averaging at 5.2°C and 24°C in summers (Climate-Data, 2022). According to World Data information on the climate of Montenegro,<sup>9</sup> in the last 68 years (1955-April 2023), the highest and lowest temperatures were reported in Podgorica at 44.8°C and -8.6°C, respectively. Data for the period 1991-2021 (see figure 1) shows the month of November recording the highest precipitation rate at 300 mm while the summer months of July and August had the least rainfall at 45 mm and 42 mm, respectively. Over a year, the average precipitation is 1,956 mm (Climate-Data, 2022).

**Figure 1 Podgorica: monthly average temperature and precipitation, 1991–2021**

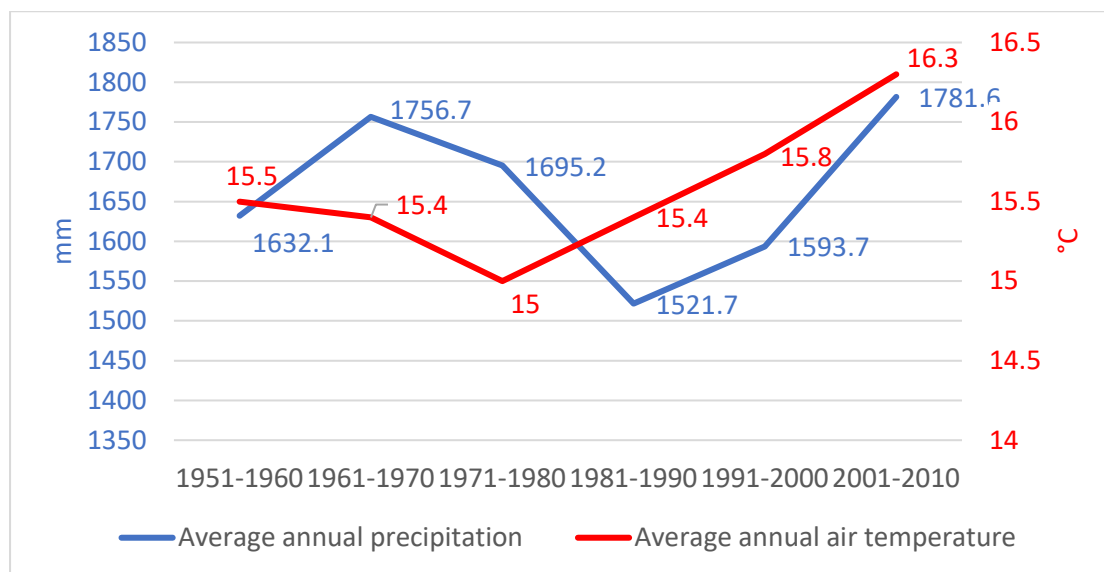


Source: Climate-Data, 2022.

<sup>8</sup> Table 20 of the Vulnerability Assessment and Adaptation Action Plan of Podgorica shows data on projected changes in the air temperature of Podgorica using the A1B and A2 climate impact assessments scenarios (Podgorica and GIZ, 2015a).

<sup>9</sup> <https://www.worlddata.info/europe/montenegro/climate.php>.

**Figure 2 Average annual recorded air temperature and precipitation in Podgorica, by decade, 1951-2010**



Source: Podgorica and GIZ, 2015a.

In terms of precipitation, medium scenarios indicate a decrease in mean annual precipitation of 9.6 per cent (2001 to 2030) and 31.2 per cent (2071 to 2100), resulting in fewer days per year with heavy precipitation (> 20mm), specifically -3.5 days (2001 to 2030) and -8.6 days (2071 to 2100). Strong scenarios predict a mean annual precipitation decrease of 15.5 per cent (2071 to 2100) and -5.3 days per year with heavy precipitation. Both scenarios indicate a reduction in the number of days with heavy precipitation, but the intensity of average precipitation on those days is expected to increase by around 7-9 per cent.<sup>10</sup>

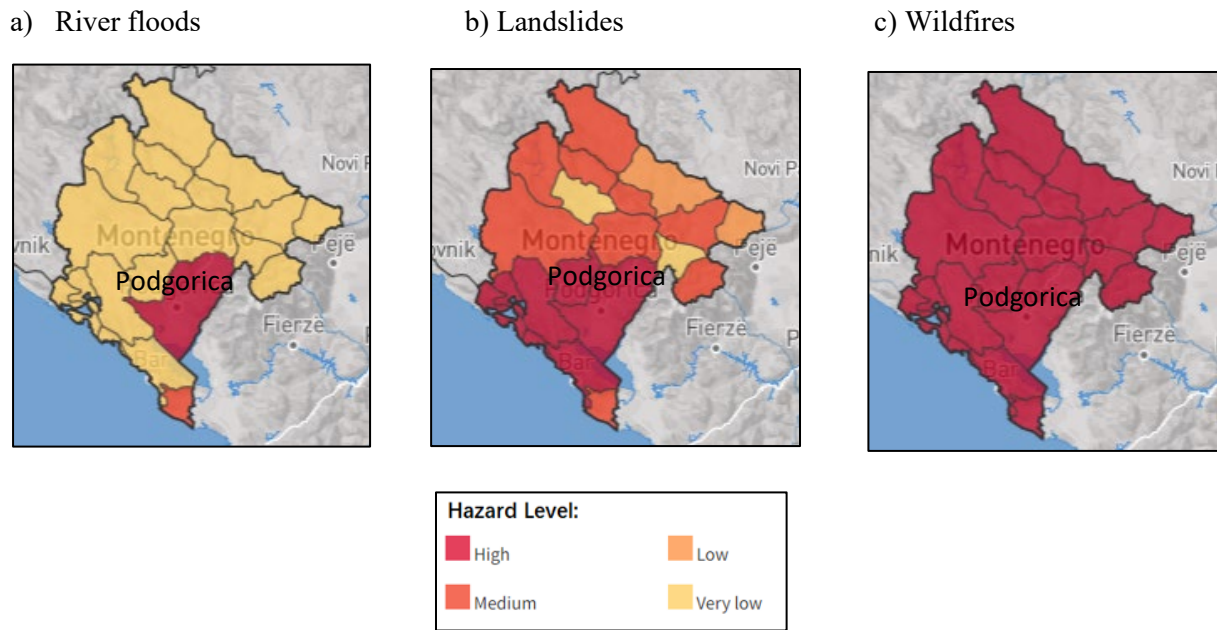
These climatic changes will also drastically impact the water balance of all river basins of not only Podgorica but also Montenegro, affecting surface water availability that will lead to an expected reduction of average annual flow by 27 per cent. Montenegrin agriculture, which continues to be an important strategic sector, is highly vulnerable to climate change due to its dependence on specific temperature conditions and water availability. Agricultural areas located in the lowlands might be subject to frequently occurring floods and droughts in the future (MSDT and UNDP, 2020).

As the country’s major urban centre and due to its location in a flat area of the Zeta Plain surrounded by mountainous terrain, Podgorica is also particularly exposed to climate challenges, such as extreme heat. In August 2021, a forest fire raged through the country for 16 days and burned considerable areas in the proximity of Podgorica.<sup>11</sup> The forest fire burned parts of Gorica Park, the most important green area in Podgorica. According to methodology derived from the Global Framework for Disaster Risk Reduction (GFDRR), the degree of risk of river floods, landslides and wildfires in Podgorica is high (see figure 3).

<sup>10</sup> Table 21 of the Vulnerability Assessment and Adaptation Action Plan of Podgorica shows data on projected changes in precipitation of Podgorica using the A1B and A2 climate impact assessments scenarios (Podgorica and GIZ, 2015a).

<sup>11</sup> Global Disaster Alert and Coordination System (GDACS), 2022. Available at: <https://www.gdacs.org/>.

**Figure 3 Risk of river floods, landslides and wildfire in Montenegro and Podgorica**



Source: Thinkhazard (<https://thinkhazard.org/en/report/2647-montenegro/LS>).

### Urbanization trends

Podgorica had a population of 191,637 in 2021 (Monstat, 2020a) which is about 30 per cent of the total Montenegrin population. The natural annual growth of the city population is between 1.6 and 1.9 per cent (Monstat, 2021b).

Modern urban and economic development in Podgorica has been heavily shaped by the following important historic events. In the period between the two world wars, Podgorica was a small town with about 13,000 people. World War II bombings largely destroyed the city, killing 4,100 civilians. In the following years, under the name of Titograd, Podgorica became the capital of the former Socialist Republic of Montenegro (Podgorica, n.d.-b).

Montenegro became a significant contributor to the industrial output of the former Yugoslavia, specializing in electricity generation as well as the manufacturing of steel, aluminium, coal mining, forestry and wood processing, textiles and tobacco. International trade and tourism also gained importance by the end of the 1980s (Montenet, 1997). Rapid urbanization and industrialization experienced by the country between 1946 and 1989 reverberated in the capital city. As the country's largest urban agglomeration and growth engine, Podgorica became a key educational, employment, scientific, cultural and health hub in the Balkan region.

Rapid industrial development and the growth of the population has caused high levels of air pollution (to great extend due to the use of firewood and coal). Further, the waste management infrastructure was not developing as fast as the city was growing. This resulted in increased amounts of waste and wastewater leakages into rivers, lakes and, ultimately, the Mediterranean Sea.

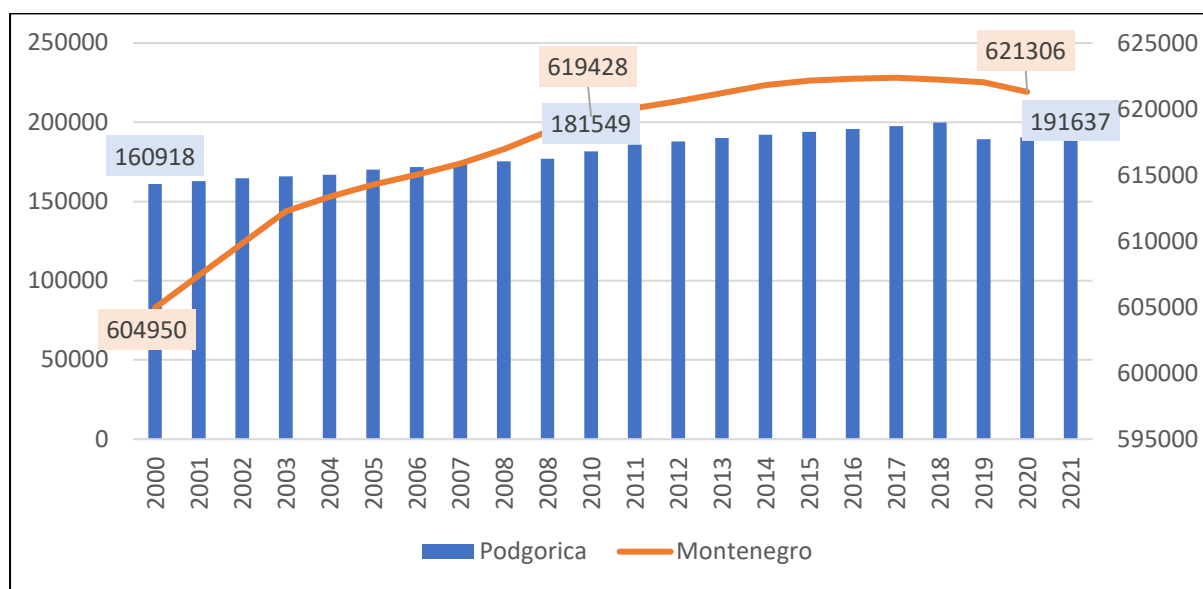
The breakup of the Yugoslav Federation in 1992 as well as the outbreak of the war in the Balkans carried a significant impact on the growth trajectory of Podgorica and the country. Following the war and after the independence of Montenegro in 2006, the country and first of all its capital Podgorica became an attractive tourist destination generating huge amounts of foreign investment into the country.

Neither the country nor Podgorica was ready to channel these large amounts of capital in a reasonable manner, which led to an explosion of construction and resulting from its environmental pollution

(Komatina, Kosanović and Aleksić, 2017). The rapid urbanization has put enormous pressure on the city's infrastructure, including its housing sector.

The population of Podgorica grew from 160,918 in 2000 to 191,637 in 2021 (see figure 5) or a 19 per cent growth in twenty years. The rapid uncontrolled growth of the city resulted in a large informality. One of the indicators of high informality in Podgorica is the difference between the number of registered inhabitants in 2019 (189,260) and the number of active holders of health insurance which was 214,398 (Podgorica and GIZ, 2020).

**Figure 5 Mid-year population of Podgorica and Montenegro, by year, 2000-2021**

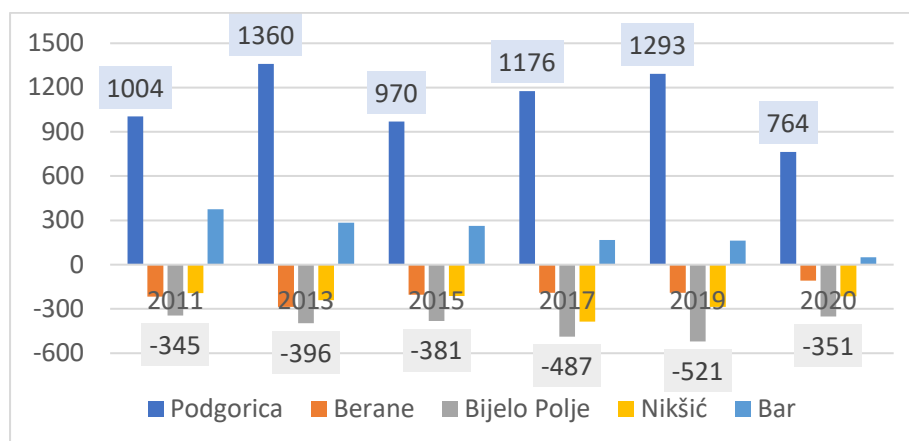


Source: Monstat, 2020a.

### Internal migration

The population increase in Podgorica reflects the result of the internal migration from other Montenegrin municipalities. Since 2011, over 50 per cent of the municipalities, especially in the north, faced negative internal migration rates, while the capital and coastal regions experienced mostly positive growth rates (see figure 6). There is a persistent outmigration from the northern region to Podgorica and the coast (World Bank, 2021). Today, the issue of internal migration constitutes one of the major challenges at the national level. Its impacts are felt both in Podgorica, as the main beneficiary, and in the municipalities facing depopulation. The population increase in Podgorica resulted in the spatial expansion of the city territory and in the development of informal settlements.

Figure 6 Net internal migration of Montenegrin municipalities, by year

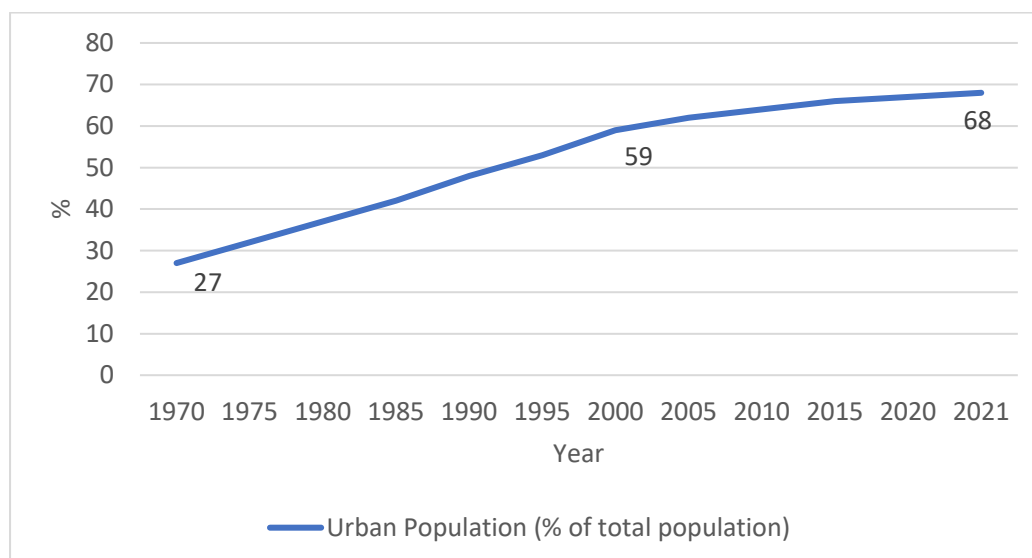


Source: Monstat, 2020b.

Today, over two-thirds of all informal settlements in the country are concentrated in Podgorica and the municipalities along the Adriatic coast (UNECE, 2021a). Although there is no official data available for the country as a whole, the city government of Podgorica estimates that there are at least 2,000 settlements not conforming to national legal standards.<sup>12</sup>

With the rapid expansion of the city, controlling urban expansion and ensuring urban infrastructure and services keep up with the demands of the growing population are ultimately the biggest urban challenges for the city. Additionally, the city must find ways to preserve the fertile agricultural lands of the Zeta Plain, which are currently under pressure from urbanization. Another area of concern is the rapid construction happening at Cemovsko Polje, towards the eastern side of Podgorica, a region that includes areas of valuable vineyards (Komatina, Kosanović and Aleksić, 2017). The trend towards increased urbanization is not unique in Podgorica (see figure 7), as municipalities throughout the country are facing similar challenges.

Figure 7 Urban population in Montenegro as percentage of total population, 1970-2021



Source: Urban population (% of population) – Montenegro, World Bank; <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=ME>.

<sup>12</sup> Date was provided by the city government on 19 July 2022.



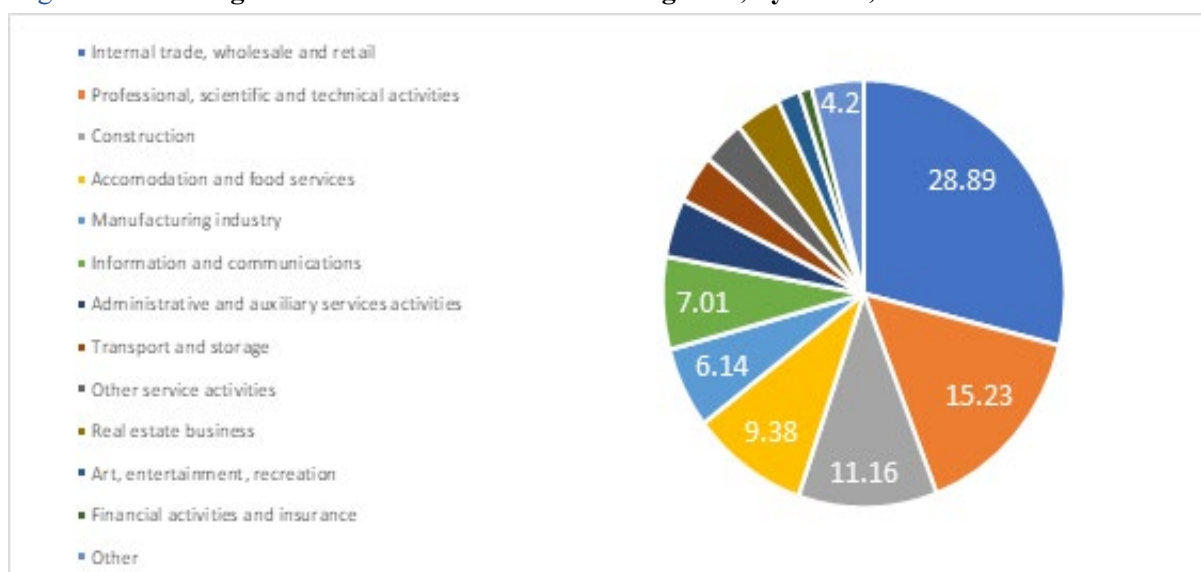
## Urban economic profile

After its independence in 2006, in 2007, the Government of Montenegro signed the EU Stabilisation and Association Agreement (SAA), which has since shaped the urban economic life in Podgorica. The Agreement comprises ten headings, including political dialogue, regional cooperation, alignment of the laws of the country to those of the EU, as well as free movement of goods and movement of workers, establishment, supply of services and movement of capital. The Agreement involves establishing free trade between Montenegro and the EU over a period of five years, as well as starting the process for the eventual removal of customs tariffs and quotas. Further, it allowed Montenegrin nationals to work in the EU (EUR-Lex, 2019). The ongoing EU accession process is creating growth opportunities for the economy of the country, particularly from an unlimited access to the European market.

The Podgorica trade sector has the largest share of business entities, accounting for 29 per cent of all businesses, followed by the sector on professional, scientific and technical activities at 15.2 per cent (see figure 8). While construction businesses make up for 11.16 per cent, accommodation and catering services, which are at heart of tourism in Podgorica account for 9.38 per cent of all businesses. These are followed by manufacturing (6.6 per cent), ICT (7.01 per cent), and administrative and auxiliary service activities (4.43 per cent).

According to recent data from the national statistics office (MONSTAT), the national structure of active businesses is very similar to the local level in Podgorica.

**Figure 8 Percentage share of business entities in Podgorica, by sector, 2022**



Source: Business Intelligence Consulting (<http://www.binfo.me/>).

The significant growth in the trade sector of Podgorica in recent years is attributed to the increase in population and in the number of tourist arrivals (Podgorica and GIZ, 2020). After its independence in 2006, Montenegro became an attractive tourist destination. The tourism sector generated huge amounts of foreign investment, increasing its importance in the economy of the country. In recent years, the number of national and international guests increased strongly and peaked in 2019 with 186,207 national and international guests. End-of-year data for 2015 and 2018 show an increase in the number of active businesses in the trade sector from 3,914 up to 4,901 or 25 per cent.

The average gross wage in the municipality of Podgorica was EUR 939 per month in 2022, which is above the national average of EUR 900 (Monstat, 2023). The average monthly gross wage in the

Western Balkans in 2018 varied from EUR 397 in Albania to EUR 766 in Montenegro. In comparison, Croatia had an average wage of EUR 1,139, while Austria had an average wage of EUR 3,220 in 2018.<sup>13</sup>

Exports from Podgorica are dominated by aluminium, as well as alcoholic and non-alcoholic beverages. The Aluminium Plant (Kombinat aluminijuma Podgorica – KAP) - the largest overall exporter in the country - exported goods worth EUR 72.5 million in the global markets in 2018 which accounted for 18 per cent of total Montenegrin exports (EUR 400 million). More than 60 per cent (EUR 43.8 million) of KAP exports went to Hungary. The aluminium production sector also showed the largest positive trade balance of EUR 29 million. However, along with closure of the chapter on environment of the EU accession process, EU funds will be used to close the aluminium plant due to high resource consumption and the pollution.

The nation's largest producer of wine and grapes, Plantaže, is located in Podgorica and, in 2018, ranked seventh nationwide in exports worth EUR 14.2 million. The company exported the most to Serbia (EUR 7.2 million), Bosnia and Herzegovina (EUR 2.2 million) and China (EUR 1.8 million) (Podgorica and GIZ, 2020). However, most businesses in Podgorica are micro and small businesses (Montenegro, 2021b) which complicates the country's capacity to formalize its economy.

To further strengthen the urban economy of Podgorica and improve its business environment, the city government established a business park area of 247.1 hectares on its territory. Providing adequate incentives will attract potential investors in the market of Montenegro.<sup>14</sup>

The city of Podgorica therefore has a diverse local economy base which supports social and economic development; this is supported by the growing population and therefore increasing labour force due to the internal migration.

### **III. Socio-economic impact of the COVID-19 pandemic**

#### **Impacts at the national level**

The first COVID-19 case in Montenegro was detected in March 2020. Regardless of the fast implementation of numerous measures - for example, social distancing and suspending schools - the pandemic impacted the country and its people severely (United Nations Montenegro, 2021a). As of March 2022, the number of cumulative confirmed COVID-19 cases in Montenegro was around 370,000 per one million inhabitants, which is the 16th highest globally (United Nations Montenegro, 2022).

In November 2020, the Government of Montenegro announced a set of measures, such as a countrywide curfew prohibiting movement between 10 p.m. and 5 a.m., closure of non-essential businesses, and partial physical restrictions in education, among others. However, the implementation of these measures severely hurt the economy of Montenegro.

In many ways, the pandemic exacerbated already existing vulnerabilities. First and foremost, the country's high economic vulnerability, of the caused by its narrow base of production, further increased. With tourism contributing almost 25 per cent to GDP, reduced tourist arrivals by over 80 per cent in the first half of 2020 had an enormous impact on the national economy, slowing down overall economic activity. The year-on-year decrease of 80 per cent in tourist arrivals deeply affected domestic consumptions and investments and as a result, the country's economy shrunk by over 15 per cent in 2020. A slow recovery of GDP is expected and would take two or three years to return to its end-of-2019 level. With the GDP deficit projected to widen to around 12-14 per cent, sharp fiscal adjustments

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<sup>13</sup> Labour Migration in the Western Balkans: Mapping Patterns, Addressing Challenges and Reaping Benefits, OECD, 2022

<sup>14</sup> Companies may carry out various activities in the business area such as agricultural activities, manufacturing, etc. ([http://invest.podgorica.me/?page\\_id=476](http://invest.podgorica.me/?page_id=476)).



will be needed to meet the maximum debt level required for EU accession - 60 per cent of GDP (United Nations Montenegro, 2021a). In 2019, the country was the best performer among the six Western Balkan countries (Albania, Bosnia and Herzegovina, North Macedonia, Kosovo and Serbia) with a year-on-year GDP growth of 4.1 per cent.

Pandemic-related economic contractions affected vulnerable groups the most, reversing employment and poverty reduction gains (UNECE, 2021a). Furthermore, important progress towards achieving SDGs clawed back and thus, meeting them became more challenging.

The number of total employment in Montenegro dropped by 13.2 per cent from 203,545 in 2019 to 176,693 in 2020 (Monstat, 2022a). Throughout the pandemic, many Montenegrins lost their livelihoods. The fiscal capacity of the Government to support its citizens was affected by reduced revenues worsening the population's poverty risk. Vulnerable groups of the population were at risk of unemployment and poverty the most. There was a reduction in salaries of around 21 per cent of employees in the country, 76 per cent of which worked in the private sector and mainly in the tourism, services and transport industry.

The major health and socio-economic impacts of the COVID-19 pandemic disproportionately affected the population. Many members of vulnerable groups, such as the Roma and Egyptian communities, completely lost their incomes or were substantially reduced (United Nations Montenegro, 2021a). In 2021, Montenegro implemented the use of a national COVID-19 certificate, ahead of joining the EU digital COVID-19 certificate (Montenegro, 2021a).

During the pandemic, Montenegro experienced its deepest recession in two decades (UNECE, 2021a). Despite this, its economy recorded a strong recovery in 2021. Throughout that year, the Government of Montenegro continued supporting businesses and individuals. The key goals of the Government were, inter alia, maintaining liquidity and preserving jobs through credit support to businesses and wage subsidies (UNECE, 2021a).

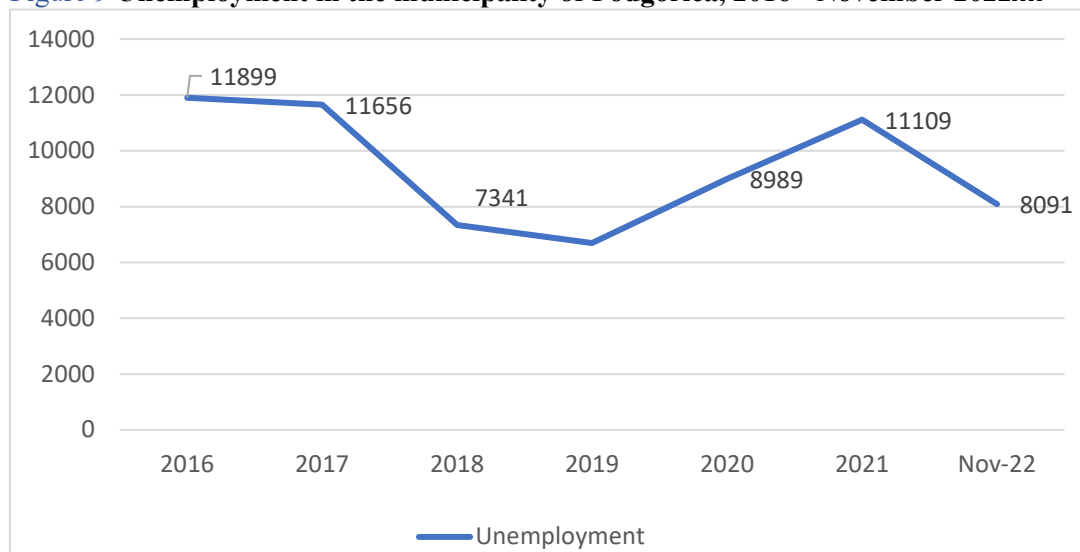
The COVID-19 pandemic severely impacted the health system of Montenegro, disrupting vaccination programmes and many other health services regardless of timely and effective measures. Due to restrictions in movements, lockdowns and financial difficulty caused by the loss of jobs, regular consultations with and visits to specialists and elective surgeries were cancelled. Furthermore, the development and implementation of health-related national action plans were hampered by reduced funding due to the costs related to addressing the consequences of the COVID-19 pandemic.

### **Impacts at the local level economy and employment**

Montenegro entered the COVID-19 crisis with an unemployment rate of above 15 per cent (35,429 persons based on data from the Employment Office). According to Employment Office data, Podgorica registered the most newly unemployed persons (6,749 or 24.5 per cent in 2020). Unemployment increased from 6,695 in 2019 to 8,989 in 2020 to 11,109 in 2021 (see figure 9).

Part of this increase in unemployment is linked to economic losses from the tourism sector during the COVID-19 pandemic. with the 78.5 per cent drop in tourist arrivals in 2020 from its pre-pandemic level, which simultaneously affected other urban sectors. In the same period, the number of total overnight stays dropped from 298,762 in 2019 to 79,542 in 2020 (Monstat, 2022b).

Figure 9 Unemployment in the municipality of Podgorica, 2016 - November 2022<sup>[15]</sup>



Source: Employment Agency of Montenegro, <https://wbc-rti.info/object/organisation/10924>.

The city government of Podgorica implemented multiple measures to reduce negative economic impacts on the city. These included postponement of tax payments of physical entities, as well as exemption from rent payments for tenants with office space lease contract with the city government. Moreover, the city government awarded grants to 55 restaurateurs to mitigate the consequences of COVID-19. The city budget rebalance was prepared by the city government in 2020, foreseeing an additional EUR 530,000 for assistance to Podgorica companies, as well as EUR 150,000 for ongoing maintenance of public infrastructure.<sup>15</sup>

As of January 2023, the number of registered COVID-19 infections in Podgorica was 103,294 the Institute for Public Health of Montenegro puts the total number of COVID-19 related deaths at 720.

Health centres provide health care in Podgorica, and they are organized into three units: clinics, support centres and support units for patronage. Fifteen of these health centres are located in the area of the capital city.<sup>16</sup> In the absence of a general hospital, the city is host to the Clinical Center of Montenegro, which provides secondary and tertiary treatment services as part of the health system. The Clinical Center employs over 2,300 full-time employees, including 1,700 health workers, eighty-nine subspecialist doctors and 260 specialist doctors.<sup>17</sup> In addition to the aforementioned institutions, the Institute for Public Health is on the territory of Podgorica, featuring seven centres functioning within the Institute.

<sup>15</sup> Data provided by the city government of Podgorica on May 30<sup>th</sup>, 2023.

<sup>16</sup> Data provided by the city government of Podgorica, 2020.

<sup>17</sup> Clinical Centre of Montenegro (<https://kccg.me/o-nama/>).

## IV. Legislative and institutional framework for urban development

### City-level development plans

According to the Law on Spatial Planning and Construction of Structures (2017), the following national policy documents guide urban planning at city level:

- Spatial Plan of Montenegro, a general planning document which is valid for 20 years after adoption. The latest adopted Plan is for 2008-2020, the new one is to be prepared for the period until 2040<sup>18</sup>.
- General Regulation Plan of Montenegro, a detailed zoning national plan, also valid for 10 years after the adoption. The Plan of General Regulation was adopted in 2020 with an allocated budget of EUR 2 million. Due to the change in the Government, the Plan was not implemented.<sup>19</sup>

The Secretariat for Spatial Planning and Sustainable Development is responsible for monitoring and enforcing laws and regulations in the areas of spatial planning, constructing facilities and environmental protection; and strategic evaluation of the impact of these laws and estimating their impact on the environment, among others. The Podgorica area (the city and adjacent areas), including Zeta (former Golubovci settlement), is covered by a total of 121 local planning documents (UNECE, 2021b). Figure 10 provides information on the responsibilities of city government departments for the development and implementation of the city plans.

The competences of Montenegrin municipalities include the following areas (EC, n.d):

- Local development
- Urban and spatial planning at local and regional level
- Construction permitting
- Construction land development and management
- Performance and development of communal affairs, maintenance of communal buildings and communal order
- Environmental protection
- Water management
- Agricultural land
- Social welfare
- Transport
- Tourism
- Culture and sports
- Investment policy
- Protection and rescue of the local population
- Consumer protection.

The most relevant city planning documents are the following:

#### On urban infrastructure

- Strategic Development Plan of the Capital City of Podgorica 2020-2025
- Spatial Urban Plan of the Capital City of Podgorica until 2025 (Spatial Development Strategy).

#### On urban mobility

Sustainable Urban Mobility Plan 2020

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<sup>18</sup> <https://investingmontenegro.me/spatial-plan-of-montenegro-until-2040-spatial-plan-concept/>

<sup>19</sup> Information provided by the city government on 19 July 2022

### On housing

Strategic Development Plan of the Capital City of Podgorica 2020-2025

### On greening the city

- Green City Action Plan of Podgorica (EBRD Green Cities)
- Local Energy Plan Capital City of Podgorica 2015 – 2025
- Capital City Energy Efficiency Improvement Programme 2021 -2023.

### On spatial planning

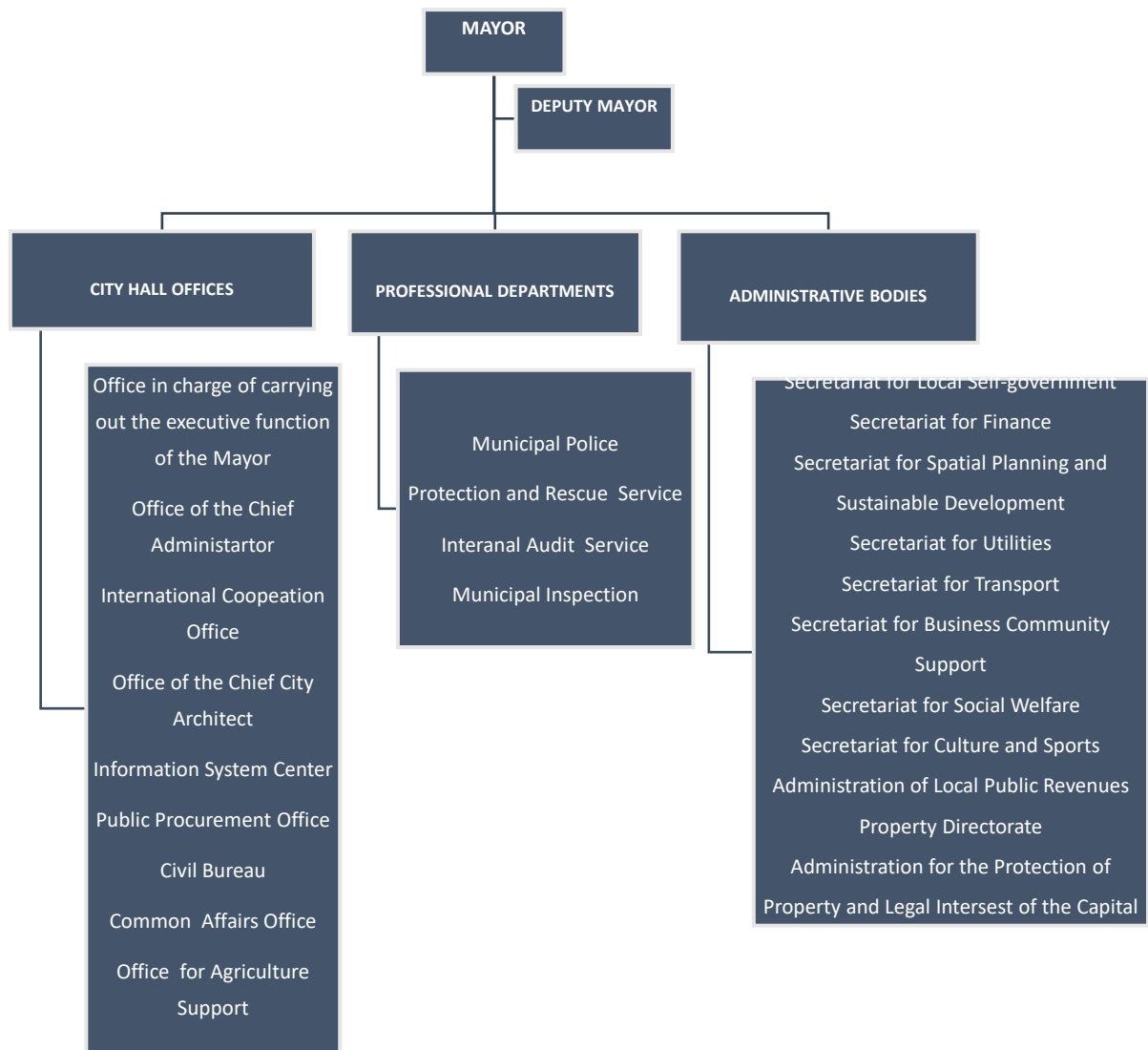
- Strategic Development Plan of the Capital City of Podgorica 2020-2025
- Spatial and Urban Plan (SUP) Podgorica 2014
- Spatial Urban Plan of the Capital city of Podgorica until 2025 (Spatial Development Strategy)
- Spatial Planning Programme with Urban Rehabilitation Programme 2022
- Smart City Action Plan

### On urban resilience

- Podgorica Climate Change Adaption Vulnerability Assessment and Adaption Action Plan 2015
- Spatial and Urban Plan (SUP) Podgorica 2014
- Spatial Urban Plan of the Capital city of Podgorica until 2025 (Spatial Development Strategy)
- Local environmental Protection Plan of the Capital City of Podgorica 2019-2022
- Smart City Action Plan.

Annex 1 lists national laws and regulations relevant to urban planning in Podgorica.

Figure 10 Organigram of the city government of Podgorica



Source: Developed by the project local consultant and approved by the city government.

## V. Urban development priorities and challenges of Podgorica

The main goal of urban development in Podgorica is to improve the quality of life for all residents. This can be achieved by taking measures to develop infrastructure, make business communities competitive, create a business ambience, make tourism attractive and protect the environment.<sup>20</sup> By mid-2023, around 69 of the total 118 projects foreseen in the Strategic Development Plan of Podgorica for the period 2020-2025 are in various stages of implementation, according to the Report on the Strategic Development Plan.

### Urban policy and planning

Changes in the national urban planning system have been weighing heavily on the ability of Podgorica to implement urban policies resulting in a lack of continuity in urban planning approaches. The practice of urban planning demonstrated that there is a need to revert the centralization process as established by the Law on Spatial Planning and Construction of Structures of October 2017. The decentralization of planning power should come in parallel with creating adequate planning capacities in the relevant local administration offices and support participatory planning. This capacity is needed also to increase the absorption of available EU pre-accession funds (UNECE, 2021b).

There are examples of city-level initiatives for participatory planning, such as Project Micro 020 (see box 5).

#### Box 5 Project Micro 020

In cooperation with partners and citizens, the city administration of Podgorica launched the Micro 020 project to revive unregulated areas, such as abandoned areas, neglected spaces between buildings and illegal trash dumping sites. The project builds on participation throughout the city scape: local communities (the citizens) can propose locations of areas to be transformed, companies can donate materials and architects can donate designs for these spaces. So far, multiple locations have been upgraded, including sculptures, playgrounds and greening measures.

*Source:* City government of Podgorica (<https://podgorica.me/en/mikro-020>).

The Micro 020 project is important to revive abandoned areas, including the brownfields<sup>21</sup> which are, at the moment, not recorded and, therefore, not broadly included in urban planning documents. The Podgorica brownfield sites include, among others, three abandoned factories - "Radoje Dakić", "Marko Radović" and "Duvanski kombinat" and the former "Kasarna Morača" military barracks. All these, when recorded and planned, could be valuable for potential investors.

### Housing and informal settlements

Population growth due to the internal migration resulted in the increased construction of buildings, both legal and illegal. Hence, managing the urban expansion and providing sufficient urban infrastructure for the growing population are among the most important urban challenges for the city of Podgorica. The sharp increase in construction (predominantly unplanned), along with reduced agricultural land, further highlighted the pronounced housing segregation in Podgorica as well as the need to improve and balance nature.<sup>22</sup> The current cityscape features residential zones and collective housing facilities, fully arranged communally and equipped, while informal and refugee settlements (e.g. Konik – Vrela

<sup>20</sup> Information provided by the city government on 19 July 2022.

<sup>21</sup> Brownfields refer to properties with the presence or potential presence of hazardous substances (e.g., old industrial estates).

<sup>22</sup> Interview with a city official on 5 July 2022.

Ribnicka) with very low housing standards make up for a large share of housing in Podgorica (UNECE, 2021b).

Five illegal settlement<sup>23</sup> zones were identified within the territory of Podgorica (UNECE, 2021a):

- Vranići
- Zagorič – park šuma
- Malo brdo
- Kakaritska Gora
- Dajbabaska Gora.

These areas are the largest informal settlement zones in Podgorica. However, it can generally be stated that most settlements in Podgorica have illegally constructed buildings. Due to a lack of official records on the actual number and location of illegal buildings, the city government of Podgorica failed to execute the collection of annual fees for unregulated use of space.

The *Vienna Declaration on Informal Settlements in Southeast Europe*,<sup>24</sup> signed by Montenegro in September 2004, stipulates that signatories should strive for a full regional solution regarding informal settlements by 2015 and commit to regularizing informal settlements and improving them to the maximum. This long and very complex process requires the involvement of many entities. Montenegro started the process with the adoption of the Law on Spatial Planning and Construction of Facilities in 2017, which was further improved by the adoption of a set of amendments.

Based on data from October 2021, about 48,000 of the 54,000 requests submitted for legalization at the state level were processed (MESU, 2021). The 2019 Report on the State of Spatial Planning refers to 17,142 constructions in Podgorica with legal restrictions on building permits (UNECE, 2021a), while data from the Real Estate database of the Cadastre and State Property Administration shows 16,382 cadastral objects in Podgorica built not in accordance with the law that were entered in the evidence of the Real Estate Directorate (Vujošević, Radulović and Miljanić, 2018). It is expected that the actual number of illegal buildings in the capital city is even higher than the numbers mentioned above. Data from the Secretariat for Spatial Planning shows 13,000 residents of Podgorica have requested legalization for illegally constructed buildings since 2018. In 2022, 372 legalization applications were submitted, of which 153 were approved.

According to the Cadastre and State Property Administration, oftentimes, many applicants are not able to finalise their requests as they do not have the required documentation available with them. Thus, the legalization process is highly complex and difficult. Preconditions for application for legalization of illegally constructed buildings include conformity of the construction with urban and spatial documents, resolved property rights on the building and the land on which the building was constructed, and assurance by the owner on the payment of the required fees.

To define future actions in spatial planning, more laws in this area, including in the construction and legalization of buildings, are currently being drafted.

The housing sector of Montenegro aims to comply with the requirements of EU legislation on building construction. The Housing Policy Assessment of Montenegro, prepared by UNECE, analyzed several national plans and programmes, including the National Housing Strategy of Montenegro 2011-2020 and the Final Report of the Implementation of the Strategy 2020. The assessment found immense differences in institutional capacities across Montenegrin municipalities and a lack of funding and staff

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<sup>23</sup> According to the Plan for Converting Informal Settlements into Formal and Regularization of Building Structures with Special Emphasis on Seismic Challenges.

<sup>24</sup> For a full copy of the declaration, see <https://locuireinformala.ro/wp-content/uploads/2019/12/Declaratia-de-la-Viena-privind-asezarile-informale-2004.pdf>.

for social housing planning, implementation and monitoring. At the local level, insufficient land and spatial planning and management combined with lack of urban plans, specifically on zoning land for the construction of public housing units, intensifies the issues of public housing scarcity and increasing number of informal constructions.

### **Urban mobility**

Like most municipalities in Montenegro, Podgorica has no experience with comprehensive and integrated urban mobility planning. The absence of an appropriate strategic transport planning does not allow for adequate mechanisms to identify priorities. Except for the city centre, transport planning in other areas still focuses on increasing the coverage of the transport infrastructure. This results in significant investments in the construction of road infrastructure which, however, does not improve the situation since it leads to longer travels, higher expenditure on mobility, traffic jams etc. This is also reflected in the city's increased investments in transport infrastructure from EUR 10.7 million in 2018 to EUR 13 million in 2022 (see table 5) (Vujadinović and others, 2021).

Podgorica is connected to the coast, the north of Montenegro and the border crossings of neighbouring countries via a road and railway network. However, the quality of the inner urban traffic is impaired by the fact that these roads pass through the urban area, which is already burdened by local traffic (Podgorica and GIZ, 2020). Podgorica experienced a strong increase in registered vehicles in recent years (more than 25.5 per cent from 2014-2018 in Vujadinović and others, 2021). The transport infrastructure remained insufficient for the increased number of transport vehicles (Vujadinović and others, 2021). Parts of the highway from Bar to Boljare, a strategic transport corridor which connects Montenegro with its neighbours, pass through the area of Podgorica, causing additional pressure on the urban road network.

Heavy urban traffic and further deterioration of roads directly affect the public transport system of Podgorica. As of the time of drafting, it consists of 24 bus lines operated by three companies with 59 buses (Monstat, 2022c).

The heavy vehicle traffic on certain parts of the city road, especially in the narrow centre and on the main roads towards the city centre, would justify planning and construction of auxiliary traffic lands for public transport or reserving certain lanes for this purpose (Podgorica and GIZ, 2020).

During the development of the Sustainable Urban Mobility Plan 2020 (SUMP), the following key challenges were identified (Vujadinović and others, 2021):

- Lack of strategic planning for urban transport in line with current EU accession
- Low level of compliance with traffic regulations and, consequently, a compromised level of safety for road users
- Uneven use of the different modes of transport, with passenger cars being the dominant transport mode, while walking and cycling modes of public transportation are almost negligible
- Unpopular, outdated and inaccessible mass public transportation
- Lack of adequate pedestrian infrastructure and popularity of walking
- Lack of cycling infrastructure and popularity of cycling
- Traffic jams, especially when leaving for and from work and around kindergartens and primary schools
- Lack of awareness among citizens and decision makers about the negative effects of traffic on the environment and health
- Lack of trust of key stakeholders and citizens that the SUMP will be implemented.

However, mobility projects under the Strategic Development Plan 2020-2025 do not necessarily meet the challenges mentioned above. The listed projects mainly address the construction of roads and bypasses, which might eventually reduce traffic in the city centre but simultaneously lead to longer



travel time and higher overall expenditure on mobility. In this regard, a rational solution would be a persistent and systematic effort to reduce the use of cars and their number (Vujadinović and others, 2021), as well as measures for traffic reduction in the city centre and intelligent traffic control. The Strategic Development Plan 2020–2025 Priority 1.2. identifies modernization measures of the public passenger transport system, including proposals sustainable development of public transport infrastructure, digitalization of the traffic system and creation of a transport cadastre (Podgorica and GIZ, 2020).

The lack of efficient cooperation between the national and the local level is preventing the modernization of public transport in Podgorica. Collaboration of the local government of Podgorica with the Montenegrin Ministry of Finance is key to scaling up the modernization of mass transit.<sup>25</sup> Through own-source funding, Podgorica put 16 new EURO6 buses into service in July 2022, operating on four new bus lines. In 2023, the city further finalized procurement processes and now owns a total of 45 new buses operating on 17 bus lines.

Moreover, the local government of Podgorica aims to modernize its transport infrastructure by electrifying the public bus transport system. The plan to introduce more new buses, however, would require new charging stations, bus depots etc.<sup>26</sup> In the previous government, the Secretariat for Transport initiated activities to modernize and improve bus stops, including the construction of new ones in seven locations.<sup>27</sup>

Despite all efforts in the field of public transport, auto-taxi transport managed to provide a large share of transportation service over the past years. Furthermore, illegal taxi transport threatens not only legal auto-taxi transport, but public transport as a whole (Podgorica and GIZ, 2020). There are 16 taxi associations in the capital city (GO Montenegro, n.d.) and the procedure on the extension of the validity of these licenses is currently being carried out.

In 2022, the digitalization of the traffic system was implemented, including the electronic bus ticket (Podgorica, 2022a). The city has recently issued 20 permits for bicycle parking.<sup>28</sup> Two electric scooter rental companies just started to operate in Podgorica, and they use these bicycle parking slots as well. In contrast, as a result of a continuous increase in the number of cars in Podgorica, the public parking service operates a total of 7,082 parking spaces throughout the city<sup>29</sup>.

Podgorica will continue with the implementation of the SUMP, focusing on its five key pillars: comprehensive planning for sustainable urban mobility, rational use of private cars, modernization and popularization of urban public transport, and valorisation of cycling potential and walking (Podgorica and GIZ, 2020). With the large number of registered vehicles in Podgorica, measures tackling mobility issues need to include awareness raising of the environmental impact of cars.<sup>30</sup>

### **Utility services**

As of the time of drafting, a gas network does not exist in Montenegro. Plans to start gas exploration and connect the country to the gas markets of neighbouring countries are currently on hold. A clear policy vision is needed to introduce gas into the Montenegrin energy mix.

To improve the treatment of wastewater, the implementation of the "Collection and purification of wastewater Podgorica" project is underway. It represents one of the most important projects in the

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<sup>25</sup> Information provided by the city government on 5 July 2022.

<sup>26</sup> Ibid.

<sup>27</sup> Information provided by the city government on 12 January 2023.

<sup>28</sup> Information by the city government on 12 January 2023.

<sup>29</sup> Ibid.

<sup>30</sup> Information by the city government on 19 July 2022.

capital city, which goes beyond the borders of Podgorica and can be categorized as an interregional and national project. The project aims to remove the septic tanks of a large share of the population and connect them to the city's network of fecal collectors.

The municipality of Podgorica signed a contract for a modern wastewater purifying system after the construction of the new 27-km fecal sewage network and designation of a new collector. This is an especially important intervention since around 145,000 inhabitant equivalents (IE) are officially connected to the city sewer when the current wastewater plant should only be covering 55,000 IE. This causes bottlenecks in daily operations and leads to insufficient treatment of wastewater. Furthermore, the city's informal settlements, especially those located on the outskirts of Podgorica, are hardly connected to the city sewer, which negatively affects both the local population and the environment.

Due to outdated equipment, the freshwater supply system of Podgorica has high operational costs and low profit margins. These factors lead to severe water losses, to up to 50 per cent (18,739,197m<sup>3</sup>).<sup>31</sup> To facilitate the maintenance of the distribution network and billing management, digital tools were developed.

The overall waste management infrastructure of Podgorica is quite efficient. It includes multiple facilities for waste treatment and recycling, as well as two waste management operators (collection and landfill). Moreover, the city operates a mobile recycling yard to enable city centre residents to dispose some types of hazardous and non-hazardous waste. The construction of a stationary recycling facilities is not allowed in the densely populated city centre.

Service providers are proactively working to improve their operations by using smart tools (sensors, trackers and applications) to optimize waste collection and to improve the overall amount of waste recycled. The installation of underground containers and the separation of "dry" and "wet" fractions of the waste is further considered an improvement in this regard. There are currently 324 underground containers in Podgorica and the Municipality of Zeta. Moreover, the Podgorica city government, Telecom of Montenegro and the company Amplitudo developed the application *Casper* to allow citizens to report illegally disposed waste. Once registered in the application, the user can mark the location that needs to be cleaned in the application. The application would then send the location to the responsible services who will remove the illegally disposed waste. The application also provides information on communal facilities, including (mobile) recycling yards and underground/above-ground containers. However, the lack of waste separation at the source limits the efficiency of the processes further down the processing chain (sorting and treatment). Another challenge is illegal landfills, which are mostly created in and around informal settlements, resulting in non-environmentally sound disposal practices. Ultimately, informal settlements not connected to municipal utility services slow down current and future urban development approaches.

Connecting informal settlements to the official waste management system and awareness-raising campaigns on the benefits of waste separation, reuse and recycling, and waste-to-energy projects could improve the current waste management system. The waste management system of Podgorica has enormous potential for improvement, as landfills in Podgorica receive around 80,000 tons of municipal waste annually.

### **Energy efficiency**

Montenegro opened negotiations on Chapter 15 of the Montenegrin EU accession on Energy in December 2015. Despite progress in harmonizing the Montenegrin legislation with the Third EU Energy Package through the adaptation of the new Law on Efficient Use of Energy in Montenegro, further steps are needed to meet the set objectives, especially in the areas of energy efficiency (EE) and

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<sup>31</sup> Internal document prepared by Katarina Živković, Director of the Department for Water quality Control, 2023.

renewable energy sources (RES ), completion of regulations and establishing effective mechanisms (Vujošević, Radulović, and Miljanić, 2018). The EU legislation recognizes the importance of specifying the issue of responsible management of energy and other resources and includes several different elements that define the development of the goals to be achieved (Podgorica, 2015b). The basis of the EU energy policy consists of activities that reduce greenhouse gas emissions and increase EE, and the share of RES and biofuels in traffic.

The main legislation on energy of Montenegro is the Law on Efficient Use of Energy (Official Gazette of Montenegro No. 3/2015) and the Law on Energy (Official Gazette of Montenegro No. 5/2016) (see box. 6). Article 12 of the Law on Energy enables local self-government units to plan the needs in energy supply, as well as the measures for efficient use of energy, with the local energy plan (LEP). The Plan is for 10 years and must be in line with key documents at the national level. Further, the local governments should prioritize heating/cooling energy from RES in urban infrastructure planning (Vujošević, Radulović, and Miljanić, 2018). In April 2019, the Ministry of Economy introduced some amendments to the Law on Efficient Use of Energy to harmonize with the requirements of the basic EU Directive on Energy Efficiency (Directive 2012/27/EU on Energy Efficiency) and Directive 2006/123/EU on Services in the Internal Market regarding the conduct of energy audits by foreign persons. Further, inspection for energy efficiency of buildings should be established, along with improvements in the legal framework for better implementation of existing bylaws and adoption of future ones (EE, 2019). Article 11 of the Law requires local governments to adopt energy efficiency improvement programmes for their territory for a three-year period. Based on the Law on Efficient Use of Energy, Podgorica prepared its “Energy Efficiency Improvement Program for the Period 2017-2019” (PPEE) aimed at establishing the energy management system in the city, including the identification of energy consumption in all places of the capital city, the creation of a database, implementation of measures to reduce energy needs and energy consumption in the future, and provision of an adequate structure to manage energy in all facilities. Next to public buildings, these facilities include a wide range of infrastructure, such as water supply and wastewater systems, sports centres, and traffic lights (Vujošević, Radulović, and Miljanić, 2018). The most important goal of PPEE, however, was to reduce annual energy and water costs by 10-15 per cent by the end of 2019. However, this goal was not met by the end of 2019 but by the end of 2020. In 2018 and 2019, available data on the energy consumption of several urban units ranged from 43,122 to 43,101 MWh/year (Podgorica, 2021). While this value dropped by approximately 10 per cent to 38,832 MWh/year in 2020 (see figure 12), it is assumed that the lower energy consumption is a result of the COVID-19 pandemic and measures than systematic work on the implementation of energy efficiency measures in the capital city.

To improve energy efficiency at the household level, the Montenegrin government plans to include financial support for households to better adopt energy-efficient measures and generate electricity for their own needs (see policy reform measure 1 in Government of Montenegro, 2021b).

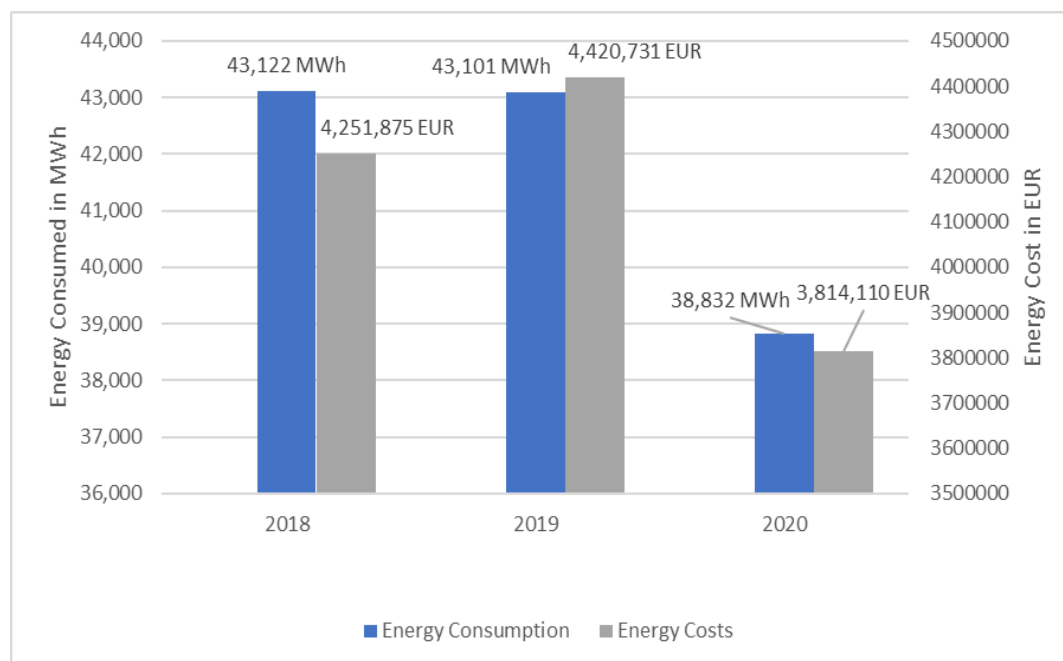
One of the main problems related to energy efficiency in Podgorica is the lack of information and energy management systems that would ensure the annual monitoring of energy consumption and preparation of energy balance at the city level. The information system on energy consumption was introduced at the national level and was envisaged until the end of 2021.

The capital city’s energy sources are electricity (generated out of RES), firewood and oil derivatives (diesel, petrol and LPG). Electricity and oil derivatives dominate the consumption of final energy, with each derivative consuming about 40 per cent. Among the oil derivatives, diesel stands out consuming about 85 per cent. The remaining part of the final energy consumption corresponds to firewood, which has a share of around 15 per cent (Podgorica, 2021).

In buildings owned by the municipality, electricity is dominantly used for heating and cooling of buildings and other needs, while light fuel oil is only used to a small extent as an energy source.

The data on energy consumption in figure 11 refers to services and units of the local government and does not reflect the overall consumed energy in Podgorica. It includes energy consumption in thirty-two buildings with a total floor area of 75,559 m<sup>2</sup>, eleven business premises, two stadiums, a swimming pool, three public garages, public lightning, water supply and one wastewater system. Fuel consumption for passenger cars and minibuses of the local government and public institutions, and companies are also included (see figure 11). Due to a lack of data, an energy balance for the whole city of Podgorica cannot be presented.

Figure 11 Overview of total annual energy consumption and costs, 2018 – 2020



Source: Podgorica, 2021.

According to data from the current Local Energy Plan 2015-2025 for the capital city of Podgorica as of the time of drafting, coal had the largest share in gross domestic energy consumption with around 41 per cent, of which 98 per cent was for electricity production and the rest was consumed by end-consumers, industries and households. However, public facilities owned by the capital city and the national government located on the territory of Podgorica did not use coal (Podgorica, 2015b). Since Montenegro does not have access to natural gas, a natural gas market and its required infrastructure has not yet been established (Montenegro, 2021b).

Except for the small hydropower plant on Lijevo Rijeka, energy production capacities are located outside of the territory of Podgorica (Podgorica, 2015b). Renewable energy sources, such as wind and solar, need to further be harnessed. Solar energy has a big potential in Podgorica, as the city enjoys around 2,460 hours of sun per year. According to a city official, the city issued plans on Velje Brdo, with an installed power capacity of at least 50 MW.<sup>32</sup> Since December 2019, following a total investment of EUR 1.1 billion by the Italian energy company Terna, Montenegro and Italy are connected through an underwater electric transmission cable. This project is the first electrical connection between Europe and the Balkans (Balkan Green Energy News, 2019). The construction of an energy-from-waste facility in Montenegro, with a capacity of 10MW, is envisaged until 2025. Investment costs are approximately EUR 3,200 per kW (MEDM, 2007).

<sup>32</sup> Interview on 21<sup>st</sup> September 2021.

In the period 2020-2025, further reinforcement of the transmission network, and the construction of a 400kV transmission powerline connecting Podgorica and Tirana are planned to be completed.

The Montenegrin energy company *Elektroprivreda* plans to build three large power plants with a total installed capacity of 400 megawatts. One will be a gas power plant with at least 150 megawatts near the aluminium plant complex in Podgorica.

Overall, improving energy efficiency throughout all urban sectors appears a low priority for the local governments, given that only 2 out of 118 aspired projects for the period 2020 to 2025 are dedicated to energy efficiency (Podgorica and GIZ, 2020). At the end of 2022, Montenegro adopted changes to the Law on Value Added Tax and the Law on Planning and Construction, which reduced the VAT on solar panels to seven per cent. Further, the process of implementing the use of solar panels was simplified and the barriers in the installation of solar power plants of up to 1,000 kW were removed.

### **Non-residential and residential buildings**

The building sector in Podgorica dominates energy consumption. Residential buildings account for about 30 per cent of GHG emissions, of which 80 per cent is from the energy consumption of households, which implies a need for energy efficiency investments in the residential sector.<sup>33</sup> As insufficient insulation leads to increased heat losses in winter and overheating in summer, a great energy saving potential in buildings is from improving thermal insulation. Due to the construction methods and the failure to comply with regulations on thermal protection, a series of residential/non-residential buildings with an average energy consumption for heating exceeding 200kWh/m<sup>2</sup> were built between 1950 and 1980 when housing construction boomed. Annual average energy consumption in 2020 for heating of old buildings was 200-300 kWh/m<sup>2</sup>, under 100 kWh/m<sup>2</sup>/for standardly insulated buildings, below 40 kWh/m<sup>2</sup> for modern low-energy buildings, and around 15 kWh/m<sup>2</sup>/a for passive buildings (Vujošević, Radulović, and Miljanić, 2018), implying an enormous potential for energy conservation in this sector. However, the lack of data regarding the current structure of buildings in Podgorica and their usage, accompanied with lack of a data collection system, makes it impossible to estimate the true energy efficiency potential.

The building sector relies mainly on electricity (56 per cent) and firewood (44 per cent) as energy sources (Podgorica, 2015b). City officials reported that the implementation of energy-efficiency measures being in public sector buildings, like hospitals and schools, has been successful. The Ministry of Capital Investments, through the Directorate of Energy Efficiency, is prioritizing energy-efficient retrofits, such as changing old heating systems and improving thermal insulation, through credit free loans. The “Energy-Efficient Home” project in 2022 supported households in installing modern heating and cooling systems, heat pumps and thermal insulation. However, institutional awareness campaigns are needed to successfully expand energy efficiency to the residential sector.<sup>34</sup>

To improve energy efficiency in buildings, a wide range of activities must be continuously implemented to reduce the consumption of all types of energy while maintaining or improving conditions in the facility. This includes insulation measures and other strategies that can help reduce the consumption of fossil fuels, and emissions of greenhouse gases. Doing so will contribute to environmental protection and sustainable urban and nationwide development (Vujošević, Radulović, and Miljanić, 2018).

### **Transport**

As the second largest energy consumer in Podgorica, it is important to consider the benefits of improving energy efficiency in transportation. Energy-efficient transportation provides the same level

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<sup>33</sup> Information by the city government, 21 September 2021.

<sup>34</sup> Interview with a city official, 21<sup>st</sup> September 2021.

of service while using less energy. There are several ways to achieve this, including technological advancements, better organization and management, and reducing the number of Diesel licenses issued<sup>35</sup>. Since transportation accounts for 45 per cent of the overall energy consumption of Podgorica (mainly Diesel according to Siemens, 2018), increasing electrification of public and private transport could greatly improve overall energy efficiency while reducing the amount of burned fossil fuels. The auto-taxi transportation, which has been dominating the passenger transportation scene in Podgorica in recent years, could switch to electric vehicles to lower energy consumption. Additionally, new buses in 2022 could improve service quality and reduce individual mobility, leading to a higher overall energy efficiency. Since 2021, the Environmental Protection Fund (Eco-Fund) has been awarding subsidies to individuals and companies that purchase electric and hybrid vehicles, with 65 subsidies given out in Podgorica so far.

In past years, Podgorica has made great strides in improving its cycling infrastructure and promoting cycling throughout the city. Recently, the city launched its seventh public call to subsidize the purchase of bicycles, electric bicycles and scooters through the “Podgorica on two wheels” project. This initiative has resulted in around 1,700 new bicycles on the streets of Podgorica and twenty new permits for bicycle parking locations.<sup>36</sup>

A recent study has shown that public urban lighting accounts for only 0.63 per cent of the energy balance of Podgorica and the potential for energy efficiency in this sector is low. However, the energy consumption of public lighting could be reduced by up to 80 per cent (Vujošević, Radulović, and Miljanić, 2018) through the adoption of networked LED technology. The city has implemented a modernization project, led by the Secretariat for Utilities, to install LED lighting and increase energy efficiency and this project is included in the Strategic Development Plan of the Capital City Podgorica 2020-2025. As of now, 90 per cent of Podgorica is already covered by LED lighting, and the project is partially completed with around EUR 800,000 spent so far. This modernization effort will not only save the city money but also improve the quality and functionality of public lighting.

## **VI. KPI evaluation results**

Podgorica reported data on 93 out of 111 indicators, and the scores were verified to ensure accuracy. Specifically, the city reported 47 of the 54 economy indicators, 21 of the 28 environment indicators and 26 of the 29 society and culture indicators (see annex 2 for a complete list of unreported KPIs). The results of the KPI evaluation are visualized using a colour scheme as follows:

- Red is assigned to indicators with values that are 25 per cent below the corresponding benchmarks
- Orange is assigned to indicators carrying values that are 25 to 75 per cent below the corresponding benchmarks
- Green is assigned to indicators with values that exceed 75 per cent of the corresponding benchmarks.

As shown in figure 12, Podgorica scored above the 75 per cent benchmark for 28 indicators; between 25 and 75 per cent for 8 indicators; and below 25 per cent for 24 indicators. For 20 reported indicators, no benchmark was available. Below is a summary of the country’s performance against the KPIs for SCC.

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<sup>35</sup> Interview with a city official on 5 July 2022.

<sup>36</sup> Secretariat for Transport, 2022.



Figure 12 Performance of Podgorica against the Key Performance Indicators for Smart Sustainable Cities

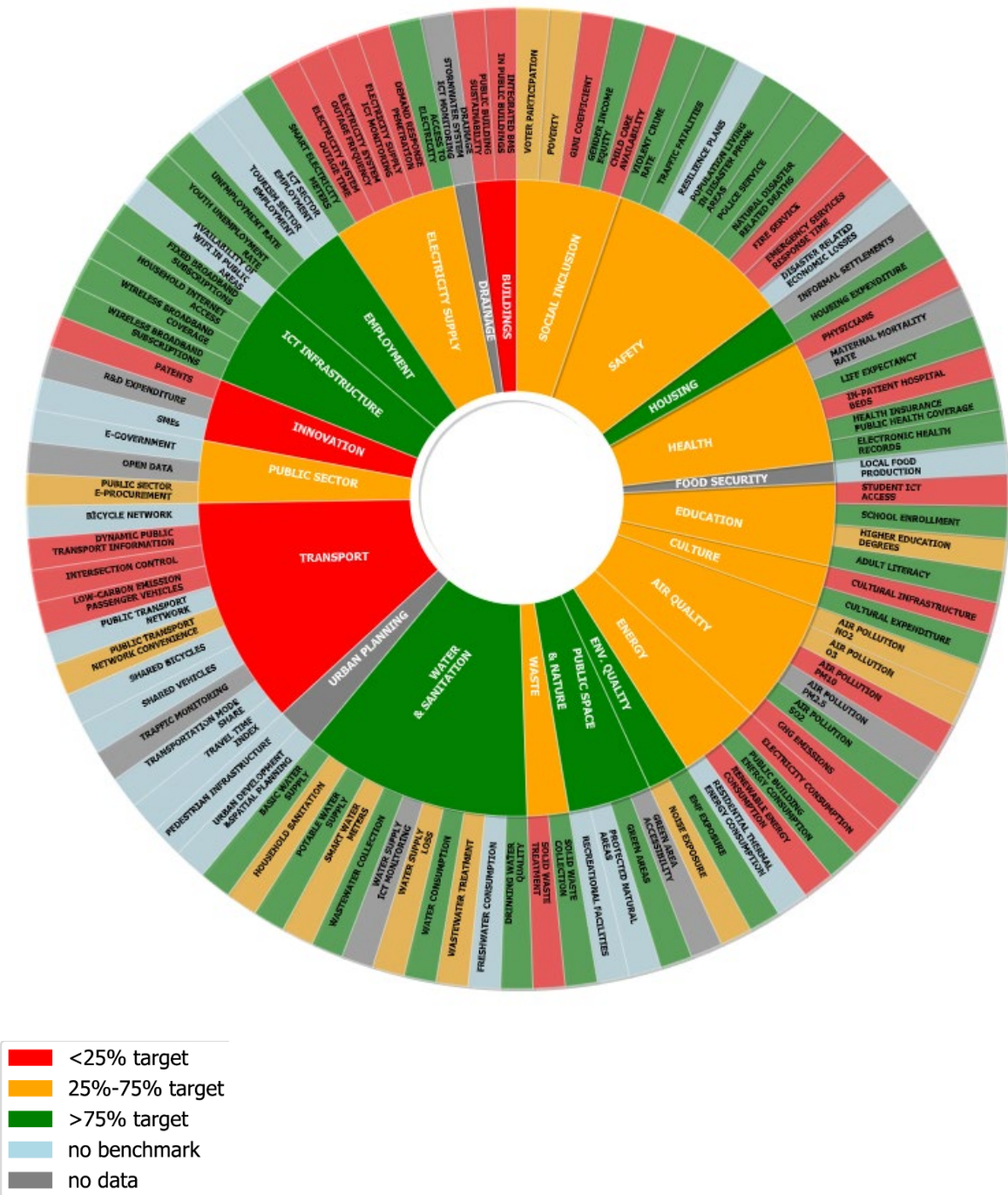


Table 3 Key Performance Indicators that scored below 25 per cent of target value

<i>Category</i>	<i>Indicator</i>
 <b>Waste</b>	Solid waste treatment
 <b>Energy</b>	Renewable energy consumption
	Electricity consumption
 <b>Culture</b>	Cultural infrastructure
 <b>Education</b>	Student ICT access
 <b>Health</b>	In-patient hospital beds
	Physicians
 <b>Safety</b>	Emergency service response time
	Fire service
 <b>Social inclusion</b>	Childcare availability
	Gini coefficient
 <b>Buildings</b>	Integrated Building Management System (BMS) in public buildings
	Public building sustainability
 <b>Electricity supply</b>	Demand response penetration
	Electricity supply ICT monitoring
	Electricity system outage frequency
	Electricity system outage time
 <b>Innovation</b>	Patents
 <b>Transport</b>	Dynamic public transport information
	Intersection control
	Low-carbon emission passengers' vehicles
 <b>Water and sanitation</b>	Drinking water quality
 <b>Air quality</b>	GHG emissions

Source: UNECE, 2023.



## **KPI evaluation results: Economy**

Of the total 54 indicators within the economy dimension, data for 46 indicators was available. Within the economy dimension, Podgorica revealed strong performance in the sub-areas of ICT infrastructure and employment; moderate performance in waste, electricity supply, water and sanitation and public sector governance; and poor performance in innovation, transport and buildings. Data was insufficient to assess the city's performance regarding drainage.

### ICT Infrastructure

Podgorica revealed excellent performance in *ICT Infrastructure*. All or 100 per cent of households are equipped with fixed broadband subscriptions. There are two wireless broadband subscriptions in average per inhabitant in Podgorica. Likewise, Podgorica demonstrated excellent performance in mobile services, with 84.35 and 79.39 per cent of the city territory covered by 3G and 4G service, respectively. There are 193 public WI-FI spots throughout the city.

### Employment

Podgorica showed excellent performance in the employment sub-area. The total unemployment rate of Podgorica was 11.96 per cent in 2021, while the youth unemployment rate was 5.71 per cent. Some 6.4 per cent of the total city labour force was employed in the tourism sector, while 4.99 per cent were employed in the ICT sector.

### Waste

Podgorica had a high performance in waste management, with 100 per cent of recorded households served by solid waste collection and basic water supply.

### Electricity Supply

The performance of Podgorica in the electricity supply indicator was strong in the electricity access indicator, with 100 per cent of households connected to the electrical system. Furthermore, 85.01 per cent of all electricity metres installed throughout the city qualify as “smart”. However, Podgorica demonstrated weaker performance on other indicators within the electricity supply sub-area. 20 per cent of electricity customers experienced interruptions in service for an average duration of under 60 seconds in the year of the survey. Access to demand response-enabled electricity was 0.98 per cent of customers. The total electricity system is not monitored by ICT infrastructure.

### Water and Sanitation

The overall performance of Podgorica in the water and sanitation sub-areas moderate. 100 per cent of households were served by a safely managed drinking water and wastewater collection service, while 74.61 per cent of households had access to basic sanitation and facilities. In contrast, only 43 per cent of the water metres installed throughout the city qualify as “smart”. There was insufficient data to determine the rate of water supply loss in Podgorica.

### Public Sector

Available data and benchmarks likewise pointed to moderate city performance in public sector governance. A total of 250 public services were identified as being available through online service, while 26.53 per cent of public sector procurement activities were conducted online, indicating moderate overall performance. Data was insufficient to determine the number of open data sets published in Podgorica.

### Innovation

Podgorica had poor performance in innovation, with 0.2 new patents issued per 100,000 inhabitants. 57.31 per cent of total enterprises in the city qualified as small and medium-sized enterprises (SMEs), for which no benchmark is available. Data was insufficient to determine the percentage of research and development (R&D) expenditure.

### Transport

The performance of Podgorica in transport was poor. The total length of public transport lines within the city boundaries was 384.75 km or approximately 200 km per 100,000 inhabitants, for which, however, no internationally established benchmark is available. The total bicycle network was 30.53 km per 100,000 inhabitants. 39.76 per cent of inhabitants were reported living within 0.5 km of a public transport stop, indicating moderate performance. 17.02 per cent of road intersections are equipped with adaptive traffic control, while only 1.08 per cent of stops and stations throughout Podgorica could provide dynamic, real-time information. No data is available to assess the length of major streets monitored by ICT.

In the low-carbon emission vehicles indicator, Podgorica performed poorly. Of approximately 89,375 total travellers throughout the city, 70.71 per cent prefer to travel using private vehicles; 17.44 per cent prefer to use public transportation; 7.26 per cent reported walking as their preferred means of transport and 0.68 per cent of travellers preferred cycling. Data on the use of para transport was unavailable. Only 0.61 per cent of the total registered vehicles in the city are low-emission vehicles (PHEV & EV). Shared vehicles, including bicycles, were not available in Podgorica in 2021.

### Buildings

No public buildings were reported having certification to a recognized standard for ongoing building operations and no floor area of public buildings using ICT-based systems for integrated management in the city was reported. These indicate poor performance for Podgorica in the buildings category.

### Urban Planning

Data was not sufficient to accurately assess the city's performance vis-à-vis the urban planning sub-dimension. Podgorica reported the availability of strategic city planning documents promoting compact development, connectivity, integration, mixed urban land use, social inclusion, and resilience to climate change. However, no data was reported on the total city area exclusive to pedestrian/car-free zones.

### Drainage

No data was reported regarding the total length of the drainage/storm water system monitored by ICT in 2021. Therefore, there was no sufficient data to assess the performance of Podgorica in the drainage sub-area

## **KPI evaluation results: Environment**

Podgorica reported data for 24 indicators of the 28 environment KPIs. The evaluation results showed strong performance for Podgorica for the reported indicators in the sub-area of environmental quality; moderate performance across the sub-areas of energy and water and sanitation; and poor performance in the sub-area for public space and nature. Data was insufficient to assess the city's performance relative to air quality.

### Environmental Quality

With 100 per cent of mobile network antenna sites in compliance with EMF exposure guidelines, Podgorica performed strongly in environmental quality. However, it scored only moderately in performance due to 27 per cent of its inhabitants being exposed to excessive noise levels.

### Water and Sanitation

In terms of water and sanitation, Podgorica received a moderate overall performance score based on the evaluation results. The city consumed a total of 17,237,602 litres of water per day, with a per capita consumption of 89.95 litres per day. All of the water (100 per cent) consumed in the city was classified as freshwater. Podgorica performed strongly in the sub-categories of wastewater collection and potable water supply, with 54 per cent of wastewater undergoing primary treatment and 46 per cent undergoing secondary treatment. However, none of the households (0 per cent) were reported as being covered by an audited Water Safety Plan.

The city's solid waste treatment performance in 2022 was poor, with 79.03 per cent of the total 100,000 tonnes of waste produced ending up in landfills. However, it is worth noting that there were no reports of burning, incineration or removal via open dumps. A small percentage (0.85 per cent) of the waste was recycled, but 33.94 per cent of it was disposed of by other means.

### Energy

In the energy sub-area, the overall performance of Podgorica was moderate. The city showed poor performance in terms of electricity consumption, with an average annual per capita consumption rate of 4,635.52 kilowatts per year. However, the city showed strong performance in terms of energy consumption by public buildings, with a total annual energy consumption of 0.51 e-kilowatts per m<sup>2</sup> per annum. In contrast, Podgorica showed poor performance regarding renewable energy consumption, with only 0.36 per cent of the total electricity consumed in the city coming from renewable resources in 2022. Insufficient data prevented an assessment of the total thermal energy consumption.

### Public Space and Nature

The strong performance of Podgorica in the public space and nature sub-area is evident with a total of 626.18 hectares of green spaces per 100,000 inhabitants. Data on the percentage of the city's population living close to green spaces was not available. As for other indicators within this sub-area, there are no benchmarks available to assess the performance of Podgorica accurately. While 11.06 per cent of the total city area was reported as being protected by law or other means, there is insufficient data to determine the area of indoor and outdoor facilities per 100,000 inhabitants.

### Air Quality

There is a need for improved reporting regarding the indicators forming the Air Quality Index (AQI), as available data on air quality is insufficient. Podgorica reported 19.03 micrograms (µg) PM2.5 particulate matter from the collected samples, but the total volume of air sampled was not provided, preventing accurate assessment of the overall AQI for Podgorica. Of the other air pollutants detected, there were 32.52 micrograms of PM10 per unit of sampled air, 10.36 µg of nitrogen dioxide (NO<sub>2</sub>), 67.46 µg of ozone (O<sub>3</sub>), and 4.23 µg of sulphur dioxide (SO<sub>2</sub>). Additionally, Podgorica reported high amount of greenhouse gas emissions (GHG) per capita (18.9 tonnes of CO<sub>2</sub>), which is concerning.

### **KPI evaluation results: Society and Culture**

Podgorica provided information for 26 out of 29 society and culture KPIs. The city's performance in this sub-dimension was moderate overall, except for housing. There was not enough data to evaluate food security in the city.

## Housing

According to the assessment, Podgorica demonstrated strong overall performance in the housing sub-area, with approximately 25 per cent of total household income devoted to housing expenditures. However, data was unavailable to determine the number of city inhabitants living in slums/informal settlements or inadequate housing.

## Social Inclusion

In terms of social inclusion, Podgorica revealed moderate performance, with a high score in gender equality (female to male average earnings ratio is 0.86) and moderate voter participation (69.36 per cent of eligible voters voted in recent elections according to the State Election Commission statistics from 2016). However, a significant percentage of city inhabitants (26.08 per cent) were living below the poverty line, day-care availability for pre-school children was limited (spots available for only 0.37 per cent of pre-school children). The Gini-coefficient was also high (32.5), indicating poor performance.

## Safety

Within the safety sub-area, Podgorica demonstrated moderate overall performance. The city has a desirable average response time of 5 minutes for emergency services, compared to the benchmark value of 8 minutes. It scored high in its performance in terms of traffic fatalities, with only 11 recorded traffic fatalities in the year of the survey or 5.74 per 100,000 inhabitants.

In contrast, the city revealed poor performance with regard to violent crime (violent crime rate was approximately 685.57 per 100,000 inhabitants) and the number of firefighters and police officers working in the city (53 full time firefighters and 1,006 police officers in 2022).

Approximately 9.91 per cent of the population were living in disaster-prone areas, but no disaster-related death occurred in 2021. Data on disaster-related economic losses was unavailable, but Podgorica reported having available risk and vulnerability assessments for disaster mitigation.

## Health

In the health sub-area, Podgorica showed strong performance in 4 out of 6 indicators, with limited numbers of physicians and hospital beds limiting overall performance. All (100 per cent) city inhabitants had access to electronic health records, which is excellent. The total life-expectancy in Podgorica was 74 years in 2022. There were 881 physicians working in the city and a total of 694 hospital beds in 2018. Data regarding the number of maternal deaths was unavailable.

## Education

Within the education sub-area, Podgorica had moderate performance. All students were enrolled in school, which indicates generally strong performance. Approximately 29,328 of the total city population had at least one higher education degree, while 98.64 per cent of city inhabitants were literate. However, Podgorica performed poorly in terms of student ICT access, with only 6.67 per cent of students having classroom access to ICT facilities.

## Culture

Regarding culture, Podgorica had a moderate performance. The total cultural expenditure in 2022 amounted to EUR 1.25 million or 1.18 per cent of GDP, indicating favourable performance relative to this indicator. However, there were only eleven registered cultural institutions throughout the city, indicating weak performance.

## Food Security

Data was unavailable to adequately assess the performance of Podgorica in the sub-area of food security, with no data reported for total tonnes of food supplied within 100 km of urban areas throughout the country's territory.

## **VII. Funding and financial framework**

Montenegrin municipalities enjoy financial autonomy as per the provisions of the “Law on Local Self-Government Financing”. This law outlines the resources that are classified as the municipality's own resources:<sup>37</sup>

- Real estate tax
- Surtax on personal income tax
- Local administrative charges
- Local communal charges, fees for utility equipment of construction land
- Fees for the use of municipal roads
- Fees for environmental protection
- Resources from the sale and rental of municipal property
- Income from capital (interests, shares and stakes)
- Fines imposed in misdemeanour proceedings
- Revenues from concession fees for performing communal affairs and other activities
- Revenues collected by municipal bodies, services, and organizations through their own activities
- Revenues from grants and subsidies
- Other revenues set out by the law.

The Strategic Development Plan of the Capital City of Podgorica 2020–2025 outlines three specific development goals: 1) to further develop and improve infrastructure and activities, 2) to strengthen the competitiveness of the economy and further improve the business environment, and 3) to promote tourism development and environmental protection. One of the priorities under goal 2 is to create conditions for business development (Priority 2.1) and this could be done by removing business barriers and promoting investments through incentives, for example. as Another priority under goal 2 - Priority 2.2 - is smart city development and the application of new technologies.

Due to higher expenditures, the planned budget of Podgorica for 2022 was revised. Based on article 31 of the Law on Local Self-Government Financing (Official Gazette of Montenegro No. 03/19 and No. 86/22) and article 54 paragraph 1 point 7 of the Capital City Statute (Official Gazette of Montenegro - Municipal Regulations No. 08/19 and No. 20/21), the Assembly of the Capital City of Podgorica, at its session held on 6 October 2022, passed the “Decision on Amendments to the Decision on the budget of the Capital City of Podgorica for the Year 2022” (Podgorica, 2022b) (see table 4).

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<sup>37</sup> European Committee of the Regions, “Montenegro”.

**Table 4 Budget of the Capital City of Podgorica for 2021, Plans for 2022 and 2023 and Revised Budget 2022**

<i>Description</i>	<i>Budget for 2021</i>	<i>Plan 2022</i>	<i>Revised Budget 2022</i>	<i>Plan for 2023</i>
<b>Income</b>	<b>62 361 000</b>	<b>70 484 500</b>	<b>73 400 000</b>	<b>74 895 400</b>
Taxes	34 655 000	35 680 000	37 710 000	38 410 000
Fees	1 105 000	1 340 000	1 125 000	1 670 000
Charges	15 061 000	16 660 000	18 430 000	17 380 000
Other income (e.g., rent income, fines for non-payment taxes, interest due to late payment..)	2 120 000	2 350 000	5 055 000	2 785 000
Donations	9 420 000	14 454 500	11 080 000	14 650 400
<b>Expenditures</b>	<b>87 467 000</b>	<b>91 773 000</b>	<b>102 576 000</b>	<b>88 145 400</b>
Current expenditures	36 531 000	36 050 800	42 748 600	35 321 500
Capital expenditures	50 936 000	49 702 700	59 827 400	52 823 900
<b>Surplus/deficit</b>	<b>(25 106 000)</b>	<b>(21 288 500)</b>	<b>(29 176 000)</b>	
Debt repayment	5 990 000	6 020 000	3 562 000	5 150 000
Missing funds	31 096 000	-	32 738 000	
Financing	31 096 000	-	32 738 000	
Property income	10 200 000	9 800 000	19 014 000	9 600 000
Deposit increases/decreases	12 500 000	10 800 000	8 167 000	10 200 000
Loans	8 296 000	1 100 000	5 457 000	0.00
<b>Transfer from Budget of Montenegro</b>	<b>100 000</b>	<b>150 000</b>	<b>100 000</b>	<b>250 000</b>
<b>Total Plan</b>	<b>93 457 000</b>	<b>92 273 500</b>	<b>106 138 000</b>	<b>94 795 400</b>

*Source:* UNECE, 2021; Capital City of Podgorica, 2022.

A vital part of the budget planning is investments in the transport infrastructure of the capital city. Implementation of significant projects in transport infrastructure continued. The Southwest Bypass, which is over 3.5-km long and required funds of around EUR 15.5 million, was opened for traffic, so Podgorica got a multi-faceted modern road, connecting the main roads to Petrovac and Cetinje and relieving the city centre of transit traffic.

Each year, the city budget allocates significant funds for the field of transport, primarily for the maintenance of existing transport infrastructure and construction of new ones (Vujadinović and others, 2021) (see table 5).

**Table 5 Investment in transport infrastructure in Podgorica, 2018-2022**

<i>Year</i>	<i>Amount (euros)</i>
2018	10 765 079.69
2019	14 258 165.56
2020	15 791 290.82
2021	15 505 311.75
2022	13 032 934.40
<b>Total</b>	<b>69 352 782.22</b>

*Source:* Vujadinovic and others, 2021; Secretariat of Transport.

Podgorica has taken significant step forward in promoting sustainable and green growth by joining the EBRD Green Cities in June 2019 to develop a Green City Action Plan (GCAP). This move will enable the city to address its needs strategically, while stimulating public or private investments in key areas such as water and wastewater, urban transport, district energy, energy efficiency in buildings, solid waste, and other interventions that could improve the city’s adaptation and resilience to climate shocks.

Under the plan, the city administrators and local stakeholders will receive technical support to ensure that the infrastructure investments and policy measures identified in the green city action plans can be developed and implemented/monitored effectively (EBRDGC, n.d.).

The Montenegrin Economic Reform Programme 2021–2023 includes two specific fiscal policy objectives - gradually reducing the public finance deficit in the coming two-year period, with transition to a positive public finance balance in 2023 and reducing public debt to a level of 69.9 per cent of GDP in 2023 (Montenegro, 2021b).

The adoption of the Law Amending and Supplementing the Law on Pension and Disability Insurance in July 2020 created additional pressure on public finances. Montenegro and Podgorica are actively attracting foreign investments through various economic benefits (for example, business zones established in the capital city in 2019 offered economic benefits for potential investors)<sup>38</sup> and current development projects, such as the improvement of e-charging infrastructure or the solar project *Velje Brdo*, which requires investments of around EUR 75,247,500.<sup>39</sup> The solar project could actively increase the city’s renewable energy consumption. Target investments in the fresh water supply system of Podgorica and low-carbon emission passenger vehicles could further accelerate the realization of the 2030 Agenda SDGs.

While Lloyds Bank points to different obstacles to FDI in Montenegro, including an approximate and unreliable land registry (Lloyds Bank, 2023). The overall Montenegrin regulatory framework for the business and investment environment improved significantly over the past year, with the adoption of new relevant laws and regulations and amendments to existing ones at the level national and local levels. These include:

- Amendments to the Law on Self-Government Financing

<sup>38</sup> The Guidelines on tools and mechanisms to finance Smart Sustainable Cities projects have been developed as part of the United for Smart Sustainable Cities Initiative (U4SSC). They provide recommendations for city governments on how to develop investment-grade projects in support of sustainable smart urban development. The Guidelines also provide an overview of traditional and innovative financing tools that are available and can be used to finance city projects ([https://unece.org/sites/default/files/2022-06/U4SSC\\_Guidelines-on-tools-and-mechanisms-to-finance-smart-sustainable-cities-projects.pdf](https://unece.org/sites/default/files/2022-06/U4SSC_Guidelines-on-tools-and-mechanisms-to-finance-smart-sustainable-cities-projects.pdf)).

<sup>39</sup> For details on the project, see [http://invest.podgorica.me/?page\\_id=1046](http://invest.podgorica.me/?page_id=1046).

- Amendments to the Law on Administrative Fees
- Adoption of the Law on Public Procurements aimed at increasing public administration efficiency
- Adoption of the Law on Public-Private Partnerships
- Amendments and supplements of the Law on concessions.<sup>40</sup>

This improvement is backed by a steady increase in FDI flows. While most economies in transition in the region experienced a decrease in FDI flows in 2020, Montenegro, Belarus and Kazakhstan managed to increase their foreign direct investments (UNCTAD, 2021).

Based on a recent report, the implementation of the structural reform measures under the economic reform programme 2020-2022 has been successful thus far. The new regulatory framework for public procurement and public-private partnership policies has been fully implemented, with only two minor points left to address. The Law on Public-Private Partnership, which was adopted in 2019, has been instrumental in increasing security, sustainability, and finance, as it includes financiers such as banks. However, it has not yet reached its full potential due to lack of practice and new projects. Furthermore, the regulation allows interested parties to initiate a public-private partnership project with or without concession elements, which encourages a wide range of stakeholders to participate in the process of public-private partnership.

The overall purpose of public-private partnership projects in Podgorica is to maintain continuity in the provision of public services, with the goal to increase the quality of these services for the end user. Via public-private partnerships, Podgorica currently envisages constructing underground garages, a stand of the *Buducnost* stadium and a spring water bottling plant.<sup>41</sup>

## VIII. Recommendations

In recent years (and since starting the EU accession process), Montenegro and its capital city, Podgorica, have been ambitious to accelerate and implement development through a variety of national and regional measures, such as digitalization of public services, modernization of public transport and increased environmental protection. However, due to a lack of data and planning documents on the regional level, the local government of Podgorica is unable to accurately assess issues around illegal construction and energy efficiency, which has slowed down future aspired developments.

Sufficiently developed data collection and monitoring, as well as increased capacities throughout all governmental bodies, are preconditions for meeting most urban challenges. Further, an overall improvement in governmental communication and civil participation is desirable.

Based on the KPI analysis of Podgorica and the identified urban development priorities and challenges, the following recommendations could be considered.

### Urban policy and planning

The city of Podgorica is facing significant challenges in controlling urban expansion and keeping up with infrastructure demands. Constant changes in the urban planning system make it difficult for the city to implement urban policies cohesively. It is recommended to decentralize planning competencies and shift them back to the municipal level. This step will enable an integrated governance and participatory planning system that will benefit all the residents of Podgorica.

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<sup>40</sup> Ibid.

<sup>41</sup> For a detailed discussion of each project, see [http://invest.podgorica.me/?page\\_id=1034](http://invest.podgorica.me/?page_id=1034).



## **1. Improve urban planning and strengthen evidence-based decision-making**

### **a. Improve urban data collection, accessibility and monitoring**

It is crucial to have valid and up-to-date data to make evidence-based decisions. Therefore, it is recommended to enhance the capacity of institutions that are responsible for data on a local level. This can be achieved by improving their capacity as well as the amount and quality of data generated. To facilitate more evidence-based decision-making in Podgorica, responsible institutions require more resources, such as personnel and infrastructure. Additionally, data collection should be carried out more frequently to ensure that the information available is as accurate and up-to-date as possible.

### **b. Develop and update urban cadastre**

Urban cadastres are crucial tools for land management and administering property registration systems. They provide a reliable and safe way to ensure equal access to land, secure tenure, sustainable land use, and accountability of all parties involved (Amelie, Bennet, and Zevenbergen, 2015). It is recommended that an urban cadastre be developed for Podgorica, as it would provide a solid foundation for evidence-based urban policies and long-term planning. Moreover, introducing an urban cadastre would enable the formalization and upgrading of informally constructed buildings.

### **c. Prioritize zoning land for public housing units in urban plans**

When local governments zone land for housing regardless of type, they end up competing with commercial developers for locations for social or public housing. To avoid this, it is recommended to develop urban plans that specifically zone land for the construction of public housing units. Additionally, establishing affordable housing programmes should be a priority.

### **d. Improve the process of preparation of urban and spatial planning documentation**

In order to efficiently prepare urban and spatial planning documentation, it is recommended to expedite the process by considering interim solutions before the final documentation is ready. To facilitate the creation of affordable and inclusive housing options, it is important to implement a planning system that coordinates land use, land market, planning, design, and development processes, and supports integrated and sustainable human settlement planning and management.

## **Housing and informal settlements**

Urban expansion in controlled and uncontrolled construction poses challenges to urban utility services and infrastructure, puts pressure on ecosystems and reduces agricultural land. Current preconditions for formalizing informal constructions slow down the legalization process and hinder downstream initiatives, such as the broad implementation of energy efficiency measures.

### **1. Continue work on the legalization of informal constructions by improving the institutional and governance framework**

To address the challenges of urbanization, it is important to take a two-pronged approach that combines institutional regulation and the legalization of informally constructed buildings. Legalized units can be transferred into an urban cadastre, which will enable the local government to develop more precise measures and urban planning documents. Additionally, it can help collect annual fees for the unregulated use of space through illegal constructions.

It is also recommended to develop different legalization procedures and classifications for illegal constructions to avoid incentivizing more informal construction. Current legalization policies treat all informal buildings equally, regardless of social and economic status of the owners or builders. experiences of other countries from the region have shown that this practice only attracts more informal constructions since it is cheaper to construct informally and undergo the legalization process than construct formally.

## **2. Improve public building sustainability**

### **a. Strengthen energy efficiency of public buildings and increase renewable energy consumption**

As part of efforts to improve public building sustainability and energy efficiency, it is recommended to increase the use of sustainable energy sources in these buildings. This can be achieved by harnessing the abundant solar power potential in Podgorica. One approach could be to use some of the solar energy produced to power inner-building systems and processes. Moreover, updating the isolation in public buildings would help reduce heat losses and minimize energy used for cooling, resulting in a reduction in overall energy consumption.

### **b. Introduce green areas on roof tops**

Introducing green areas on rooftops throughout the city scape is a widely recognized urban key measure for multiple reasons. It is not just about regulating building temperatures, but it is also about climate change adaptation and creating a pleasant inner-urban climate. Given the climate change projections for Podgorica, which show temperature increases of up to 3.5°C by the end of the century, greening measures on public buildings can make a huge difference in maintaining urban liveability. This is something that current and future local governments could seriously consider.

### **c. Establish circularity in public buildings**

In order to increase sustainability in public buildings, it is important to establish circularity in inner-building and inner-urban consumption of energy and production of waste. Sustainable construction materials, along with efficient waste management and recycling procedures, can reduce impacts on the environment and make a significant difference in maintaining urban liveability. A two-fold approach that combines waste-to-energy facilities on a macro level with circular approaches within public buildings on a micro level is recommended. This can include:

1. Circular design that allows repair, reuse or recovery of resources. In the building sector that includes construction and demolition processes, allowing re-use of the construction material.
2. New metrics and shared data. Up-to-date information on available resources within the city limits reduces demand for imported construction materials.
3. Policy. New policies that ensure circularity in public buildings and create incentives for businesses and communities to implement more circular processes (Masterson and Shine, 2022).

Reliable and robust urban data and statistics are necessary to support this shift to circularity. The “cities “publication<sup>42</sup> offers a four-step methodology for assessing, prioritising and catalysing different circular actions to improve circularity in cities.

### **3. Promote integrated building management systems in public buildings**

#### **a. Introduce building management systems in public buildings**

Introducing building management systems (BMS) in public buildings is recommended. BMS serves as an overarching control system that allows for the automatic regulation and control of existing subsystems in public buildings. The major benefits of BMS include monitoring and maintenance of predefined parameters, as well as optimizing the use and efficiency of supervised subsystems, such as electrical monitoring systems, hot water and central Heating systems, technical steam systems, central fume collection, and more (Joseph, 2018). Implementing BMS in public buildings ensures better management, maintenance and efficiency of resources.

### **4. Improve monitoring and assessment of housing stock and needs**

It is important to understand the housing needs in Podgorica and develop policies that meet these needs. To do so, it is recommended to establish a reliable and data-driven monitoring system and implement a systematic and evidence-based approach that will help ensure that housing options are adequate, affordable and accessible. With this approach, Podgorica can make informed decisions to ensure that its citizens have access to safe and affordable housing. As a guide, the COVID-19 Recovery Action Plan for Informal Settlements in the ECE Region,<sup>43</sup> targeted at national and local governments in the UNECE region, provides an extensive list of goals, targets, and actions.

Further, the following specific recommendations were formulated in the study Post COVID-19 Recovery for Informal Settlements in Podgorica<sup>44</sup>:

- To improve the methodology of registering and creating a separate Register of informal structures/settlements.
- To connect systematically the relevant institutions and fully include their capacities while registering.
- To improve the system of charging fees and taxes, aimed to invest in the infrastructure of illegal settlements.
- To strengthen the inspection capacities (by the number of inspectors and by a systematic approach to them by Law prescribed competencies and professional capabilities).
- To efficiently monitor cases of usurpation of state property, and to apply legal sanctions to those who build illegally, and attempt the connection to infrastructure systems illegally.
- To keep providing health and social care to vulnerable categories living in informal settlements by coordinated action from the local and central competent authorities and CSOs.
- To assess the need for the provision of internet connection and electronic devices (PCs, tablets, mobiles etc.) for children attending the school online.

### **Urban mobility**

In order to address urban mobility challenges in Podgorica over the long-term, it may not be sufficient to increase the overall capacities of transport infrastructure. This could potentially lead to longer travel

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<sup>42</sup> Available at <https://unece.org/info/Housing-and-Land-Management/pub/21969>.

<sup>43</sup> <https://unece.org/info/Housing-and-Land-Management/pub/367518>.

<sup>44</sup> <https://unece.org/sites/default/files/2021-12/Podgorica%20Assessment%20Report%20Informal%20Settlements.pdf>.

times, higher GHG emissions, and increased expenditures on road infrastructure, which could in turn impact the ability of Montenegro to achieve the SDGs of the 2030 Agenda. Instead, it is recommended to explore solutions that can enhance the capacities and appeal of the public transport sector and non-motorized mobility alternatives.

## **1. Improve sustainability of urban mobility and transportation**

### **a. Strengthen low-carbon emission mobility and transportation**

Looking at the future of urban mobility in Podgorica, it is clear that low-carbon emission modes of transportation should be prioritized. of the current traffic situation in the city is mainly powered by fossil fuels, which is further damaging the already deteriorating urban road network. Podgorica needs to explore alternative modes of transport and mobility to make the city more sustainable. One solution is to designate one traffic lane solely for public transport and bicycles, which would not only improve the quality of public transportation, but also significantly reduce traffic on the streets. Other measures such as higher frequency of scheduled services and dynamic public transport information could also be considered. Additionally, it is recommended to:

- Introduce park and ride (P+R) systems to reduce traffic in the city centre
- Develop policy measures to reduce the number of registered vehicles
- Reduce or stop the issuance of taxi licenses
- Improve urban–suburban connectivity through public transport
- Strengthen multi-modal mobility with tram, bus, car sharing, and bicycle
- Subsidize commuting via public transport.

In order to achieve the necessary behavioural changes towards more sustainable mobility, it is recommended to launch awareness-raising campaigns about the harmful effects of urban traffic on both health and the environment, alongside traffic campaigns that are publicly advertised. For a long-term solution to the reduction of urban traffic, the urban planning paradigm should shift towards a reorganization of the cityscape into quarters, each capable of satisfying the inhabitants' daily needs.

Podgorica is in its early stages of e-mobility. To overcome that need to be faced, intensified dialogues between social partners and improved cooperation between the business, state, and civil sectors is necessary. It is key to devote a comprehensive and synchronized effort to defining the strategic framework, adopting adequate regulations and institutional strengthening. At the same time, raising citizens' awareness, defining the optimal development model and encouraging financial measures to put electric vehicles in a better position than conventional ones are necessary.

To include e-mobility concepts in the public transport sector, it is recommended to procure electric buses for school children and install trams as modern urban transport. These measures could reduce air pollution and improve both the economic and energy efficiency of public transportation. Furthermore, various projects and campaigns need to be developed to encourage citizens to use public transport and non-motorized mobility successfully.

### **b. Implement intersection control**

Implementing smart intersection control systems can greatly improve traffic management and reduce overall traffic congestion. Integrating these systems with monitoring technology, can intelligently regulate traffic flow and alleviate the burden on inner-city

streets. This approach is recommended for creating a more efficient and sustainable transportation network.

## **Utility services**

As Podgorica experiences rapid urbanization and unregulated construction, there is increasing pressure on urban utility services and the quality of their service delivery.

### **1. Improve urban freshwater infrastructure**

To improve the freshwater infrastructure of Podgorica, it is recommended to invest in and upgrade the outdated equipment the city is using to reduce water losses. It is also recommended to relocate and attract investments in the drinking water infrastructure and improve overall service delivery.

### **2. Implement measures to strengthen solid waste treatment**

Current waste treatment processes should be improved and expanded to include informal constructions in the area of operation. Raising awareness on the benefits of waste separation, reuse and recycling can improve solid waste treatment and living conditions in informally constructed areas.

### **3. Upgrade the electricity system**

Having an updated electricity system is essential for any sustainable energy-related transformation. For Podgorica, it is recommended to establish demand response penetration of the electricity system to help balance supply and demand on the grid. Additionally, implementing monitoring systems could improve the supervision of the electricity infrastructure.

## **Energy efficiency**

### **1. Increase renewable energy consumption**

To promote the consumption of renewable energy sources (RES) in Podgorica, it is suggested to introduce measures that will incentivize the use of RES over fossil ones. One way to achieve this is by implementing changes in municipal energy-pricing policies, such as providing subsidies for renewable energy. Another option is to introduce government-led programmes that offer discounts on solar panels for households. It is also recommended to ensure the supply of renewable energy by increasing investments in RES and expanding their production. By taking these steps, Podgorica can strengthen its consumption of renewable energy and move towards a more sustainable future.

### **2. Increase the share of consumed electricity in total energy consumption**

Expanding the electrical grid coverage and supply in Podgorica is a top priority. There is an obvious demand for electricity in the area, but the current grid is not sufficient to meet those needs. To address this issue, it is highly recommended not only to ramp up the production of electricity, with a strong preference for RES but also to update and expand the electrical grid to cover all urban areas. This will automatically reduce the use of fossil fuels like firewood, improving both the environment and public health in the process.

### **3. Strengthen energy efficiency in buildings**




**a. Implement measures to improve energy efficiency in informally constructed buildings**

It is very rare that informally constructed buildings follow existing construction standards. That is why it is important to implement energy efficiency measures on these buildings and legalize them. To encourage this, it is recommended to introduce programmes that incentivize the implementation of energy efficiency measures. To do this, however, data on the existing housing stock and demand should be available. Hence, it is further recommended to take a holistic approach that combines data collection, legalization of informally constructed settlements, and implementation of energy efficiency measures.

**b. Develop programmes on urban housing energy efficiency**

When it comes to energy efficiency, there are no programmes in place specifically targeting multi-apartment buildings in private ownership. It is essential to raise overall awareness of the importance and necessity of refurbishment and energy efficiency among owners of housing units. In order to tackle this issue, it would be beneficial to introduce more programmes that focus on the energy efficiency of both public and private housing. Incentivising energy efficiency measures by offering subsidies or other types of support could possibly encourage more people to take action to support energy efficiency.

## Annex 1 City level plans and programmes

Areas	Plans, programmes, and strategies	Objectives & policy measures
<b>Urban Infrastructure</b> 	<b>Strategic Development Plan Capital City Podgorica 2020-2025</b>	<ul style="list-style-type: none"> <li>• Further development and improvement of infrastructure and activities;</li> <li>• Strengthening the competitiveness of the economy and further improving business environment;</li> <li>• Tourism development and environmental protection;</li> </ul> <p>Policy measures focus on urban infrastructure development and improvement of (institutional) capacities (e.g., regarding education, tourism, waste management).</p>
	<b>Spatial Urban Plan of the Capital city of Podgorica until 2025 (Spatial Development Strategy)</b>	<ul style="list-style-type: none"> <li>• Review strategy planning documents with specific regard to water resources in Podgorica, e.g., Spatial Urban Plan of the Capital City of Podgorica until 2025, 4.1.3.1. Water supply.</li> </ul> <p>Measures include improvement of waste disposal processes and removal of sources of pollution.</p>
<b>Urban mobility</b> 	<b>Sustainable Urban Mobility Plan 2020</b>	<ul style="list-style-type: none"> <li>• To establish a framework for increasing sustainable urban mobility with the aim of providing efficient, secure and accessible transport for all.</li> </ul> <p>Based on the results of a survey conducted in 2020, measures included follow up activities, such as implementing a working group on urban mobility, developing a status analysis and plan for monitoring and evaluation.</p>
<b>Housing</b> 	<b>Strategic Development Plan Capital City Podgorica 2020-2025</b>	<ul style="list-style-type: none"> <li>• Smaller and more moderate growth of Podgorica, aimed at development within the existing construction land (brownfield development), in order to make a significant qualitative improvement of urban structures and of the living environment;</li> <li>• Redirecting the process of uneven development in the network of settlements;</li> <li>• Restructuring the network of rural settlements by a more rational agglomeration of population and activities, and encouraging the development of rural and mountainous areas towards a better utilization of natural potentials;</li> <li>• Rapid development of rural areas, by creating conditions for the return of population.</li> </ul> <p>Measures aim to encourage socioeconomic development and to regulate construction activities in line with the existing infrastructure and public facilities infrastructure.</p>
<b>Greening the city</b>	<b>Green City Action Plan of Podgorica</b>	<ul style="list-style-type: none"> <li>• To strategically address the city's needs for sustainable and green growth.</li> </ul>



**(EBRD Green Cities)<sup>1</sup>**

- To systematically address the most pressing climate change and environmental challenges, including public building energy efficiency, urban roads and lighting, urban transport, water and wastewater, and, in order to reduce local pollution, improve energy and resource efficiency and promote climate change adaptation.

As of the time of drafting, the GCAP of Podgorica is not yet finalized.

**Local Energy Plan Capital City of Podgorica 2015 - 2025**

- Implementation of energy-efficient measures, projects and programs in
  - public buildings,
  - public transport,
  - public lightning;
- Planning based on principles of energy-ecological sustainability;
- Support programmes and initiatives of various physical and legal entities with the aim of greater use of renewable energy sources;
- Promotion of local energy production from renewable sources.

Measures include development and implementation of the Sustainable Energy Action Plan. Further, exchange of experience and good practices regarding energy efficiency with citizens and other cities is envisaged.

**Capital City Energy Efficiency Improvement Programme 2021 - 2023**

- Define strategy and measures for the development of energy efficiency at the local level.
- Improve energy efficiency in energy consumption.
- Increase use of renewable energy sources towards citizens and companies.
- Meet requirements of the regulations for the energy efficiency of buildings that refer to local self-government.
- Reduction of costs for the procurement of energy and energy products.
- Establishing a database (energy consumption information system) on consumption of all types of energy at all points of consumption at the main city level until end of 2021.

Policy measures aim to improve thermal insulation of municipal buildings, as well as the certification of energy characteristics of buildings. Moreover, efficient lightning and regular energy audits are mentioned.

**Spatial Planning**



**Strategic Development Plan Capital City Podgorica 2020-2025**

- Harmonize spatial plans present in the territory of Montenegro with the aim of addressing inconsistencies in planning and development projects.
- Enable sustainable development on the whole territory of Montenegro via the provision of uniform access to social and communal infrastructure for different sectors of the population with the goal of levelling social



		<p>integration within the population; to reduce of differences in quality housing, with further consideration of the environment.</p> <ul style="list-style-type: none"> <li>• Assess possibilities for integral planning, staged development settlements, communal and traffic infrastructure, and to identify most favourable potential projects and associated financial limitations in the implementation of individual projects</li> </ul> <p>Envisaged policy measures include improving the water supply and sewage network, as well as increasing the number of sports and culture facilities throughout the city.</p>
	<p><b>Spatial and Urban Plan (SUP) Podgorica 2014</b></p>	<ul style="list-style-type: none"> <li>• Encourage a more balanced territorial development, rational organization, reservation and protection of space</li> <li>• Improve quality of life</li> <li>• Increase accessibility of dispersed settlement network, development of urban municipalities, secondary centres, more balanced socio-economic development and development of rural areas</li> <li>• Provide conditions for regulation and development of areas and settlements</li> <li>• Promote, activate and responsible management of the available natural and man-made resources, environment and cultural assets</li> <li>• Groundwater protection in the region</li> <li>• Protection of public interest, areas and facilities of public interest, identification and protection of public goods</li> <li>• Include all stakeholders in the adoption and implementation of strategic planning decisions</li> <li>• Proper use of human, natural and built potentials in socio-economic, spatial and ecological terms</li> <li>• Establish an effective geographical information system of the SUP for Podgorica for implementation needs, monitoring and protection, spatial use and development etc.</li> </ul> <p>No measures listed</p>
	<p><b>Spatial Urban Plan of the Capital city of Podgorica until 2025 (Spatial Development Strategy)</b></p>	<ul style="list-style-type: none"> <li>• Define variants of future development, consideration and selection of the most appropriate variant of the organization of activities and spatial arrangement</li> </ul> <p>Measures aim to improve accessibility of social and utility services infrastructure, as well as to reduce differences in the quality of housing and environment.</p>
	<p><b>Spatial Planning Programme with Urban Rehabilitation Programme 2022</b></p>	<ul style="list-style-type: none"> <li>• Determines the dynamics of spatial planning, budget, planning deadlines, operational measures for the implementation of the planning document; especially measures for communal equipment of construction land, as well as other measures for the implementation of spatial planning policy. A budget of 34 Mio. € is planned for activities.</li> </ul>

		<p>Policy measures include preparation of both, a planning and a technical document. Moreover, property legal relations shall be settled, and roads and bridges should be re-constructed.</p>
<p><b>Urban Resilience</b></p> 	<p><b>Smart City Action Plan</b></p>	<ul style="list-style-type: none"> <li>• Managing the Expansion of the city</li> </ul> <p>Measures include promotion of BIM/CIM solutions, creation of a digital twin of the city and implementation of green rooftops.</p>
	<p><b>Podgorica Climate Change Adaption Vulnerability Assessment and Adaption Action Plan 2015</b></p>	<ul style="list-style-type: none"> <li>• Integrate climate change adaptation (CCA) into the management and planning processes within the different sectors of the city administration, particularly cross-cutting activities like spatial planning and strategic project development;</li> <li>• Offer mechanisms for increasing capacities to adapt to natural and man-made systems, based on the degree of their vulnerability;</li> <li>• Increase the availability of the system to respond to changes instead of reacting to undesirable impacts that have been caused precisely by climate change.</li> </ul> <p>The Action Plan envisaged establishing a working group consisting of expert consultations of representatives from relevant institutions to carry out vulnerability assessments. In a next step, supporting tools were to be implemented.</p>
	<p><b>Spatial and Urban Plan (SUP) Podgorica 2014</b></p>	<ul style="list-style-type: none"> <li>• Protection of settlements and land from flooding, as well as against earthquakes</li> </ul> <p>Policy measures focus on applying construction, technical and biotechnical standards in urban planning and architecture design. Drainage channels and watercourses were cleaned and subject to maintenance. A vulnerability assessment of areas exposed to floods was prepared</p>
	<p><b>Spatial Urban Plan of the Capital city of Podgorica until 2025 (Spatial Development Strategy)</b></p>	<ul style="list-style-type: none"> <li>• Review existing limiting factors and development opportunities in the area of Podgorica to reduce negative impacts on rational use and arrangement of urban territory and prevent environmental degradation.</li> </ul> <p>No measures listed</p>
<p><b>Local environmental Protection Plan of the Capital City of Podgorica 2019 - 2022</b></p>	<ul style="list-style-type: none"> <li>• Sublimate what was achieved in the previously defined period, record trends and changes, include novelties regarding standards, define future activities in order to achieve outlined vision of sustainable development and the achievement of European norms in the field of environmental protection.</li> <li>• Achieve efficient, effective and sustainable management of natural resources.</li> <li>• Improve cooperation within the sector by creating partnership relations at the local level.</li> <li>• Increase ability to solve and deal with problems endangering the environment.</li> </ul>	

		<ul style="list-style-type: none"> <li>• Enable the creation of a consensus on priorities.</li> </ul> <p>Policy measures include the overall revitalization of green areas, monitoring of air pollution, improving the quality of the pollutant cadastre, and cleaning up illegal waste disposal sites from residential areas. Further, reducing traffic at night is envisaged.</p>
	<p><b>Smart City Action Plan</b></p>	<ul style="list-style-type: none"> <li>• Making the City Enjoyable</li> <li>• Empowering the Capital City</li> <li>• Managing the expansion of the City</li> </ul> <p>The Smart City Action Plan proposes to implement a citizens' consultation platform, develop green areas on rooftops, and create living labs on smart and green buildings. Furthermore, the "Super App" shall be enriched and strengthened, while extending online services.</p>

*Source:* City of Podgorica.

## **Annex 2. Unreported Key Performance Indicators for Smart Sustainable Cities Profile Podgorica**

### **Economic dimension**

- Water Supply ICT Monitoring
- Drainage/Storm Water System ICT Monitoring
- Traffic Monitoring
- Open Data
- R&D Expenditure
- Transportation Mode Share
- Shared Bicycles
- Shared Vehicles
- Public Building Sustainability
- Integrated Building Management
- Pedestrian Infrastructure

### **Environment dimension**

- Air Quality (PM2.5)
- Air Quality (PM10)
- Air Quality (NO<sub>2</sub>)
- Air Quality (SO<sub>2</sub>)
- Air Quality (O<sub>2</sub>)
- Water and Sanitation Samples
- Water and Sanitation Tertiary Wastewater Treatment
- Waste: Solid waste burned
- Waste: Solid waste incinerated
- Waste: Solid waste open dump
- Public Space and Nature Number of inhabitants living within 300m of a publicly accessible green space
- Public Space and Nature Total area of indoor and outdoor facilities
- Energy Total consumption of thermal energy

### **Society and Culture dimension**

- Maternal Mortality Rate
- Informal settlements
- Gini Coefficient
- Disaster Related Economic Losses
- Local food production