



# **Regional analysis on Green and Blue Infrastructure in South Muntenia Region, Romania**



## **Regional analysis on Green and Blue Infrastructure**

***Final Version  
December 2021***

*Project financed under the Technical Assistance Operational Programme  
2014-2020*



*Disclaimer: The data analysis, including the financial analysis, and the conclusions presented within this Report were prepared by the expert team with all reasonable skill, care and diligence, taking into account the scope of the analysis and the data publicly available. Furthermore, the assumptions considered for the financial forecast and the results presented are based on expert judgement and do not have an official value to any third party, as it constitutes the consultants' opinion, based on the available public data analysed.*

Intended for  
**South Muntenia Regional Development Agency**

Contract type  
**Consultancy Services**

Date  
**December 2021**

Consultants:  
**RAMBOLL South East Europe SRL**

[Subject]Project **REGIONAL ANALYSIS ON GREEN AND BLUE INFRASTRUCTURE IN SOUTH**  
name **MUNTENIA REGION, ROMANIA**  
Project no. **2021.003249**  
Recipient **South – Muntenia Regional Development Agency**  
Document type **Final**  
Version **3.0**  
Date **20/12/2021**  
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Description **This report represents the culmination of the project implemented by  
Ramboll, EBRD and SMRDA, dealing with developing a regional analysis of the  
potential of BGI for the South Muntenia Region, including the development of  
a regional pipeline of BGI projects. This report is the fourth report and  
summarizes all previous reports in the project.**  
Acknowledgements **The Consultants very much appreciate the information that has been provided  
by the Client during this initial phase of the project.**

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Field Visits Report 20-22 September 2021

## List of Acronyms

ACT on NBS	=	Adaptive Cities Through Integrated Nature-Based Solutions
AM	=	Management Authority Role
ANAR	=	National Administration of Romanian Waters (R)
BGI	=	Blue-Green Infrastructure
CPR	=	Common Provisions Regulations (on the European Regional Development Fund)
D2	=	Deliverable 2
D3	=	Deliverable 3
DEM	=	Digital Elevation Model
EBRD	=	European Bank for Reconstruction and Development
EC	=	European Commission
ERDF	=	European Regional Development Fund
EU	=	European Union
EUSDR	=	EU Strategy for the Danube Region
FEDR	=	European Regional Development Fund (R)
GCAP	=	Green City Action Plan
GI	=	Green Infrastructure
GIS	=	Geographic Information System
LAA	=	Learning and Action Alliance
MIPE	=	Ministry of the Investments and European Projects ®
NBS	=	Nature Based Solutions
NGO	=	Non-Governmental Organization
OP	=	Operational Programme
PI	=	Priority Investment
PIU	=	Project Implementation Unit
PMUD	=	Sustainable Urban Mobility Plans
PNRR	=	National Recovery and Resilience Plan (R)
RDA	=	Regional Development Agency
RDP	=	Regional Development Plan
ROP	=	Regional Operational Programme
SCI	=	Sites of Community Interest
SIDT	=	Territory Integrated Development Strategies (R)
SIDU	=	Integrated Sustainable Development Strategies
SM	=	South-Muntenia
SM RDA	=	South-Muntenia Regional Development Agency
SM ROP	=	South-Muntenia Regional Operational Programme
SO	=	Strategic Objectives
SPA	=	Spatial Protection Areas
TOR	=	Terms of Reference
UN	=	United Nations

# 1 INTRODUCTION

## 1.1 General Background

The European Commission (EC) has, in recent years, been increasing its focus on urban issues, as a response to the fact that, according to the UN, around half of the world's population now lives in urban areas, and by 2030 this is likely to exceed 60 per cent of the global population.

Thus, the **UN's 2030 Agenda** for Sustainable Development and the Sustainable Development Goals (UN 2015) and particularly the Goal 11, calls for governments to make cities and human settlements inclusive, safe, resilient and sustainable. In response, the European Commission's strategy to implement the United Nation's 2030 Agenda and the sustainable development goals, throughout the Green Deal **biodiversity strategy, aims to green European cities and increase biodiversity in urban spaces.**

The Commission adopted an **EU strategy on green infrastructure** (GI strategy) in 2013 to enhance economic benefits by attracting greater investment in Europe's natural capital. The strategy included four priority work streams: (i) promoting GI in the main policy areas; (ii) improving information, strengthening the knowledge base and promoting innovation; (iii) improving access to finance; and (iv) contributing to the development of GI projects at EU level. According to the EU strategy, green infrastructure (GI) is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services.

It incorporates biodiversity-rich terrestrial and aquatic ecosystems on land and at sea. On land, GI is present in rural and urban settings. In addition to providing a key tool to halt and reverse the loss of biodiversity, green and blue infrastructure provides a multiplicity of benefits in a simultaneous and cost-efficient way. The delivery of those benefits is maximised when the network of green and blue spaces is planned at a strategic level. The Natura 2000 network constitutes the backbone of the EU green and blue infrastructure.

Considering its multi-functionality, GI supports implementation of, and compliance with EU environmental legislation and policies, such as on nature protection, air quality, water and the marine environment, as well as with climate change adaptation and mitigation policies.

Green and blue infrastructure can also positively contribute to the sustainability of broader EU policies, such as regional development, social cohesion, agriculture, transport, energy production and transmission, disaster risk management, fisheries and maritime policies. Green and blue infrastructure offers approaches that are more sustainable than or complementary to those provided through conventional civil engineering ('grey infrastructure').

Europe is an urban society, with many environmental challenges to face. The European Commission has long recognised the important role that the local authorities play in improving the environment, and their high level of commitment to genuine progress.

Thus, in order to help planners, policymakers and businesses solve socio-economic challenges, while also protecting and restoring Europe's nature, in 2019, the Commission published the *EU Guidance document on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure SWD (2019)*.

In order to deliver on the strategic priorities, the Commission deploys the Cohesion Policy as the EU's main investment policy. Cohesion Policy targets all regions and cities in the European Union to support job creation, business competitiveness, economic growth, sustainable development, and improve citizens' quality of life. Cohesion policy has a strong impact in many fields, as its investments help to deliver many EU policy objectives and complements EU policies such as those dealing with education, employment, energy, the environment, the single market, research and innovation.

## 1.2 Project Background

The projects financed in the regions and cities contribute the goals of the Commission priorities, including the European Green Deal.

Consequently, the **2021-2027 EU Cohesion Policy** has **5 policy objectives (OP-s)** supporting growth for the period 2021-2027:

- OP1. A more competitive and smarter Europe
- OP2. A greener, low-carbon transitioning towards a net zero carbon economy
- OP3. A more connected Europe by enhancing mobility
- OP4. A more social and inclusive Europe
- OP5. Europe closer to citizens by fostering the sustainable and integrated development of all types of territories

Following the 5 Cohesion policy objectives and taking into consideration the regional specificity, the lessons learnt in 2014-2020 and the strategic programming documents of SM RDA (SM Regional Development Plan 2021-2027; Smart Specialization Strategy for SM (RIS3) 2021-2027; SM Integrated Territorial Strategy 2021-2027), the SM RDA defined six strategic objectives to ensure the sustainable development of the SM region for the period 2021–2027, to be supported through the investments planned in the South Muntenia Regional Operational Programme (SM ROP).

The SM ROP's priority areas of investment are presented below.

**Table 1-1 Priority Investment Areas**

Priority investment area	OP supported
PI 1 - A competitive region through innovation, digitalisation, and dynamic enterprises	OP1
PI 2 - A region with environmentally friendly cities	OP2
PI 3 - A region with sustainable urban mobility	OP2

PI 4 - A more accessible region	OP3
PI 5 - An educated region	OP4
PI 6 - An attractive region	OP5
PI 7 – Technical Assistance - Ensuring the functioning of the ROP management system	

The second strategic objective (SO) of SM RDA, *SM (SO) b envisages Stimulation of the region transition to a zero emissions economy through the energy efficiency increase, environment protection enhancement and urban mobility increase.*

Thus, *SM (SO) b* fits into the EU OP2 - *A greener, low-carbon transitioning towards a net zero carbon economy* that aims at a „more ecological Europe with reduced carbon emissions through the advancement of the green and just transition, of the green and blue infrastructures, of the circular economy, of the adaptation to the climate change and the risk prevention and mitigation“.

The Strategic Objective (SO) *b(vii) Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution* is designed in accordance with the key strategic documents at regional level for 2021-2027, while contributing to the continuation and augmentation of the strategic vision of ROP 2014 – 2020.

Thus, the green infrastructure projects fall under the priority investment 2 - *A region with environmentally friendly cities* of SM ROP.

As such, considering all the above, and the fact that the SM Region is bordered by the Danube River, at the request of RDA SM, under the present **Regional analysis**, we have undertaken a systematic approach to addressing environmental challenges **with a focus on functional urban areas with the aim to define and promote the relevant green and blue infrastructure concepts and ultimately identify a pipeline of green and blue projects pipeline to be funded under SM ROP 2021-2027.**

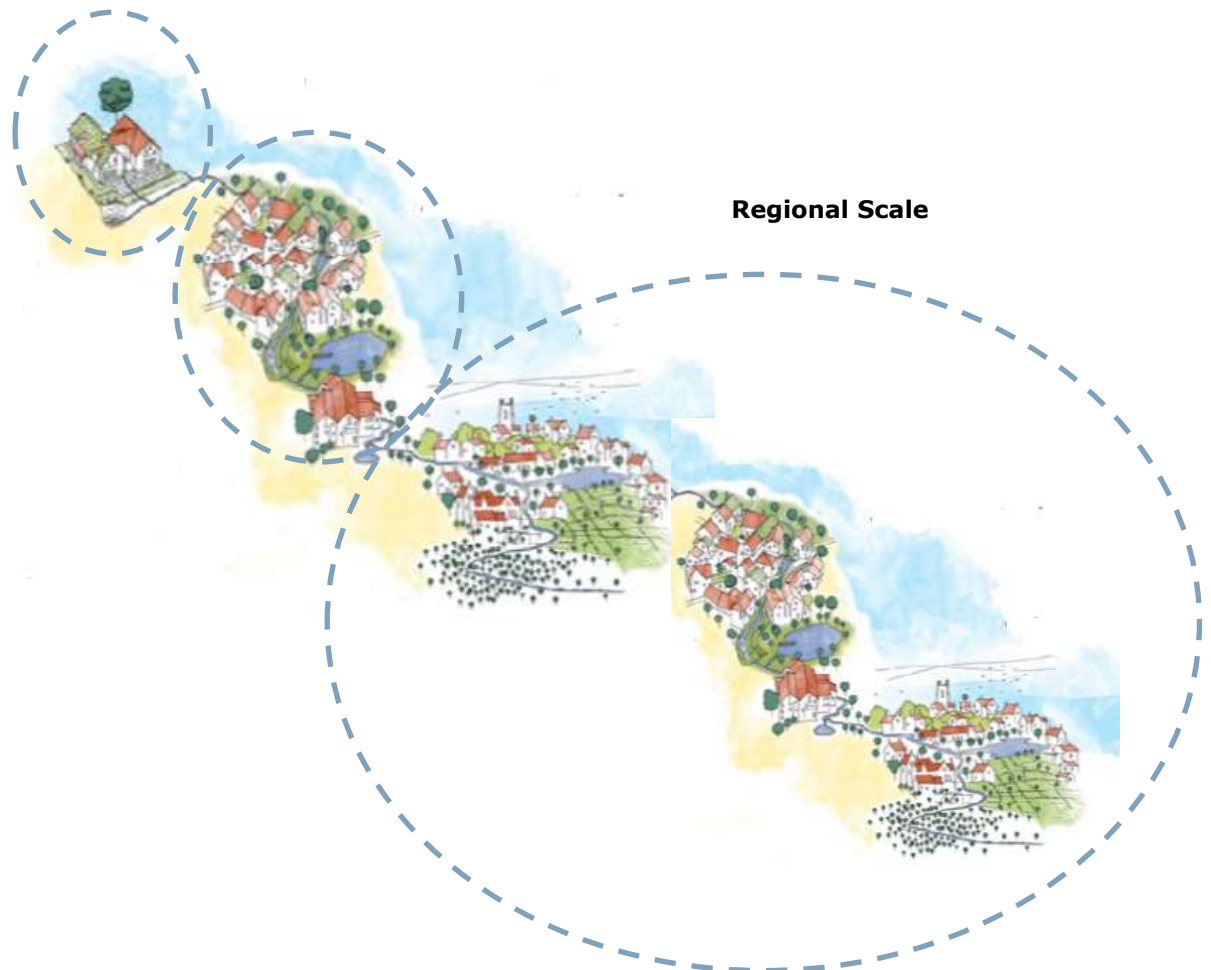
The analysis considers the recommendations defined in the EC’s “*Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure*”, referred about, Ramboll’s global expertise, experience and best practices.

### 1.3 Objectives

A green urban landscape and a sustainable water cycle are essential for the development of a city. Green-blue infrastructure planning aims to ensure that cities provide a good quality of living, prosperity and resilience.

Successful planning of blue green infrastructure requires the integration of different local/territorial planning strategies, development strategies, action plans and local/regional policies.

Blue – green infrastructure planning can be done for a small area of a city, an entire urban area or river basin, but must take into account possible regional interventions as well as their cumulative impact of these interventions. Depending on the scale of application, the types of blue-green infrastructure that can be applied may be different (see Figure 1-1).



**Figure 1-1 Interlinked green-blue infrastructure systems across scale**

*Source: Planning a Green-Blue City, Department of Environment, Land, Water and Planning, State Victoria February 2017*

The types of measures range from watershed-scale to site-scale:

- Watershed management features (forests, rivers and riparian vegetation and agricultural features);
- Wetlands (constructed and natural);
- Urban green space;
- Engineered stormwater devices (including bioretention systems, bioswales, green roofs, retention and detention ponds).

When we refer to small areas of a city, we can have local interventions that allow for example the transformation of existing building /streets into green ones, the construction of rain gardens / parks or forest curtains around the city. But when we refer to a region, we must consider much larger areas of coverage that allow, for example, the creation of blue-green corridors that encompass the integration of watercourses and their protection areas in the urban environment and which can have large areas ensuring, natural flood areas, waterways (see Figure 1-2).



**Figure 1-2 Green-blue infrastructure elements applicability to scale**

The blue-green corridors can be implemented along any watercourse within urban or rural areas. These corridors can have the role of reducing the risks of floods, the erosion of the banks by restoring / improving the riparian vegetation and lowering the temperature at the water level by creating the shading effect given the development of vegetation. Along these corridors hiking trails, running or bike paths, rest area can be arranged.

Blue-green corridors can also be implemented along any watercourse between urban or rural areas, creating connections between neighbouring localities in the same county and can even connections between localities in different counties.

Regardless of the scale of application, the areas where blue-green infrastructure systems will be proposed must have the following common characteristics:

- Surfaces covered with vegetation, offering comfort and habitat;
- Open land surfaces allow the extension of green spaces or the creation of forest curtains or the existence of degraded lands that can be ameliorated by afforestation;

- The existence of watercourses that allow the creation of corridors between neighbouring areas of the same locality or areas in different counties;
- Access routes that allow the connection of the urban area with watercourses and other areas that can be extended as green spaces;
- The need to adapt to climate change (reducing the risks of natural hazards caused by climate change);
- The need to apply measures to improve air quality / to maintain air quality and reduce greenhouse gas emissions;
- Protection of water resources (e.g., rainwater collection and use or supply of recycled water with a frequency and quantity sufficient to support vegetation and soil quality; water treatment capacity, using natural processes to filter local water sources and to reduce pollutants that may reach surface water bodies; water storage capacity, land availability for stormwater collection systems and rainwater retention).

#### 1.4 Approach

In assessing the relevant policies and strategies, as well as the institutional capacity needed to enable the beneficiaries identify the relevant BGI projects and to successfully apply for funds, we have identified **3 key areas** to address:

1. Ensure the acknowledgement of what BGI concept is, according to EC's guidelines and according to the scientific community and the related policies and best practices promoters like EBRD and consulting companies like Ramboll, and how it responds to the beneficiaries' context;
2. Define how the BGI projects fit for funding under the SM ROP 2021-2027 and the complementary financing sources, as well as the regional integrated planning approach;
3. Assess the institutional framework and capacity: legal and administrative, technical, and financing.

In order to match the overarching concepts, policies, regulations and integrated planning perspective with the local needs, challenges, expectations, and operationalization capacity, as well as to identify areas of optimization in developing the BGI projects pipeline for successful funding under the SM ROP, **a top-down analysis** has been deployed, based on the identified relevant EU and national policies and strategic documents, as well as related legislation, **completed by a grass-roots (or bottom up) analysis**.

The consultant used both direct and indirect data collection methodology. The direct data collection included questionnaires addressed to the identified stakeholders, related to environmental, institutional, and social challenges, direct feedback collection from workshops, as well as discussions with the stakeholders during the sites visits. The key findings had been summarized in the Inception Report.

These represented a valuable source of information for the reality check in the territory. At the same time, it was an excellent opportunity to explore different BGI concepts and typologies by



matching them and shaping them according to the local challenges and opportunities, validated with the local authorities and SM RDA representatives, covering wide areas of expertise, responsibilities and decision making- authority.

Building **clarity in addressing, in a unitary way, the BGI concept and the technical pre-requisites**, as early as possible in the process was crucial. Thus, based on the EC's guidelines and Ramboll's experience and expertise, **a list with key BGI typologies, fit for the beneficiaries' identified challenges and context, was created and disseminated to the beneficiaries**, and included as an annex to the D3.1 Report.

To ensure comprehensive and relevant data for the regional analyses under this assignment, consultants have also undertaken **a screening on the relevant horizontal and sectorial policies and strategic documents** identified at EU, national, regional, and local level, as detailed in the D2 report and more briefly in section 2.2 below.

This screening focused especially on the SM ROP regional development strategic objective context in conjunction to the overarching Cohesion Policy Objective *OP2 - A greener, low-carbon transitioning towards a net zero carbon economy* and the related funding ERDF governing regulation, completed by the Common Provisions Regulations (CPR). Another highlighted aspect was related to the funds' complementarity, as also emphasized in the Partnership Agreement for the Programming Period 2021-2027 and in the EC's guidelines.

Further on, according to the ToR requirements, in connection to the projects pipeline evaluation, we looked at aligning the types of investments, policy and strategic actions the Region and main cities could undertake in the next 5-to-7-year period to address environmental challenges. These sections review existing and new policy options and define a pipeline of projects to undertake within different sectors (including transport, buildings, industry, sustainable energy, solid waste, water, wastewater and land use/nature-based solutions).

As well, during the pipeline evaluation, review and building phases we have looked at **ensuring consistency with EU-level BGI criteria as well as with existing key policy plans and strategies at local, and regional level**, as follows:

- a) **ROP SM scope** – Specific Objective b(vii) - Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution and the related Cohesion Policy relevant governing regulations (Regional Development European Fund Regulation (*EU*) 2021/1058 and the Common Provisions Regulation, CPR (*EU*) 2021/1060);
- b) **EC's guidelines** cumulative criteria:
  - strategically planned network
  - addressing biodiversity-rich natural / semi-natural areas raising environmental challenges
  - deliver a wide range of ecosystem services

- c) **Strategic documents** – local and regional: mainly Integrated Urban Development Strategy, Integrated Urban Mobility Plan, Energy Efficiency Plan, General Urban Plan, SM Regional Development Plan (SM RDP);
- d) **Sectorial strategies & plans related to:** Biodiversity, Protected Areas, Air Quality, Water & Flood Management, Site Restoration.

For that we defined a screening methodology that we applied during the BGI pipeline validation and that could be further used as a screening tool by the beneficiaries for new BGI projects.

Last, but not least, based on the collected regarding the institutional, policy, technical, and financing capacity and capabilities and on the preliminary conclusions and recommendations presented also in the High-level Environmental Challenges Report (and summarized also in chapter 2), we have formulated specific recommendations for the projects pipeline (see chapter 3) and general final recommendations also considering the resource implications (see chapter 4), related to the successful preparation of the BGI projects financing applications that would represent the foundation of a successful implementation as well.

### 1.5 Assignment process

The assignment comprises three tasks and four deliverables, as shown in the following table.

**Table 1-2 Project Tasks and associated deliverables**

Task	Name	Deliverable
1	Project Inception	(D-1) Inception Report
2	Challenge Identification	(D-2) High – level environmental challenge identification Report
3	Elaboration of the Regional Analysis	(D-3.1) Pipeline for regional projects (D-3.2) Regional analysis for Green and Blue Infrastructure

The two overarching purposes guiding the tasks are related to the identification of environmental challenges (Task 2) and related to the regional analysis on BGI (Task 3), as defined in the ToR. The overall process followed by Ramboll going through these two tasks, ensuring the project objectives are reached, is comprised of five key steps, as shown in Figure 1-3 below.

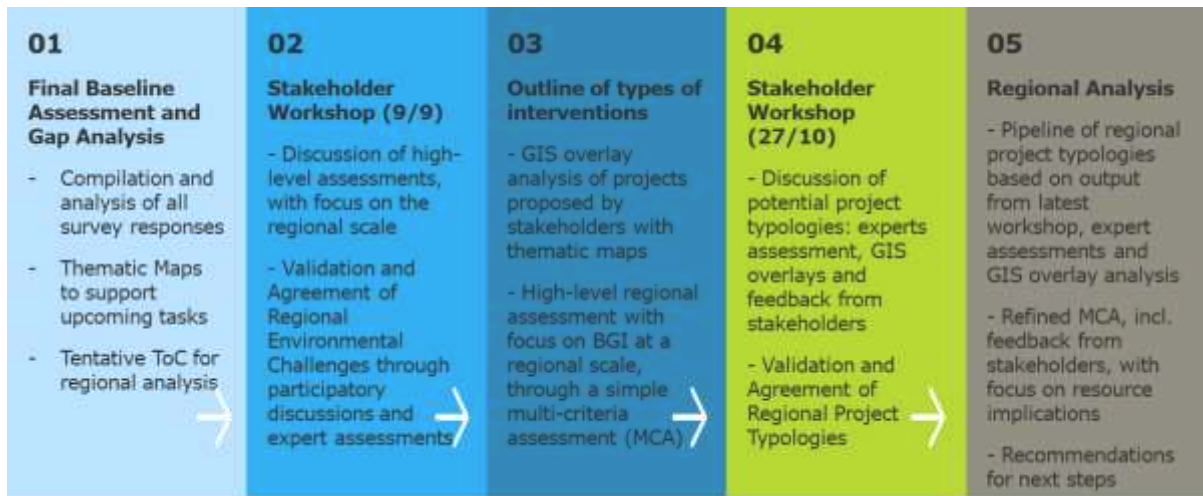


Figure 1-3 Process and steps to followed, from final Inception Report to the Regional Analysis

During this process, the following key elements were referenced as per the ToR:

- The identification of environmental challenges (Task 2) containing a high-level regional assessment is summarized in section 2.1 (details to be found in the High-level Environmental Challenges report);
- The identification of environmental challenges and the final regional analysis are informed by key policies and guidelines (i.e., the EC’s “Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure”) as summarized in section 2.2, aligning the challenges with the funding of potential types of interventions (Task 3), ensuring a coherent **typology of potential regional interventions**, in line with the objectives of the ROP;
- Outreach activities were fundamental for achieving the objectives of this project, specifically the two workshops and the field visit (see section 2.3);
- The pipeline for regional projects focused on types of interventions or projects and is summarized in chapter 3. Because of both the complexity of the subject matter and the level of knowledge/data available in the region, a three-tier approach was taken:
  - The first tier is the development of a list of potential BGI typologies that can be applied to any BGI project, from a local to city scale, or as part of a regional project and that corresponds to specific objectives of the program.
  - The second tier is an assessment from a regional perspective of the local project proposals that were submitted to the consultant by regional stakeholders.
  - The third tier is the development of several project types on a regional scale with a corresponding assessment method based on various criteria.
- While developing the **regional pipeline**, a set of criteria was drafted around the main components of BGI (e.g., multi-functionality), so that the regional analysis was developed in a coherent manner, in line with the expected funding opportunities linked to the ROP;
- The project typologies (or types of interventions) have been linked to the assessment of the necessary resources or pre-conditions that need to be in place for the interventions to

be feasible (see chapter 4). These include capacity building implications and more generic resources needed to have in place at local level.

## 2 SETTING THE SCENE

### 2.1 Environmental challenges in South Muntenia Region

The identification of the environmental aspects faced by the SM region is based on documentation activity, meetings with stakeholders and site visits. The program of the site visits, main findings, and picture documentation can be found in Appendix F.

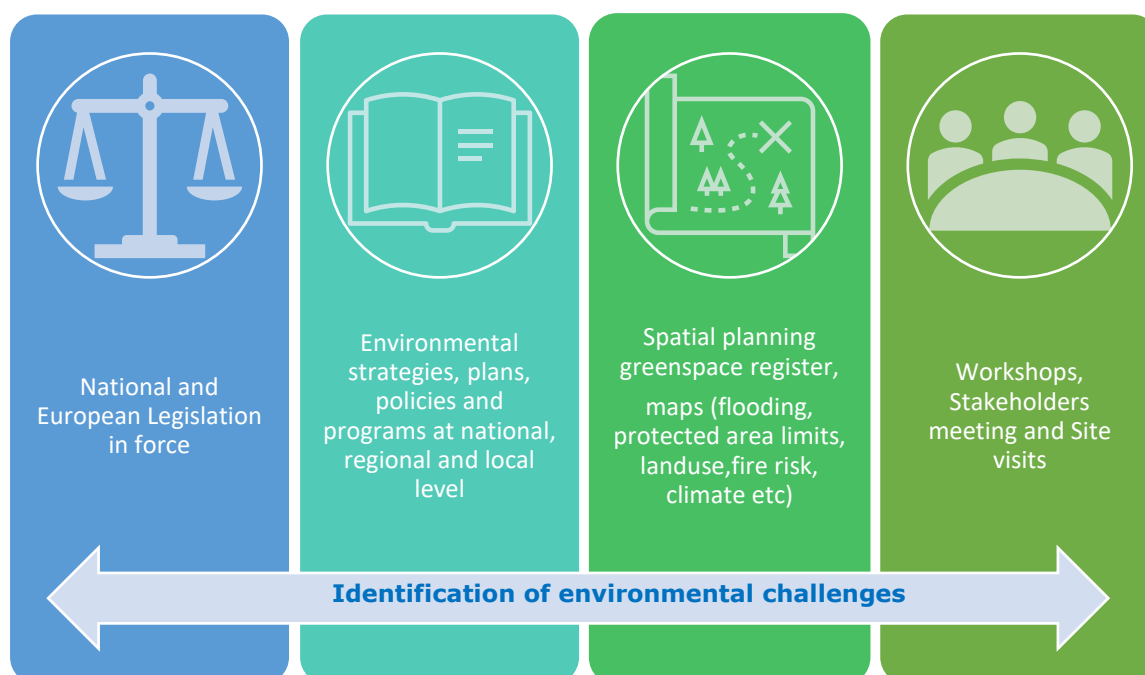





Figure 2-1 Data collection to identify environmental challenges







The following environmental components were assessed: air, soil, water, biodiversity and ecosystems, and climate adaptation. The key findings and main environmental challenges for South Muntenia Region are summarized in the Table 2-1. The table includes BGI typologies that could be applied to address these challenges; these typologies are elaborated in the “Pipeline for regional projects Report”<sup>1</sup>, and included in a convenient brochure in appendix E.






Table 2-1 Key Findings and Main challenges

Environmental Component	Key findings	Environmental Challenges	BGI Typology that could be applied
 <b>Air</b>	<ul style="list-style-type: none"> <li>Air quality is good in most counties of the South-Muntenia Region, the concentration of pollutants emitted into the atmosphere is generally in line with the values established by current legislation, except: Pitesti (PM10 concentrations, PM2.5 upper threshold for</li> </ul>	<ul style="list-style-type: none"> <li><b>Maintaining the air quality</b></li> <li><b>Compliance with the permitted limit values for emissions of air pollutants</b></li> <li><b>Protection of human health</b></li> </ul>	 <b>Green Streets</b> Green Streets (including railway corridors, tram lines, cycling routes, pedestrian paths) are





<sup>1</sup> Pipeline for regional projects Report, authored by Ramboll, December 2021

Environmental Component	Key findings	Environmental Challenges	BGI Typology that could be applied
	<p>human health assessment), Ploiești (the level of NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and Benzene concentrations exceed the upper assessment threshold for human health) and Brazi (the level of NO<sub>x</sub>, NO<sub>2</sub> and Benzene concentrations exceed the upper assessment threshold for human health);</p> <ul style="list-style-type: none"> <li>• sensitivity areas in terms of population exposure are outlined especially in the surroundings of high-emission industrial plants (district heating plants), roads with heavy traffic and around the areas with agricultural activities (intensive breeding of birds and pigs and the use of chemical fertilizers for agricultural land).</li> <li>• in the northern counties of the region, emissions of air pollutants come from the oil industry, automotive industry, construction materials industry and metallurgical industry, while in the south of the region, pollution is generated by agricultural activities (intensive farming of poultry and pigs and the use of chemical fertilizers in agricultural) and specific production processes activities in chemical industry economic units, the mining industry, and the food industry.</li> <li>• the largest regional contribution to atmospheric emissions comes from the energy and transport sectors, followed by industry in the northern part of the region and agriculture in the southern part of the region;</li> </ul>		<p>located as upstream connections to all cloudburst roads or retention areas. The green streets should be established with a combination of small-scale channels and stormwater planters or permeable paving. Stormwater should be collected, delayed, and then channelled toward the cloudburst roads.</p>  <p><b>Parks and Gardens</b></p> <p>Parks and gardens are examples of green infrastructure that can host stormwater management solutions such as bioswales, cleansing biotopes/raingardens, retention and detention swales and lakes, infiltration systems and others. . Parks and gardens present opportunities for improving the air quality and reducing the urban heat island effect incorporating a multifunctional design enhancing socio-economic and socio-ecological benefits.</p>  <p><b>Urban Forest</b></p> <p>Urban Forests are highly effective ecological solutions for nature enhancement within city limits. The design consists of large, densely planted, high vegetation areas with few to no amenities. Urban forests are beneficial for mitigating heat island effect, enhancing biodiversity and strengthening urban ecosystems.</p>  <p><b>Living and Walls</b> <b>Roofs</b></p> <p>Integrating vegetation and storage potential into new buildings and infrastructure acts as a first response in reducing local cloudburst runoff. With multifunctional potential, living roofs replace underutilized hard surface spaces in cities with rain soaking materials and vegetation that can reduce stormwater volumes and improve water quality, as well as reduce the urban heat island effect.</p>

Environmental Component	Key findings	Environmental Challenges	BGI Typology that could be applied
 <p><b>Soil</b></p>	<p>Soil is one of the natural resources that suffers a significant anthropic impact all over the South Muntenia Region. Based on its geography, the soils in the northern part of the region are impacted by the industrial activities (oil, urbanization, land use, farming etc.) and landslides, while in the southern part the impact is generated mainly by the heavy agriculture practices and droughts.</p>	<ul style="list-style-type: none"> <li>• <b>Improving the soil quality</b></li> <li>• <b>Reduction of degraded areas</b></li> <li>• <b>Protection of human health</b></li> </ul>	 <p><b>Afforestation and Re-afforestation</b></p> <p>Afforestation and re-afforestation consist in planting or growing forests in high-risk areas. On top of the ecological value, afforestation and reforestation can mitigate landslides and flooding by serving as sponges, trapping water after heavy rains, and releasing it into waterways, reducing flood incidence and maintaining stream flow during dry periods.</p>
 <p><b>Water</b></p>	<ul style="list-style-type: none"> <li>• Water bodies' ecological status varies significantly along the 2 hydrographical basins in the South Muntenia Region.</li> <li>• There are great quantities of groundwater with an overall good status in Arges-Vedea Hydrographic Basin, but a moderate status in Ialomita-Buzau Hydrographic Basin. Riverbeds need restauration for preventing erosions and floods, while old hydro-technical channels need to be restored</li> <li>• In the Ialomita-Buzau and Argeş-Vedea Basin in more than half of their length is in good ecological condition, the rest having moderate ecological status.</li> <li>• All groundwater bodies are concluded as being in a good status from quantitative and chemical status perspective. Only one groundwater body from Slobozia area, Fetesti (Ialomita county) presents the risk of not reaching good chemical condition.</li> <li>• Groundwater sources of pollution: Industrial activities; Urban agglomerations and the impact of sewerage systems; Agriculture activities and the impact of chemicals used; Old unsecured drills; Unauthorized drills.</li> <li>• Surface water sources of pollution: industrial sites and warehouses, improper management of household waste, lack of wastewater and rainwater collection, inadequate wastewater treatment.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Improving the water quality</b></li> <li>• <b>Protection of water resources</b></li> <li>• <b>Resource Recovery</b></li> <li>• <b>Protection of human health</b></li> </ul>	 <p><b>Retention Boulevard</b></p> <p>Retention boulevards are similar in scale to cloudburst roads, but incorporate large green, depressed medians that can detain and retain stormwater while allowing regular traffic use of the street. It requires taking away space from existing roads, but can be very effective along larger urban arteries that are underutilized.</p>  <p><b>Bioretention Basin</b></p> <p>Bioretention basins such as rain gardens (including 'pocket parks'), planter boxes and swales can involve daylighting historic streams, formalizing existing streams, or creating new streams as quality improvement and conveyance connections between other cloudburst elements. Typically, smaller in scale, bioretention basins can re-establish or create new neighbourhood character and social spaces.</p>  <p><b>Permeable Pavements</b></p> <p>Any system providing hard or trafficable areas which also provides for downward percolation of stormwater runoff. This includes no-fines concrete or porous asphalt, permeable pavers, porous pavers, and stabilised loose</p>

Environmental Component	Key findings	Environmental Challenges	BGI Typology that could be applied
	<p>Within SM Region there are about 74 natural protected areas officially declared: 3 National Parks (Piatra Craiului, Bucegi, Comana), 32 spacial protection areas (SPA), 39 Sites of Community Interest (SCI ). Part of these natural protected areas have Management Plans issued and approved at central level, other have regulations and other part do not have specific regulations.</p> <p>After 1990 many agricultural lands were abandoned, deforestation took place in the forestry sector as well ragweed has spread widely in the spontaneous flora, including invading agricultural crops. Forests near disadvantaged rural areas are being cut down illegal.</p> <p>At the level of SM Region (meaning the counties: Prahova County) there are no statistical data regarding the type and number of species introduced (allotones), to their evolution or the areas they cover, so it is difficult to estimate impact on biodiversity.</p> <p>Green areas within the cities of the SM Region have a great variance confirmed by the statistical data available for 2020. The average per capita of green space is below the European average.</p>	<ul style="list-style-type: none"> <li>• <b>Management of protected areas</b></li> <li>• <b>Improving of areas degraded by afforestation</b></li> <li>• <b>Control of invasive species</b></li> <li>• <b>Increasing the area of green space</b></li> <li>• <b>Designing Green spaces on the citizens needs for physical activity</b></li> </ul>	<p>material. The flow of stormwater from the surface to the collection system is slowed through infiltration and is temporarily stored and slowly released by the base course, resulting in detention of the peak flow.</p>  <p><b>Stream Restoration</b> Stream Restoration and re-profiling existing urban water edges can help build capacity for stormwater through retention and detention. Additionally, redesign of stream or riverfront parks to allow for seasonal and cloudburst flooding can reduce downstream flooding in unwanted areas. Inclusion of natural edges and floating islands/floating wetlands/floating gardens improves water quality and provides amenity enhancement.</p>  <p><b>Pocket Parks</b> Pocket parks are small green spaces with recreational value that hold the potential to integrate stormwater management solutions such as infiltration systems, raingardens, small retention and detention swales. Their small scale lends itself to phased implementation over a larger area.</p>  <p><b>Green Streets</b> Green Streets (including railway corridors, tram lines, cycling routes, pedestrian paths) are located as upstream connections to all cloudburst roads or retention areas. The green streets should be established with a combination of small scale channels and stormwater planters or permeable paving. Stormwater should be collected, delayed, and then channelled toward the cloudburst roads.</p> 



Environmental Component	Key findings	Environmental Challenges	BGI Typology that could be applied
 <p data-bbox="247 981 438 1012">Climate change</p>	<p data-bbox="470 315 845 728">At county level, the data confirms that Giurgiu County has the lowest green areas and future investments in transforming its cities with the BGI concept will have a positive impact on human health, better air quality and livable cities. For Ialomita and Dambovita counties, the areas are almost equal, but there is still plenty of needs to increase the greens spaces within the cities. The same approach is to apply to Calarasi and Teleorman counties. Prahova is in top of the green areas surface.</p> <p data-bbox="470 757 845 907">All urban areas of the region act as heat islands and cause heat stress to all living creatures, both humans and animals. The heat stress is affecting the urban ecosystems and vegetation.</p> <p data-bbox="470 913 845 1299"><b>Climate change</b> effects are confirmed in the South Muntenia Region by increased <b>heavy rains and flash floods</b>, causing severe damages, and even lost lives, <i>landslides</i> mainly in the northern part with a higher altitude, and <i>droughts</i> more present in the southern part of the region. The strategies and projects developed in the last years were meant to mitigate the climate change effect. Lack of a rainwater drainage system in the urban area leads to flooding of streets and homes</p>	<ul data-bbox="874 757 1109 1176" style="list-style-type: none"> <li>• Reducing the risk of Flooding</li> <li>• Reducing the risk of landslides</li> <li>• Reducing the risk of droughts</li> <li>• Improving the rainwater collection system</li> <li>• More open soil surface for increases infiltration capacity</li> <li>• Protection of human health</li> </ul>	<p data-bbox="1133 342 1300 369"><b>Urban Forest</b></p> <p data-bbox="1133 376 1516 638">Urban Forests are highly effective ecological solutions for nature enhancement within city limits. The design consists of large, densely planted, high vegetation areas with few to no amenities. Urban forests are beneficial for mitigating heat island effect, enhancing biodiversity and strengthening urban ecosystems.</p>  <p data-bbox="1133 862 1332 889"><b>Rainwater Tank</b></p> <p data-bbox="1133 891 1516 1120">A rainwater tank is a retention container used to collect and store water that can be re-used for non-potable purposes. Rainwater tanks are generally used to supplement water supply systems and have nearby functions for both outdoor and in-house usage such as irrigation or toilet flushing.</p>  <p data-bbox="1133 1243 1332 1270"><b>Floodable Parks</b></p> <p data-bbox="1133 1272 1516 1612">Floodable Parks and recreation spaces present the greatest opportunity for large retention spaces within urban areas. They can be located throughout the watershed and receive stormwater conveyance systems or adjacent water bodies. They can provide a combination of hydrological services including, water quality improvements via filtration, retention, detention, and infiltration</p>  <p data-bbox="1133 1736 1364 1762"><b>Active Water front</b></p> <p data-bbox="1133 1765 1516 2020">Waterfronts present opportunities to integrate multifunctional solutions combining flood protection and public amenities. While serving an essential utilitarian function of protecting, waterfront designs can enhance livability and contribute to the aesthetic, functional, and cultural values of urban landscapes.</p>

Environmental Component	Key findings	Environmental Challenges	BGI Typology that could be applied
			 <p data-bbox="1129 421 1517 472"><b>Afforestation and Re-afforestation</b></p> <p data-bbox="1129 472 1517 754">Afforestation and re-afforestation consist in planting or growing forests in high-risk areas. On top of the ecological value, afforestation and reforestation can mitigate landslides and flooding by serving as sponges, trapping water after heavy rains, and releasing it into waterways, reducing flood incidence and maintaining stream flow during dry periods.</p>

## 2.2 Policy and Institutional setting

In this regional analysis, consultants have performed a screening on the relevant horizontal and sectorial policies as well as strategic documents identified at EU, national, regional and local level. An overview of EU, national, regional, county and municipal policies, regulations and strategies is attached in Appendix A.

In addition to the national regulations attached in Appendix A, punctual references to other national regulations are provided.

Regarding the **institutional capacity**, consultants acknowledged SM RDA's capacity to embrace the new Management Authority role for ROP as well as the available mechanisms to support the integrated planning at regional level, as resulted from the analyses below.

Starting from the SM Regional Development Plan for 2021-2027, SM RDA is setting the scene with the new approach regarding the elaboration of next-gen integrated development regional policies with a significant sustainability component, ensuring alignment to the European strategic documents such as *Green Deal* and 2023 Sustainable Development Agenda, as well as to the national strategic documents like PNRR, the National Sustainable Development Strategy and to the national sectorial development policies.

SM RDA approach through SM ROP 2021-2027 continues the trend, respectively financing of the territory development projects based on the Integrated Territory Development Strategies (SIDT), that encompass Strategic Objectives from at least 2 Priority objectives and in alignment with CPR requirements in art. 29.

SM RDA, established according to law 315/2004, is transitioning from the role of Intermediate Organism for ROP 2014 – 2020 to the **Management Authority** role for ROP 2021 – 2027, under the coordination of the Ministry for Public Works, Development and Administration, according to the

overall Funds management matrix presented in the D 3.2 report. Thus, at SM RDA level, the envisaged institutional framework for the next programming period is based on the **lessons learnt**, including **decentralization** of implementation and **better cooperation with and between the beneficiaries**, with the aim to **enhance the leadership and the accountability** in implementing EU funds at regional and local level, while capturing as accurately as possible the **development needs** of the region.

During the previous financing period, specific measures to strengthen and increase the administrative capacity of the SM RDA and of the Beneficiaries of ROP had been implemented, they didn't fully reach the proposed objectives, enhancing such measures remaining still a challenge in all Member States, including in Romania.

Further **enhancement of the administrative capacity** to elaborate, implement, monitor and control the program implementation at SM RDA level, considering the shift from the Intermediary Organism role in the former period to the next 'Managing Authority', could be achieved also by contracting technical assistance consultancy for the key phases or projects like BGI that are bringing additional complexity.

The BGI technical and administrative complexity, as well as the functional interdependencies are raising new challenges, targets and opportunities to the beneficiaries.

So, based on the key findings of the preliminary analyses regarding the as-is situation, the consultants identified from the beginning the **key areas that need to be taken into consideration** as to ensure the **capacity of the beneficiaries for identifying and developing the BGI projects pipeline. These preliminary recommendations presented below, had been further developed during the BGI projects pipeline development and had been integrated also in the final recommendations centralized in chapter 4.**

- **BGI technical readiness and preparedness of the beneficiaries**
  - Design the BGI project concepts inspiring from the BGI typologies provided, putting environmental challenges first and considering the sectorial policy relevant aspects, enabling access to nature and identifying the associated social-economic benefits
  - A thorough review of the relevant technical studies availability and relevance to base on and support the BGI project planning and design;
  - Technical consultancy for the elaboration of the needed preliminary studies, of the project application as well as for the project implementation assistance;
  - The digitization of the topographic elements, and other relevant physical networks should be assessed and planned as needed;
  - Land ownership: expropriations procedures started as early as possible once the project is pre-approved, as well as legal procedures for transferring ownership rights from other public institutions;
- **Integrated regional planning**

- Shift from a local approach to a holistic view and an integrated master-planning approach at river-basin/regional level, working in a strategic and coordinated way by leveraging the systems and mechanisms built by SM RDA;
- Create institutional partnerships to enable a holistic planning, a phased and well-coordinated execution, following the integrated approach of the environmental, social and economic challenges and maximizing the funding sources complementarity;
- **A balance between short- and long-term perspective**
  - Investments' priorities according to the stringent needs and challenges (social development, youth retention, social inclusion), part of a long-term roadmap with related pre-requisites (policies, further investments) defined;
  - A more systemic and programmatic approach, starting from the thorough understanding of the problems, identification of options and solutions, defining BGI potential scenarios for being deployed as quick wins and for further up-taking into policies, strategies and practices;
- **Ensuring the right governance at all levels and stages**
  - **A Project Implementation Unit** should be established at the level of the Beneficiary starting from the project planning phase, with a multi-disciplinary representation and clear governance and cooperation mechanism (internal and external), leveraging SM RDA's framework and guidance, as well as best practices to replicate and external technical assistance. Embracing the long-term perspective, based on the stakeholders group identified in the current assignment, we recommend Beneficiaries to consider the **adoption of an extended social learning and common action forum model, a multi-stakeholder group** that creates partnerships for understanding and promoting BGI. This lays a solid basis for an effective urban integrated master-planning, as it helps overcome barriers associated with ineffective communication, fragmented responsibilities and 'siloed thinking' that are common for environmental projects depending on multi-stakeholders, by enabling effective engagement through social learning, and facilitating targeted actions needed to deliver innovative solutions to environmental problems. By increasing the adaptive capacity of decision-makers and participants, social learning through a multi-stakeholder group may lead to concerted action and sustained processes of behavioural change. There are already available tested and demonstrated models to get inspiration from, as deployed in some projects across Europe – e.g. *Learning and Action Alliances to build capacity for flood resilience*<sup>2</sup>. The Consultants will further develop on this recommendation in the Resource implication chapter.

<sup>2</sup> *Learning and Action Alliances to build capacity for flood resilience*, Ashley, R., Blanskby, J., Newman, R., Gersonius, B., Poole, A., Lindley, G., Smith, S., Ogden, S., Nowell, R., 2012. *Journal of Flood Risk Management* 5, 14–22. March 2012

## 2.3 Stakeholder Engagement

The key stakeholders interested in this BGI analysis are the **SM RDA, county and local councils, county capitals, representatives of cities and communes and the general public**, given the fact that citizens are the ultimate users of the benefits to be created by the blue and green infrastructure. In addition, other stakeholders, including developers and practitioners (planners, designers, engineers and ecologists), universities, research institutes, professional associations, environmental agencies and organizations including the National Agency for Protected Natural Areas and its territorial services, National Environmental Protection Agencies in each county, as well as Water National Authorities (ANAR) are important stakeholders who can have a significant contribution during implementation of BGI projects. Other relevant representatives of the civil society active in advancing social integration, gender equality and non-discrimination are stakeholders whose support in promoting BGI is valuable.

The main purpose of stakeholder engagement in the present project - is to collect views on the current situation of the environmental quality, urban planning and infrastructure development in the Region. Stakeholder engagement also aimed at collecting views from stakeholders on the potential projects that could be realised. Ultimately, stakeholder engagement is aimed at ensuring that decision making is informed by the real situation and needs, which will inform and substantiate further decisions and pipeline for regional projects, including the types of investments, policy, and strategic actions the Region and main cities could undertake in the next 5-7-year period to address environmental challenges. Considering the importance of promoting BGI as catalyser for a sustainable and climate resilient future, engaging a wide range of stakeholders will enable to achieve this goal by bringing people together to strive for the same goal. This means that state institutions may contribute to creating an enabling policy and legislative framework to implement BGI projects, to secure investments for a sustainable maintenance of the BGI infrastructure, providing the means for adequate access to the population, and a lot more as may be identified at later stages of implementation. Also, the inputs from other non-governmental stakeholders, such as academia, think-tanks, civil society organisations may be crucial in a concrete context, beyond educational activities for the general population.

A Stakeholder Engagement Plan<sup>3</sup> was developed by Ramboll and agreed with SM RDA on August 20, 2021. The Romanian translation of the SEP can be found on the website of the SM RDA.

During the process of development of the present BGI Analysis, the stakeholder engagement approach aimed for a gender diverse team in the planning and implementation of engagement activities to ensure women's needs are given sufficient attention, as well as the needs and interests of other under-represented groups of citizens who may be affected by the project. During the same

<sup>3</sup> SEP available on the website of the SM RDA <https://www.adrmuntenia.ro/adr-sudmuntenia-a-demarat-studiul-privind-analiza-regionala-asupra-infrastructur/articol/1470>

process, consultants aimed to create an environment where diversity, gender equality, inclusion, and the views of various groups of citizens are given adequate consideration.

In the process of developing the present BGI Regional Analysis, the stakeholders' engagement activities consisted of the following non-exhaustive activities and tools:

**(i) Online consultative workshops** (in response to Covid related precautions). One of the first conducted workshops was aimed at collecting views from relevant internal and external stakeholders, on the current situation of the environmental quality, urban planning and infrastructure development in the Region. Another workshop conducted after a field mission was aimed at collecting views from stakeholders on the potential projects that could be realised based on the analysis. For each workshop, a concept note was prepared outlining the workshop's purpose, format, attendees, agenda, outputs and expected outcomes;

**(ii) A survey distributed to stakeholders** in advance of meeting to get an understanding and have an initial mapping of the key environmental challenges seen from the perspectives of each stakeholder;

**(iii) Consultation through digital engaging applications** such as [www.menti.com](http://www.menti.com) to confirm findings of the previously conducted survey on environmental challenges. In addition, stakeholders were consulted by working directly with them in the digital application [www.miro.com](http://www.miro.com) to locate the identified environmental challenges on spatial maps of the respective project Counties and Cities;

**(iv) One field mission of Ramboll experts** to consult the stakeholders and inspect the project ideas directly on-site. Participants complied with Covid-related measures and were wearing masks. In addition, all Ramboll consultants deployed to the field confirmed that they are vaccinated and have filled in an EBRD Travel Risk Assessment Form;

**(iv) Bilateral conversations** with primary stakeholders throughout the project, including telephone discussions and consultations with the staff of SM RDA and other stakeholders;

**(vi) Public disclosure of information.** South-Muntenia RDA managers and staff undertook actions to ensure that the information about activities under the project is timely disclosed for public access. Accordingly, the SM RDA had published the relevant information on its website <https://www.adrmuntenia.ro/index.php/por-sud--muntenia-20212027/static/1295>. The SM RDA created avenues for smooth and effective cooperation of relevant local municipal authorities and departments. Also, South-Muntenia RDA, with the assistance of local municipal authorities and local community councils (communes), is committed to ensure that the local population, which may be affected is adequately informed about the project.

Stakeholder engagement throughout the project was informed by relevant national requirements, in specific the Constitution of Romania, Law no. 544/2001 on free access to information of public interest, Law No. 86/2000 for the ratification of the Convention for the Access to Information, the Public's Participation in the decision-making process and access to Justice in aspects related to the Environment, signed in Aarhus on 25 June 1998 (the Convention in Aarhus), EBRD Performance Requirement 10: Information Disclosure and Stakeholder Engagement and EU Guidance for Stakeholder Consultation.

Among the outcomes of stakeholders' engagement, we cite the development of the BGI regional analysis in an informed way to ensure response to real needs and environmental challenges faced in the region. It also helped to ensure that the different BGI concepts and typologies elaborated under the present project are validated with the local authorities and SM RDA representatives, covering wide areas of expertise, responsibilities and decision making-authority. The ongoing conversations helped to ensure that the analysis considers existing plans and strategies, promotes green and blue infrastructure and policy measures for a sustainable, low-carbon, equitable and climate resilient future and considers opportunities to incorporate smart solutions to enhance green impacts.

Ultimately, the process of stakeholders' engagement and activities conducted under the present assignment informed the development of the SM RDA Regional Operational Plan (version 1.3 of November 1, 2021), which was updated based on the information gathered through inputs and activities generated through stakeholder engagement under the present project inclusively.

## **2.4 Financial analysis**

### **2.4.1 Introduction**

The objective of the assignment is to assist South-Muntenia Regional Development Agency through a very broad financial analysis of municipal budgets to determine the municipalities capacity to finance green and blue infrastructure projects, which could be co-financed from EU funds, especially under the SM Regional Operational Programme 2021-2027.

The municipalities subject of the broad financial analysis are Alexandria, Calarasi, Giurgiu, Slobozia, Pitesti, Ploiesti and Targoviste, the capital cities of each county, part of South Muntenia region.

The assignment is carried through the preparation of a financial model for each municipality and the analysis that will provide a broad but concise view on the municipalities' budget executions financial health with the view to assure municipalities' sustainable development and the availability of financial resources for projects' financing.

In the following sub-chapters are presented the methodology and main conclusions of the analysis for the seven municipalities.

## 2.4.2 Financial model

For this analysis a financial model was prepared having the following methodological approach:

- “Model Overview” containing an outline of the financial model and its spreadsheets;
- “Control Panel” containing the main assumptions related to loans;
- “Macro-Economic Scenario” containing the macroeconomic scenario based on the forecast from National Commission for Strategy and Prognosis for the period 2021 – 2025 issued on August 2021 regarding inflation, Euro exchange rate and GDP growth rate;
- “Budgetary Execution” containing the historical budgetary executions presented for the previous 3 years, respectively 2018-2020;
- “Budgetary Forecast” containing dynamics assumptions related to main budgetary revenues and expenditures;
- “Budgetary Projection” presenting the forecast for the main budgetary elements, namely the revenues and expenditures;
- “Investment Plan” presenting the forecast of investments per categories;
- “Loans” presenting the forecast of loans of the municipality, including principal repayments, commissions and interests;
- “Cash Flow” presenting the evolution of the cash flow generated by the operations of the local authority;
- “Indebtedness” presenting the evolution of the indebtedness level of the municipality.
- “Reporting” containing the financial statements and municipality’s main ratios.

The structure of the financial model prepared for each municipality is presented in the Figure 2-2 below.

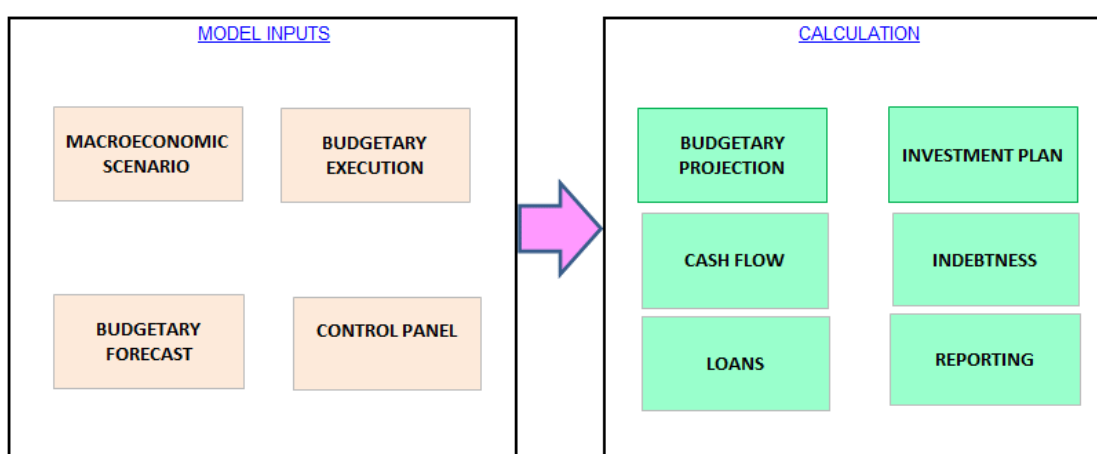


Figure 2-2 Structure of the Financial Model

Data on the financial budget execution (revenues and expenditures), balance sheet and existent debts was collected from the municipalities’ websites for the period 2018-2020 for all the



municipalities to be analysed, respectively Alexandria, Calarasi, Giurgiu, Slobozia, Pitesti, Ploiesti and Targoviste.

Where the information was not available as part of the municipality’s public information, the needed data was collected directly from the municipality.

The data collected for each municipality was processed based on the financial model and the findings of the analyses are included in the sub-chapters below.

The financial model and analysis are investigating the indebtedness level of each municipality based on the data of the last three financial years and the existent debts.

The model also presents the financial summary on the revenues and expenditures and the main financial indicators regarding the debts and current surplus. The financial model is available both in English and Romanian.

For assessing the indebtedness level of each municipality for the following 10 (ten) years a forecast of the revenues and expenditures was prepared with the view to identify the existent co-financing capacities.

### 2.4.3 Macroeconomic assumptions

The macroeconomic scenarios used for the analysis are based on the National Commission for Strategy and Prognosis latest forecast for the period 2021 – 2025 issued on August 2021<sup>4</sup>. The base case scenario follows the above-mentioned prognosis and the optimistic scenario takes into consideration a better economic situation reflected on the main macroeconomic indicators, while the pessimistic scenario considers an economic situation forecast that present lower increases of the indicators. The optimistic and pessimistic scenario were developed based on expert judgement.

There are 3 macroeconomic scenarios:

- Base case scenario with a probability of 60%;
- Optimistic scenario with a probability of 20%;
- Pessimistic scenario with a probability of 20%;

The main assumptions included in the financial analysis are presented in the Table 2-2 below.

**Table 2-2 Main assumptions included in the financial analysis**

<b>Macroeconomic scenario</b>	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<b>Optimistic (probability 20%)</b>											
Nominal GDP (billions RON)	1.175	1.245	1.320	1.399	1.483	1.572	1.667	1.767	1.873	1.985	2.104
Real GDP Growth, %	7.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Romanian inflation (CPI change), %	5.0%	2.5%	2.5%	2.5%	2.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Monthly inflation (equally each month)	0.4%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
RON/EURO average (nominal)	4.92	4.40	4.20	4.20	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Real RON wages (%growth)	2.9%	4.0%	5.0%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%

<sup>4</sup> <https://cnp.ro/wp-content/uploads/2021/09/Prognostza-pe-termen-mediu-2021-2025-varianta-de-vara-2021.pdf>

<b>Macroeconomic scenario</b>	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<b>Base case (probability 60%)</b>											
Nominal GDP (billions RON)	1.175	1.277	1.387	1.499	1.610	1.674	1.741	1.810	1.883	1.958	2.037
Real GDP Growth, %	7.00 %	4.9%	5.3%	5.0%	4.5%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Romanian inflation (CPI change), %	5.0%	3.1%	2.8%	2.5%	2.4%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Monthly inflation (equally each month)	0.4%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
RON/EURO average (nominal)	4.92	4.98	5.03	5.08	5.13	5.00	5.00	5.00	5.00	5.00	5.00
Real RON wages (%growth)	2.9%	3.4%	4.5%	5.0%	4.7%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
<b>Pessimistic (probability 20%)</b>											
Nominal GDP (billions RON)	1.175	1.210	1.246	1.284	1.316	1.342	1.369	1.396	1.424	1.453	1.482
Real GDP Growth, %	7.0%	3.0%	3.0%	3.0%	2.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Romanian inflation (CPI change), %	5.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Monthly inflation (equally each month)	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
RON/EURO average (nominal)	4.92	5.10	5.10	5.10	5.20	5.20	5.30	5.40	5.50	5.70	5.70
Real RON wages (%growth)	2.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

As it can be seen the main elements forecasted in the model are:

- Nominal GDP (Million RON)
- Real GDP Growth, %
- Romanian inflation (CPI change), %
- Monthly inflation
- RON/EURO average (nominal)
- Real RON wages (%growth)

These elements have been forecasted according to the latest National Commission for Strategy and Prognosis available forecast for the period 2021 – 2025 for the base case scenario and afterwards have been kept constant for the rest of the projection period. The other two scenarios present variations to the base case scenario, considering two different tendencies in the macroeconomic indicator's evolution as explained above, based on expert judgement. These two scenarios might be used in the financial models by simply selecting the desired macroeconomic scenario to see the impact on the municipalities forecasted revenues and expenditures and ultimately on the indebtedness level in case the general economic situation is subject to change. All the results presented in this report use the base case scenario, the one that has the highest probability.

#### **2.4.4 Budgetary Projection**

The budgetary projection is based on the following elements included in the financial analysis model:

- The budgetary execution provided by the municipality for the years 2018-2020 as a starting basis for the forecast;
- The macroeconomic elements presented in the scenario above;
- The real term increases included in the "Budgetary Forecast".

The scope of the budgetary projection is to assess the municipality's indebtedness level for the following ten years under "business as usual", forecasting the revenues and expenditures using the base case scenario and considering only the existent projects of the municipality, without any new major project or real term increases on revenues and expenditures.

This conservative approach is mainly considered as the information on the new projects to be designed and implemented by the municipalities as part of ROPSM and BGI is limited in this phase. A more detailed analysis should be carried at a later stage under the technical and financial requirements of ROPSM or for the municipality's credit approval by a financing institution.

Some key assumptions are presented in the following lines:

- The share from income tax revenues have been increased with the real term wages increase as well as the yearly inflation rate for the projection period;
- All the revenues have been forecasted with the inflation rate for the duration of the analysis period. This does not refer to any additional capital costs which will arise in the future, and are presented in their own separate spreadsheet presenting the loans;
- All the municipality's expenditures have been increased only with the yearly inflation due to current constraints on the real term increase of the personnel costs and in line with the conservative approach.

### 3 TOWARDS SUSTAINABLE AND RESILIENT SOLUTIONS

Because of both the complexity of the subject matter and the level of knowledge/data available in the region, a three-tier approach was taken:

- 1) The first tier is the development of a list of potential BGI typologies that can be applied to any BGI project, from a local to city scale, or as part of a regional project and that corresponds to specific objectives of the program;
- 2) The second tier is an assessment from a regional perspective of the local project proposals that were submitted to the consultant by regional stakeholders;
- 3) The third tier is the development of several project types on a regional scale with a corresponding assessment method based on various criteria.

#### 3.1 Opportunities: BGI Typologies

Blue-Green Infrastructure (BGI) refers to engineered solutions that mimic nature, connecting urban hydrological functions (blue) and permeable green spaces, with wider urban design and planning benefits, generating social and environmental value for targeted areas, while addressing the challenges of urban growth and climate change.

Investments in BGI<sup>5</sup> generally target works, services and facilities to address flooding risk, pollution and mitigate climate change impacts, but also to provide additional ecosystem services, water quality improvement, air quality improvement, carbon sequestration, recreational activities, urban cooling, noise pollution reduction, biodiversity increase and added recreational values.

As such, potential eligible BGI measures under the SM Regional Operational Programme 2021-2027, Specific Objective b(vii) - Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution, are specified in depth in the "Pipeline for regional projects Report"<sup>6</sup> and included in appendix B.

In the "Pipeline for regional projects Report"<sup>7</sup>, typologies were elaborated and should be considered when defining and designing blue and green infrastructure projects in general. In an appendix to this report, the concept and context of blue green infrastructure is elaborated in a convenient brochure (see appendix E).

<sup>5</sup> These systems can either replace, reduce or work in combination with traditional grey infrastructure

<sup>6</sup> Ibid p 13

<sup>7</sup> Ibid p 13

### 3.2 Current project assessments

A total of 27 local project proposals were received directly from the towns and counties in South Muntenia Region, as presented in Table 3-1. The full list and their assessment can be found in appendix D.

**Table 3-1 Number and location of local projects per county**

County	No.	Location
Giurgiu	1	Comana National Park (1)
Dambovita	7	Generic, unspecified
Călărași	7	Călărași Town (6), Oltenita Town (1, generic unspecified)
Argeș	2	Pitești Town (2)
Teleorman	1	Alexandria Town (1)
Prahova	5	Ploiesti Town (2, of which 1 generic unspecified), Campina Town (3)
Ialomita	4	County wide (1), Slobozia Town (1 generic unspecified), Fetesti Town (2 generic unspecified)

The location of the submitted project proposals is shown in the Figure 3-1 below.

Details of the local projects and a large format map can be consulted in the “Pipeline for regional projects Report”<sup>8</sup>.



**Figure 3-1 Location of submitted project proposals**

<sup>8</sup> Ibid p 13

The most common environmental issues to be addressed by the projects are **Flooding and water pollution**, while **soil and air pollution** are also mentioned often. Lack of water (**drought**) is mentioned in more than half the counties.

While some proposed projects are location specific, many are generic and unspecified. The projects don't yet have a detailed rationale as to what combined environmental, economic or social problem they intend to solve; they still lack some data and knowledge for fully connecting the (perceived) problem to the solution. Several projects seem to be a "one-off" and not part of a city / county / regional (integrated) strategy or masterplan.

The consultants have reviewed the local project proposals as how to connect them to the applicable BGI Typologies (see tier 1, section 3.1), considering the environmental challenges identified and the potential benefits generated, responding to the strategic local and regional priorities.

Moreover, the consultants have defined a general assessment methodology based on the ToR requirements, looking at ensuring:

1. Consistency to the existing plans and strategies
2. Promotion of BGI as catalyser for a sustainable and climate resilient future
3. Opportunity to incorporate smart solutions.

A high-level screening was done for the local projects, combining both a technical evaluation and the ToR criteria alignment, and considering the available level of data; these are included in appendix D.

### 3.3 Pipeline for regional projects

#### 3.3.1 Technical evaluation framework

Following the assessment of the local projects, the site visit and the second stakeholder workshop, **four regional project concepts** were developed (see Table 3-2 and Figure 3-2 through Figure 3-5).

**Table 3-2 Regional project concepts**

Description	Location	Regional element
1. Regional project for integrating the Arges River in urban areas and creating functional ecological connectivity between cities and protected areas	Arges County (Pitesti, Curtea de Arges, Topoloveni), Calarasi County (Oltenita), Giurgiu County (Comana, Mihailesti)	The key element taken into consideration is the river (Arges River)
2. Regional project for integrating the Ialomita River to enhance its attractiveness and ecosystem services	Dambovita County (Pucioasa, Târgoviște), Ialomita County (Urziceni, Țândărei, Slobozia)	The key element taken into consideration is the river (Ialomita River)
3. Blue and Green Infrastructure for the sustainable urban development of the municipalities in the SM	Argeș County (Pitesti) Prahova County (Ploiesti) Dâmbovița County (Targoviste) Ialomița County (Slobozia)	Local projects integrated in one project, having a similar approach

Description	Location	Regional element
Region, improving energy efficiency and livability	Calarasi County (Călărași) Giurgiu County (Giurgiu) Teleorman County (Alexandria)	
4. An innovative bike and pedestrian green connection generating bundles of ecosystem services along the Danube River	Giurgiu County (Giurgiu), Călărași County (Călărași) Ialomița County Fetești), Teleorman (Turnu Măgurele)	The key element taken into consideration was the river (Danube)

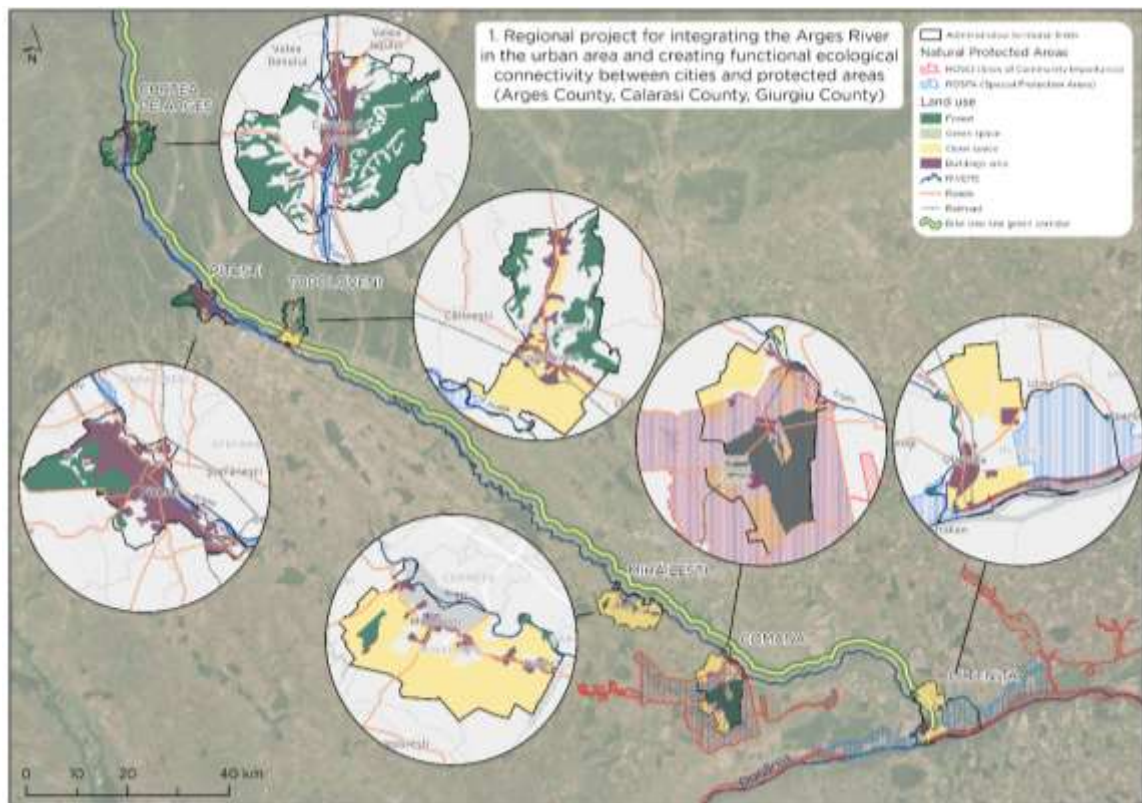


Figure 3-2 Regional project for the integration of Arges River



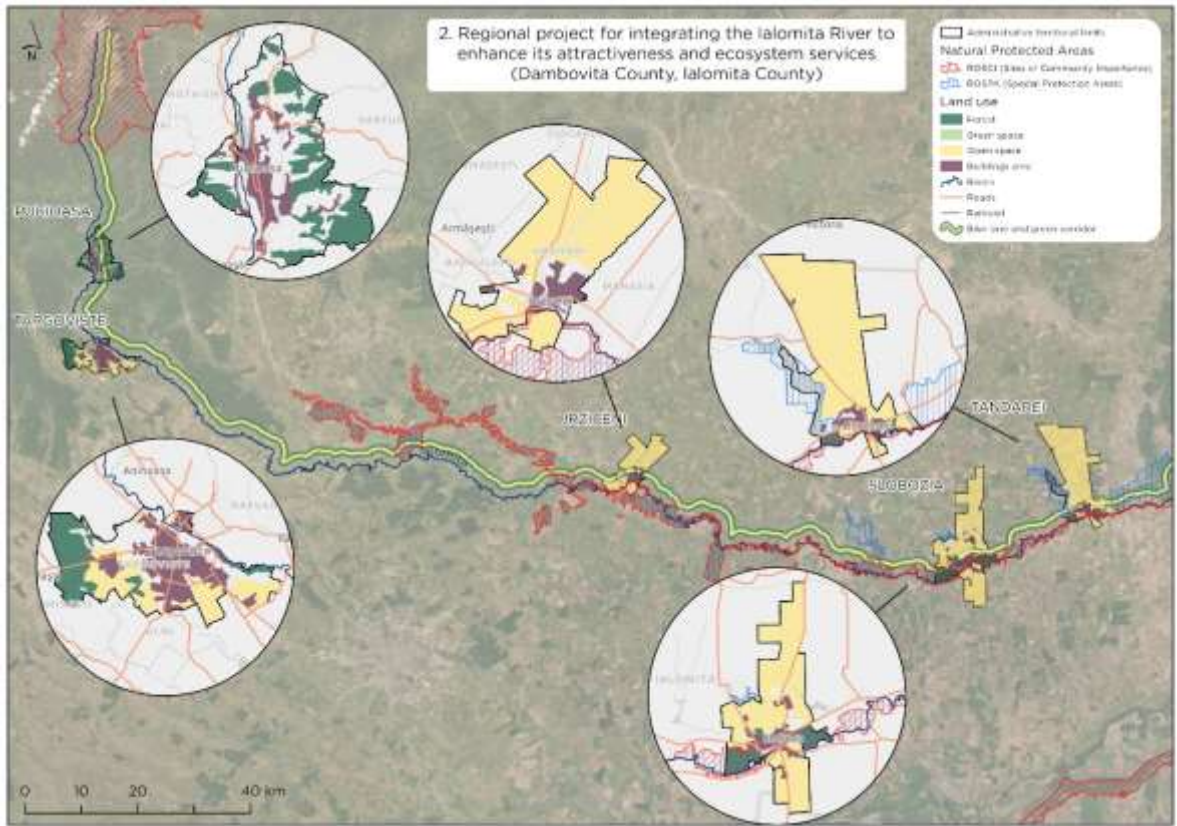


Figure 3-3 Regional project for the integration of Ialomita River



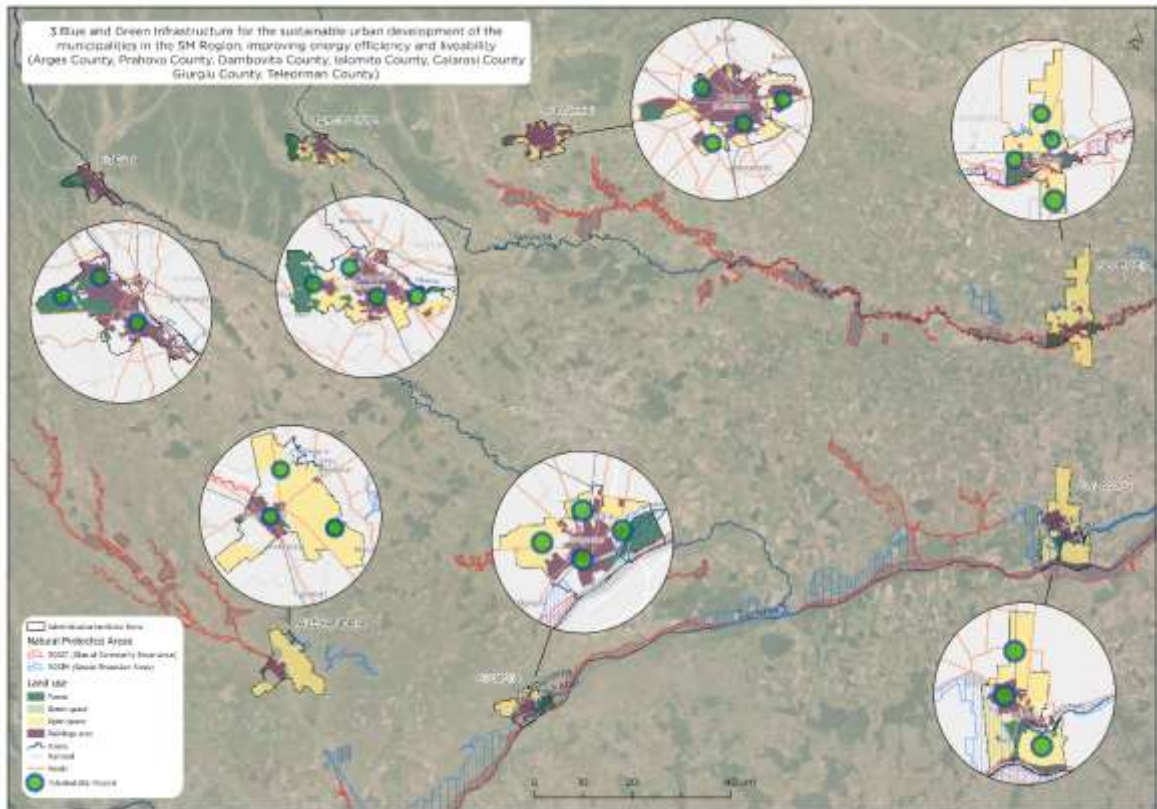


Figure 3-4 Potential Blue-Green Infrastructure Projects

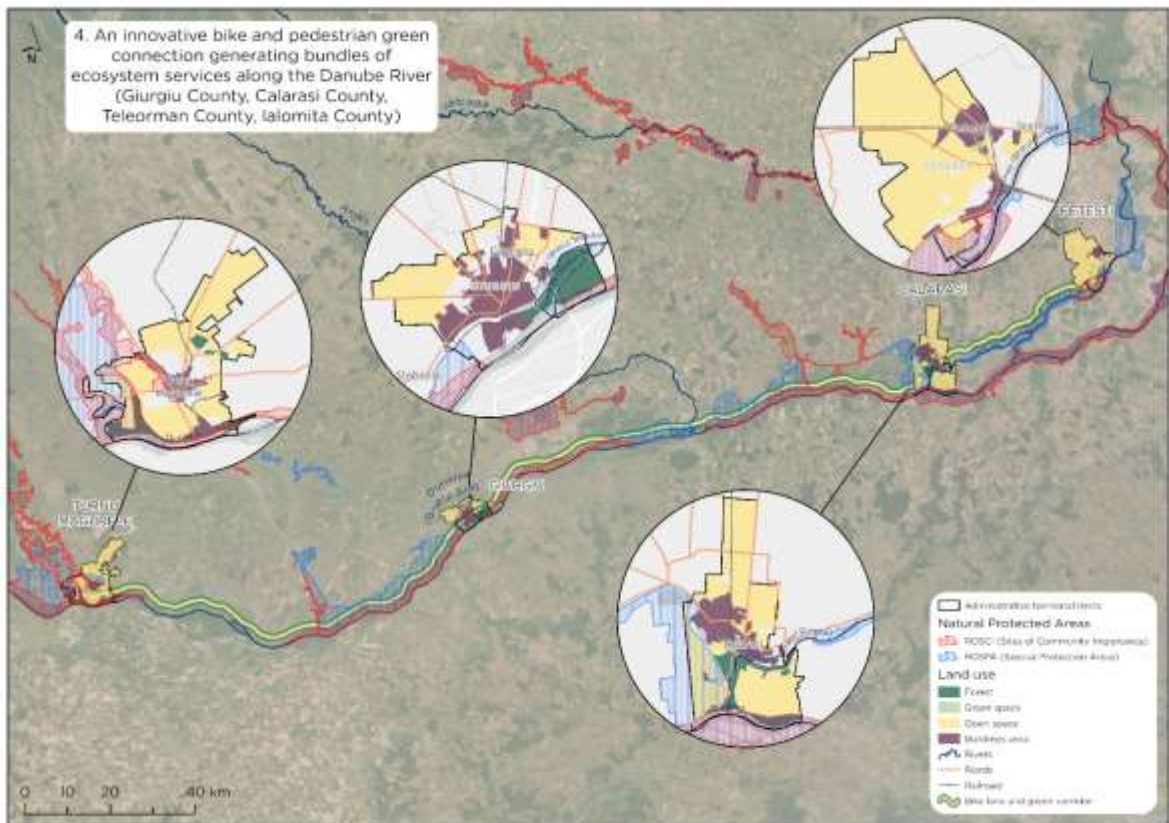


Figure 3-5 Bike and Pedestrian Green Corridor

For the technical evaluation framework of the projects and the determination of the areas that could be addressed in the context of the blue-green infrastructure, the Consultant considered the following environmental components:

**Table 3-3 Environmental Components**

<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>• the existence of protected areas on the administrative territory of the locality</li> <li>• surfaces of green spaces and their location</li> <li>• urban forests/parks and their location</li> </ul>
<b>Water quality</b>	<ul style="list-style-type: none"> <li>• diminishing water resources</li> <li>• water quality elements</li> <li>• rainwater collection in the urban area</li> </ul>
<b>Climate change</b>	<ul style="list-style-type: none"> <li>• flood risks</li> <li>• risks of drought</li> <li>• risks of landslides</li> </ul>
<b>Human Health</b>	<ul style="list-style-type: none"> <li>• air quality</li> </ul>
<b>Land use</b>	<ul style="list-style-type: none"> <li>• free construction spaces</li> <li>• built spaces and access routes</li> </ul>

For each environmental component, 5 evaluation criteria were defined. The criteria contemplate besides the existing local environmental conditions, the potential benefits that the implementation of blue green infrastructure brings. The detailed evaluation criteria with the existing environmental conditions, benefits, and data used in the verification phase of the criteria is presented in section 2.4.1 of the "Pipeline for regional projects Report"<sup>9</sup>.

The areas with the highest score can be considered as a priority for implementation and inclusion in the context of the regional project, while the highest scored project bringing the most benefits on the environment both locally and regionally.

The results of the evaluation for the 4 proposed projects were also presented in Appendix C of the "Pipeline for regional projects Report"<sup>10</sup>.

### **3.3.2 ToR policy and strategies criteria evaluation framework**

The regional projects pipeline has been proposed taking into consideration the ToR requirements, looking at ensuring:

1. Consistency to the existing plans and strategies, respectively:
  - a) ROP SM scope – Specific Objective b(vii) - Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution;
  - b) EC's guidelines cumulative criteria:
    - o strategically planned network;

<sup>9</sup> Ibid p 13

<sup>10</sup> Ibid p 13

- o addressing biodiversity-rich natural / semi-natural areas raising environmental challenges;
  - o deliver a wide range of ecosystem services;
  - c) strategic documents – local and regional: Development Strategy, Mobility Plan, Energy Efficiency Plan, General Urban Plan, SM RDP;
  - d) sectorial strategies & plans: Biodiversity, Protected Areas, Air Quality, Water & Flood Management, Site Restoration.
2. Promotion of green and blue infrastructures and policy measures for a sustainable, low-carbon, equitable and climate resilient future;
  3. Opportunities to incorporate smart solutions to enhance green impacts.

An assessment matrix, following the 3 requirements above, with a screening methodology was defined, that is intended to be used as a screening tool for BGI project planning, while for the regional projects we have performed a thoroughly assessment for each project. See Appendix C of the “Pipeline for regional projects Report”<sup>11</sup>.

The project concepts presented above are in line with the approach in The SM Regional Development Plan 2021-2027, that is centred on integrated economic, social and environmental development policies with a strong sustainability focus, by addressing the common environmental challenges and incorporating a long-term perspective. The transcendence of administrative boundaries requires cooperation and partnerships between administrative entities or other public parties, as applicable.

The proposed BGI regional project concepts are aligned or complementing the measures comprised in the sectorial strategies and plans, while **contributing to several key strategic objectives** as laid down in the Integrated Sustainable Development Strategies (SIDU), Sustainable Urban Mobility Plans (PMUD) or the Plans for Energy Efficiency Increase developed by the municipalities. Furthermore, additional preliminary strategic actions will be required, as the next steps in developing these concepts, see section 2.4.2 of the “Pipeline for regional projects Report”<sup>12</sup>.

At the same time, the BGI projects are accompanied by **a set of recommendations for measures across different sector strategies and investments** to be undertaken by the Beneficiaries (“Pipeline for regional projects Report”<sup>13</sup>), **as to ensure the promotion of the green and blue infrastructures and policy measures for a sustainable, low-carbon, equitable and climate resilient future**, as detailed also for each project in the validation matrix.

As highlighted also in the EC’s guidelines, The European Commission proposals for the EU Multi-annual Financial Framework 2021- 2027 provide **new opportunities for supporting BGI**, that should be considered in planning the further developments at regional level.

<sup>11</sup> Ibid p 13

<sup>12</sup> Ibid p 13

<sup>13</sup> Ibid p 13

At the same time, **the sectorial reforms and investments provisioned in the National Plan for Recover and Resilience (PNRR) should be considered by the Beneficiaries in the long-term and integrated perspective planning at regional level**, as to ensure the legal framework update that will enhance the BGI implementation across multiple sectors as well as the actions complementarity and access to additional funding.

The BGI proposed concepts should consider **opportunities to incorporate smart solutions to enhance green impacts**, as specified in "Pipeline for regional projects Report"<sup>14</sup>.

### **3.4 Financial forecast analysis**

The following paragraph presents a summary of the financial situation and co-financing capacity of the municipalities.

From the financial perspective, the financial assessment for Alexandria municipality revealed the following:

- It might be considered that around 65% of municipality's total revenues are based on steady regular revenues that come from own revenue sources. Subsidies, grants and any other type of transfer represent the remaining 35% at the level of 2020 and can be considered heterogenous sources as they depend on state budget, County Council or other external organization;
- The operating expenditures represented 76% from total expenditures in 2020, leaving space for 24% to be spent on capital expenditures;
- Around 8% of the total expenditures are used for the Transport and Environmental protection chapters, where initiatives related to BGI infrastructure might be financed. Also considering the projects under implementation, the municipality is active in finding green solutions for urban transport;
- Alexandria municipality registered in 2018 and 2020 a net surplus, also covering the operating expenditures and loans repayment from recurring, operating and current revenues. In 2019, the municipality registered net deficit, but succeeded to repay the loans from recurring, operating and current revenues;
- The maximum level of 30% indebtedness as established by the Public Finance Law is far from being reached as the municipality's maximum indebtedness level reaches around 8.9% in 2021 and drops to 0% from 2025 onwards;
- The total remaining co-financing capacity in terms of debt service in the period 2022-2031 (the following 10 years), is around 321 mil. RON, going from 19 mil. RON in 2022 to 42.8 mil. RON in 2031, leaving space for contracting loans in view of projects financing;
- Alexandria municipality has the capacity to contract loans in the following period for co-financing investment projects.

<sup>14</sup> Ibid p 13

From the financial perspective, the financial assessment for Calarasi municipality revealed the following:

- It might be considered that around 67% of municipality's total revenues are based on steady regular revenues that come from own revenue sources. Subsidies, grants and any other type of transfer represent the remaining 33% at the level of 2020 and can be considered heterogenous sources as they depend on state budget, County Council or other external organization;
- The operating expenditures represented 89% from total expenditures in 2020, leaving space for 11% to be spent on capital expenditures;
- Around 26% of the total expenditures are used for the Transport and Environmental protection chapters, where initiatives related to BGI infrastructure might be financed. Also considering the projects under implementation, the municipality is active in finding green solutions for urban transport and reducing carbon emissions;
- Calarasi municipality registered in 2018 and 2020 a net deficit, in 2018 not being able to cover the operating expenditures and loans repayment from recurring, operating and current revenues. In 2019, the municipality registered a net surplus and succeeded to repay the loans from recurring, operating and current revenues;
- The maximum level of 30% indebtedness as established by the Public Finance Law is far from being reached as the municipality's maximum indebtedness level reaches around 3.9% in 2022 and maintains under 4% from 2023 onwards;
- The total remaining co-financing capacity in terms of debt service in the period 2022-2031 (the following 10 years), is around 238 mil. RON, going from 15.8 mil. RON in 2022 to 32.5 mil. RON in 2031, leaving space for contracting loans in view of projects financing;
- Calarasi municipality has the capacity to contract loans in the following period for co-financing investment projects.

From the financial perspective, the financial assessment for Giurgiu municipality revealed the following:

- It might be considered that around 43% of municipality's total revenues are based on steady regular revenues that come from own revenue sources. Subsidies, grants and any other type of transfer represent the remaining 57% at the level of 2020 and can be considered heterogenous sources as they depend on state budget, County Council or other external organization;
- The operating expenditures represented 68% from total expenditures in 2020, leaving space for 32% to be spent on capital expenditures;
- Around 25% of the total expenditures are used for the Transport and Environmental protection chapters, where initiatives related to BGI infrastructure might be financed. Also considering the projects under implementation, the municipality is active in finding solutions for thermal rehabilitation with an indirect impact on reducing energy consumption;

- Giurgiu municipality registered in 2018 and 2019 a net deficit, in 2018 not being able to cover the operating expenditures and loans repayment from recurring, operating and current revenues. In 2020, the municipality registered a net surplus and succeeded to repay the loans from recurring, operating and current revenues;
- The maximum level of 30% indebtedness as established by the Public Finance Law is far from being reached as the municipality's maximum indebtedness level reaches around 21.3% in 2021 and drops to 0% from 2028 onwards;
- The total remaining co-financing capacity in terms of debt service in the period 2022-2031 (the following 10 years), is around 279 mil. RON, going from 12.8 mil. RON in 2022 to 45.9 mil. RON in 2031, leaving space for contracting loans in view of projects financing;
- Giurgiu municipality has the capacity to contract loans in the following period for co-financing investment projects. However, it should be considered that only 43% of the municipality's revenues are constant from one year to another.

From the financial perspective, the financial assessment for Pitesti municipality revealed the following:

- It might be considered that around 76% of municipality's total revenues are based on steady regular revenues that come from own revenue sources. Subsidies, grants and any other type of transfer represent the remaining 24% at the level of 2020 and can be considered heterogenous sources as they depend on state budget, County Council or other external organization;
- The operating expenditures represented 67% from total expenditures in 2020, leaving space for 33% to be spent on capital expenditures;
- Around 30% of the total expenditures are used for the Transport and Environmental protection chapters, where initiatives related to BGI infrastructure might be financed. Also considering the projects under implementation, the municipality is active in finding solutions for district heating with an indirect impact on reducing energy consumption;
- Pitesti municipality registered in all years a net deficit and current deficit in 2019.
- The maximum level of 30% indebtedness as established by the Public Finance Law is far from being reached as the municipality's indebtedness level is 0% in all years;
- The total maximum co-financing capacity in terms of debt service in the period 2022-2031 (the following 10 years), is around 1,210 mil. RON, going from 94.4 mil. RON in 2022 to 149.7 mil. RON in 2031, leaving space for contracting loans in view of projects financing;
- Pitesti municipality has the capacity to contract loans in the following period for co-financing investment projects. However, it should be considered that the Municipality registered in the period 2018-2020 a net deficit.

From the financial perspective, the financial assessment for Ploiesti municipality revealed the following:

- It might be considered that around 77% of municipality's total revenues are based on steady regular revenues that come from own revenue sources. Subsidies, grants and any other type

of transfer represent the remaining 23% at the level of 2020 and can be considered heterogenous sources as they depend on state budget, County Council or other external organization;

- The operating expenditures represented 67% from total expenditures in 2020, leaving space for 33% to be spent on capital expenditures;
- Around 29% of the total expenditures are used for the Transport and Environmental protection chapters, where initiatives related to BGI infrastructure might be financed. Also considering the projects under implementation, the municipality is active in energy efficiency for buildings and green solutions for urban transport;
- Ploiesti municipality registered in 2018 and 2019 a net deficit, in 2018 not being able to cover the operating expenditures and loans repayment from recurring, operating and current revenues. In 2020, the municipality registered a net surplus and succeeded to repay the loans from recurring, operating and current revenues;
- The maximum level of 30% indebtedness as established by the Public Finance Law is far from being reached as the municipality's maximum indebtedness level reaches around 16% in 2021 and drops under 10% from 2023 onwards;
- The total remaining co-financing capacity in terms of debt service in the period 2022-2031 (the following 10 years), is around 890 mil. RON, going from 34.6 mil. RON in 2022 to 145.8 mil. RON in 2031, leaving space for contracting loans in view of projects financing;
- Ploiesti municipality has the capacity to contract loans in the following period for co-financing investment projects.

From the financial perspective, the financial assessment for Slobozia municipality revealed the following:

- It might be considered that around 79% of municipality's total revenues are based on steady regular revenues that come from own revenue sources. Subsidies, grants and any other type of transfer represent the remaining 21% at the level of 2020 and can be considered heterogenous sources as they depend on state budget, County Council or other external organization;
- The operating expenditures represented 79% from total expenditures in 2020, leaving space for 21% to be spent on capital expenditures;
- Around 16% of the total expenditures are used for the Transport and Environmental protection chapters, where initiatives related to BGI infrastructure might be financed. Also considering the projects under implementation, the municipality is active in finding green solutions for urban transport;
- Slobozia municipality registered in all years a current surplus, also covering the operating expenditures and loans repayment from recurring, operating and current revenues;
- The maximum level of 30% indebtedness as established by the Public Finance Law is far from being reached as the municipality's maximum indebtedness level reaches around 22.5% in 2021 and drops to 0% from 2023 onwards;



- The total remaining co-financing capacity in terms of debt service in the period 2022-2031 (the following 10 years), is around 262 mil. RON, going from 8,4 mil. RON in 2022 to 30.5 mil. RON in 2031, leaving space for contracting loans in view of projects financing;
- Slobozia municipality has the capacity to contract loans in the following period for co-financing investment projects.

From the financial perspective, the financial assessment for Targoviste municipality revealed the following:

- It might be considered that around 60% of municipality's total revenues are based on steady regular revenues that come from own revenue sources. Subsidies, grants and any other type of transfer represent the remaining 40% at the level of 2020 and can be considered heterogenous sources as they depend on state budget, County Council or other external organization;
- The operating expenditures represented 80% from total expenditures in 2020, leaving space for 20% to be spent on capital expenditures;
- Around 15% of the total expenditures are used for the Transport and Environmental protection chapters, where initiatives related to BGI infrastructure might be financed. Also considering the projects under implementation, the municipality is active in finding green solutions for urban transport and public lighting;
- Targoviste municipality registered in all years a current surplus, also covering the operating expenditures and loans repayment from own revenues, except for year 2020;
- The municipality succeeded to balance its accounts in all years and in 2020 registered net surplus
- The maximum level of 30% indebtedness as established by the Public Finance Law is far from being reached as the municipality's maximum indebtedness level reaches around 11% in 2021, reaching 3% in 2027 and going to 0% from 2032 onwards;
- The total remaining co-financing capacity in terms of debt service in the period 2022-2031 (the following 10 years), is around 550.6 mil. RON, going from 34 mil. RON in 2022 to 75 mil. RON in 2031, leaving space for contracting loans in view of projects financing;
- Targoviste municipality has the capacity to contract loans in the following period for co-financing investment projects. However, it should be considered that only 60% of the municipality's revenues are constant from one year to another and that in 2020 the municipality could not cover entirely the loans repayment from own funding sources.

The indebtedness level of the municipalities is presented in the Figure 3-6 below.



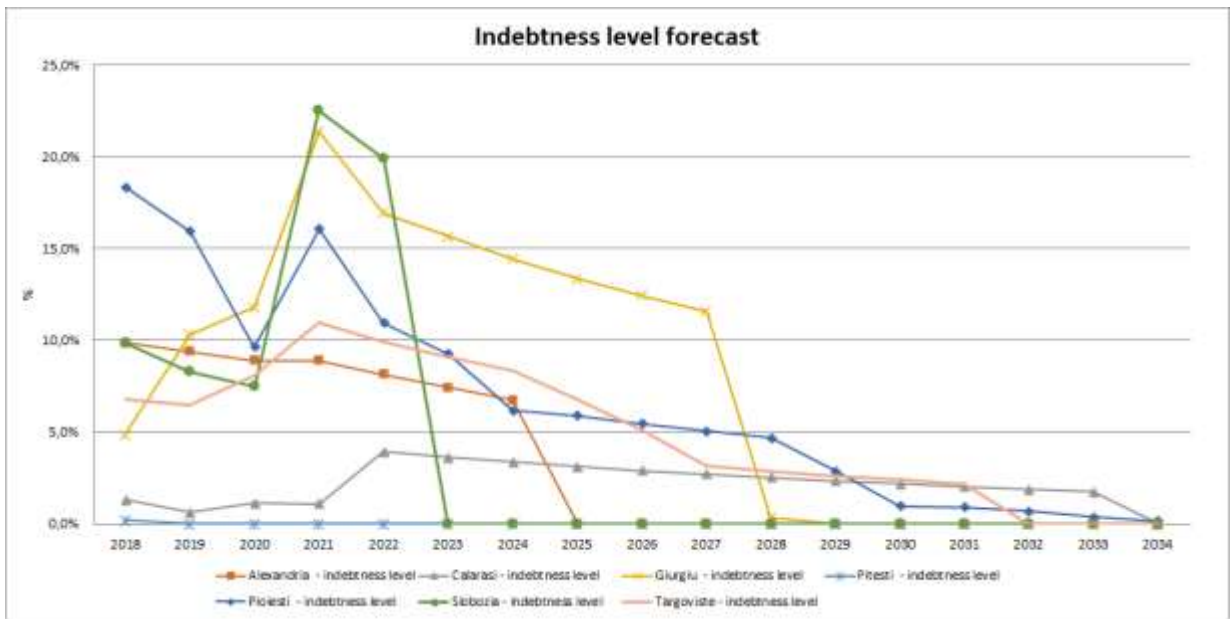


Figure 3-6 Indebtedness level of the municipalities

## **4 RESOURCE IMPLICATIONS FOR IMPLEMENTATION**

### **4.1 Focus on practical actions towards green and blue infrastructure**

The project typologies (or types of interventions) from the previous chapter have been linked to the assessment of the necessary resources and pre-conditions that need to be in place for the interventions to be feasible. These include capacity building implications and more generic resources needed to have in place at local level.

Based on the overall assessment a series of general resources and capacity-building recommendations was drafted to support the implementation of the pipeline / typology of projects identified, focusing primarily on technical activities.

These recommendations focus on first introducing key aspects for ensuring the right administrative capacity for the BGI projects development. These are supported by key expert recommendations for the technical aspects for BGI projects development and the resource implications for local beneficiaries to be able to tap from ROP funds. In addition to the technical capacity-building activities, consultants recommend improving further integration in the design of future regional projects.

### **4.2 Ensuring the right administrative capacity for BGI projects development**

As acknowledged on a high-level scale in the Technical Assistance Operational Program, under the Ministry of Investments and European Projects (MIPE), the success in the management and utilization of the EU funds is based on the effective governance of the investment process, on the administrative capacity of the Management Authorities of the Intermediary Organisms, of beneficiaries and of potential beneficiaries.

In the context of funds management, the administrative capacity refers to the capacity of the public administration to manage and utilize funds in an effective and efficient way, across the entire investment lifecycle, from strategy elaboration, stakeholder engagement in all the programming stages, project planning and selection, to project implementation, monitoring and evaluation, contributing thus to the successful implementation of the EU Cohesion Policy.

The Technical Assistance Operational Programme coordinated by MIPE ensures the Capacity Plan is consolidated at national level and envisages the technical assistance measures, both horizontal and specific for the national programmes that do not have their own Technical Assistance allocation. At each Regional OP level, a Roadmap to increase the administrative capacity shall be implemented to address specific needs identified at regional level to be financed through their own technical assistance axis.

The improvement of the beneficiaries' efficiency and efficacy in the implementation of EU projects during the previous programming period has been achieved through the enhancement of organizational and implementation competences in the public acquisition processes. Overall, this has been achieved through the presence of management and control of the integration of project activities with other activities at beneficiary level, improvement of the projects' human resources management, as well as the increased presence of technical-economical experts.

Under the scope of the current assessment, consultants have identified the **key pillars of the administrative capacity that should be considered further and the related resources that should be prioritised** for successful ***BGI project planning and financing application development***, which represent the foundation building blocks in the project lifecycle:

- The **organizational** capacity and resource implications
- **Stakeholder engagement**, gender equality, social and economic inclusion capacity
- The **technical** knowledge and resources
- The **financial** capacity and resources

#### **4.3 Organizational capacity and resource implication**

**As also depicted in the key findings of the initial analyses under the current assignment, the complexity of the BGI projects calls for a new approach by the potential beneficiaries** in relation to the **organisational** structure, human resources allocation and capabilities, initiatives and procedures related to the planning and programming of such projects as well as **transversal supporting mechanisms developed at regional level. These would** ensure the coordination and control mechanisms, capacities, and procedures at county and regional level as well as the facilitation of the effective and efficient cooperation of other relevant county, regional and/or government agencies.

As such, considering the best practices, the lessons learnt from the previous ROP, as well as the FEDR and Common Provisions Regulations and the applicable local legislation, in addition to the punctual recommendations accompanying each regional BGI project, we are providing **key recommendations (see below) for the successful preparation of BGI projects financing applications, regarding resource implications and related actions.** These recommendations are focused on the beneficiaries' capacity, which can be augmented by additional supporting measures, to be undertaken at regional level, as applicable.

- **Set up the Project Implementation Unit (PIU) by the beneficiaries from the project preparation phase**, comprised of a project manager in charge with the overall coordination and a multi-disciplinary team from all relevant departments to ensure the technical, financial and administrative competences and input (e.g., Urban planning, environmental specialists, tourism).

- Initiate an extended Learning and Action Alliance (LAA), a multi-stakeholder group based on the stakeholders' group identified under the current assignment and on the related stakeholders' engagement plan, that creates partnerships for understanding and promoting BGI. LAA is a concept documented in the paper *Learning and Action Alliances to build capacity for flood resilience*<sup>15</sup>. LAA is meant to increase the adaptive capacity of decision-makers and participants in addressing the complexity and dynamics of the environmental challenges to the urban resilience, through social learning and concerted action that ultimately may lead to sustained processes of behavioural change. Thus, to achieve an efficient framework through LAA that enables a mindset-shift in the current working culture and sustains a new approach that acknowledges BGI multi-functional infrastructure as a normal option in the urban planning practices, LAA should include the PIU members, but also other stakeholders. These multiple-stakeholders group should include developers and practitioners (planners, designers, engineers and ecologists), universities, research institutes, professional associations, environmental agencies and organizations including the National Agency for Protected Natural Areas and its territorial services, National Environmental Protection Agencies in each county, as well as Water National Authorities (ANAR), environmental and social NGOs. As such, while PIU is first an operational and rather a short-term oriented unit, LAA should transcend the scope of a specific project, addressing BGI within an urban integrated master-planning approach and with a long-term perspective. LAA could be framed and may be functioning on a local, county and/or regional level, according to the specific or common challenges that are being addressed.

Figure 4-1 provides a schematic LAA framework adapted after *O'Donnell et al.*, in 2018:



Figure 4-1 schematic LAA framework (adapted after *O'Donnell et al.*)

<sup>15</sup> Ibid p 21

- A well-structured approach supported by the right expertise is even more relevant for the complexity of the BGI projects that require the ability to match the environmental challenges with the urban and territory planning requirements and or challenges, while taking into considering the sectorial policy relevant aspects, with the ultimate goal to enable access to nature and create associated social-economic benefits. Thus, in connection to the recommendation of contracting technical consultancy services that would secure quality, mature and sustainable BGI projects, it is also recommended to have a revision of the internal acquisition procedures as to enable the selection of the right technical expertise and experience, and to identify the financial sources for contracting the specialized consultancy.
- **Ensure property ownership rights** for the BGI investment areas by undertaking early measures to identify proper lands, expropriation measures or partnerships, as appropriate.
- Enable an integrated master-planning capacity both at the local and regional level considering all needed components for the sustainable urban development and funding complementarity – a cross-collaboration team at both local, county and regional level, as applicable could be established for this purpose, leveraging also the existing SM Regional Planning Committee, SM Regional Innovation Committee and related collaboration and consultations mechanisms when needed, including external specialized technical assistance
- **Revise the strategic planning documents**, especially the Strategies for Integrated Urban Development to ensure the projects eligibility and/or the needed amendments or completion of measures supporting the BGI typologies development and deployment.
- **Identify, negotiate, and conclude in advance the relevant partnerships**, for the joint BGI inter-regional, or inter-sectorial projects.
- **Revise, develop and apply solid tools and mechanisms to support the project planning and design.**

#### **4.4 Capacity Building on stakeholders' engagement, gender equality, social and economic inclusion**

The South-Muntenia RDA has a continuous practice of stakeholder engagement<sup>16</sup> for similar or related activities including key stakeholders, mechanisms of disclosing information, consulting and receiving feedback. Under the present Regional BGI Analysis, SM RDA has had a leading role in ensuring active and meaningful engagement of primary stakeholders such as county Local Councils, county capitals, representatives of cities and communes.

Expanding of engagement practices and stakeholders beyond traditional partners and actors is crucial, for nurturing sustainable results in terms of:

1. Enhancing interest and commitment of public authorities to invest in BGI maintenance, as well involving civil society organisations in awareness actions. Such awareness could be targeted at

<sup>16</sup> <https://www.adrmuntenia.ro/evenimente>

educating/raising awareness of the general population to adopt adequate behaviour to preserve nature and to acknowledge the benefits that BGI has for the human in terms of recreation and health maintenance, combating stress and overall positive effects on families and individuals.

2. Facilitating a better inter-institutional communication and cooperation through functional mechanism between the project beneficiaries and the regional or national agencies and/or authorities in charge with policy attributions related to specific permits and authorization that are critical for public investments.
3. Contributing to institutional strengthening of SM RDA, since an enhanced visibility and transparency can lead to increasing stakeholders' understanding (including the general population) of the technical complexities, which some projects often imply.

In terms of gender equality, social and economic inclusion, the ROP 2021 – 2027 (version of Nov. 1, 2021) states that "Compliance with the provisions of the national legislation in force regarding equal opportunities, inclusion and non-discrimination will be a condition of eligibility in the applicant's guidelines". Moreover, it stipulates that "the principle of equal opportunities is a criterion for project selection, and potential beneficiaries of financial assistance through ROP have the obligation to demonstrate that the proposed projects do not contravene this principle".

Accordingly, SM RDA may need to provide its staff with specific training on gender equality and social inclusion, thus ensuring that its team has the capacity and knowledge to support the respective process of project selection. Training on the topic of gender equality and social inclusion for the SM RDA staff is an important element to lead the evaluating staff in the afore-mentioned process, as well overall institutional contribution to the respect for human rights, promotion of social value and development, thus having a prominent organizational stand and reputation.

#### **4.5 Technical knowledge and resources**

A large variety of tools have been developed worldwide to support the mainstreaming and uptake of BGI in cities, ranging from methodologies, software, catalogues, repositories and e-platforms, to guidelines and handbooks. BGI tools can make a valuable contribution in overcoming the barriers that hamper the wider uptake and implementation of BGI in urban areas. Tools can, for example, inform and aid the planning processes by selecting and evaluating BGIs, simulating BGI implementation, calculating the costs and benefits of BGI options, supporting stakeholder involvement, and facilitating collaborative processes.

The EU document *Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure SWD (2019)193*<sup>17</sup> provides comprehensive directions in the preparation of BGI project concepts as it provides the definition, criteria, and illustration of EU-level green and blue infrastructure concepts and projects.

<sup>17</sup> [https://ec.europa.eu/transparency/documents-register/detail?ref=SWD\(2019\)193&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=SWD(2019)193&lang=en)

Given the complexity of BGI concepts, varying according to the beneficiaries' context (e.g., environmental challenges or specific environmental legal requirements, previous developments, potential urban planning limitations, property ownership, socio-economic priorities) it is central to build in-house extensive multi-disciplinary technical knowledge and competences. Thus, it is recommended that specialized technical assistance to be contracted in the project design phases to enable both solid project design and knowledge transfer at the beneficiary level.

According to the Government Decisions 28/2008 and 907/2006, to ensure high quality, mature and sustainable BGI projects, **specialized consultancy services** should be considered **well in advance to assist beneficiaries in the preparation of the following technical-economical documentation:**

- Feasibility study and all relevant BGI related studies (topographic, hydrogeological, hydrotechnical, flood studies etc.)
- Technical studies, from preliminary design to detailed design and tender documents.
- Environmental impact assessment procedure according to Governmental Decision 445/2009.

In support of the preparation of this technical-economical documentation, the technical assistance should entail:

- Training programmes, such as setting up and guidance of the Learning and Action Alliance (LAA) discussed in the next paragraph
- The drafting of specific guidelines
  - Defining BGI, how and when to implement (e.g., 'planning guidelines' on BGI, 'Construction standards' and 'coordination of maintenance' arrangement after BGI implementation)
  - Planning for and tendering/contracting of BGI
- Acquiring and implementing supporting tools such as a GIS system that allow interaction with different types of data, not only for the design but also for monitoring and to convey useful and relevant information for decision makers about specific objectives as perceived by potential end users and stakeholders e.g. The GIS system would include a Digital Elevation Model.

## 5 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Key steps for future project development (planning phases) with a long-term vision

An overarching conclusion and recommendation for the municipalities and county councils is to consider both short and mid-term as well as long-term perspectives for the green development.

Building a vision for the green development should be acknowledged as a strategic and continuous process. This approach starts with the definition of the strategic SMART objectives and targets and the design of an action plan, comprising the investments and relevant policy measures. It also requires the right framework and mechanisms for the plan execution in a transparent, participative, and collaborative motion with the relevant stakeholders. Such mechanisms should ensure the needed resources (technical, financial, administrative) and the key partnerships for the alignment with the relevant strategies and policies as well as for overcoming potential bureaucratic difficulties, while enabling accelerated developments for new strategies and policy measures. A monitoring mechanism is also important to ensure the control of the initiatives impact on the environment, as well as timely and effective adjustments leading to the achievement of the objectives and targets.

Another key takeaway should be that transformational change necessarily entails risk. Acceptance of risk and the intention of transformational change are interworked and should lie at the core of building the Beneficiaries' and RDA's capacity to respond to change and making it resilient. Thus, in addition to capacity-building activities of technical nature, strengthening its organizational capacity to deal with change, and to deal with uncertainty through experimentation and innovation should also be considered.

### 5.2 Organizational, institutional and human resources capacities

Environmental challenges are complex and interlinked, not only in themselves but also with social and economic issues. Better human well-being is linked to ecological factors. Solutions for one problem can lead to unintended negative consequences or create new environmental or socio-economic problems.

Addressing these interconnected and interacting environmental and social challenges requires systems thinking; this is fundamental to better integration. Systems thinking examines the relationships between the different parts of a system and considers the interactions between components of a system across different locations and organizational levels, as well as over time. Many of these relationships are non-linear. Understanding the connections between variables helps to identify points for effective intervention.

This requires cultural change in the organisations and mindset-shift for the individuals involved leading to new practices in spatial planning and in particular urban planning. Thus, 'active learning'



can help to develop the capacity to accept different perspectives on risk and performance and to use alternative innovative responses, like BGI, and to determine common and better phased and coordinated actions. A more systemic, structured and cross-collaborative approach, as demonstrated under the current assignment with the stakeholders' engagement plan, further extended in a LAA framework as described in the previous chapter, would catalyse the identification of the effective and efficient investments that include nature-based solutions and the related policy measures to respond to the environmental challenges, while creating ecosystem services and socio-economic benefits for the sustainable development of the communities in the SM Region.

Ultimately, the 'mindset shift' could be achieved by following some **key principles** that will lead to more efficient and effective approaches to planning, monitoring and implementing projects addressing complex human-environment interactions:

1. **Apply systems thinking:** *i.e., address inter-connected environmental, social, economic, and governance challenges across sectors with an eye towards resilience and transformational change. Also, consider the master-planning approach both at local, county and regional level, to include all sub-systems perspectives.*
2. **Develop a clear rationale** to tackle the drivers of environmental degradation through assessing assumptions and outlining causal pathways.
3. **Assess the potential risks and vulnerabilities** of the key components of the system, to measure its resilience to expected and unexpected shocks and changes, and the need for incremental adaptation or more fundamental transformational change.
4. **Devise a logical sequence of interventions**, which is responsive to changing circumstances and new learning (adaptive implementation pathways). Overall recommendation to develop clear indicators that will be monitored to determine progress and success in achieving lasting outcomes.
5. **Develop explicit plans and funding** for good quality knowledge management, such as sustainable databases, including the digitized data of the physical infrastructures; simple, useful, and usable common indicators; face-to-face consultations; and building stakeholder capacity. This is essential for 'lessons learned' and scaling up. For maximizing the outcome and the opportunities for the advanced BGI planning and master-planning process, it is recommended to link to the PNRR reform and investments that aim at building the digital public databases, including the elaboration or the update in GIS format of the documentation for the territory and urban planning at local and county level.
6. **Apply exemplary stakeholder engagement**, including with local communities, not just government officials, from inception and design, through to project completion. This is crucial for identifying diverse needs and managing trade-offs. Adoption of the LAA framework would facilitate this.
7. **Allow flexibility in project preparation** to accommodate the additional transactions costs and time required to tackle complex issues through multi-agency teams.

8. **Prepare quality, mature and sustainable project proposals**, including the needed pre-requisite technical studies for the BGI design and contracting external specialized technical assistance when needed.

### **5.3 Stakeholders' engagement, gender equality, social and economic inclusion**

The South-Muntenia RDA has a continuous practice of stakeholder engagement for similar or related activities including key stakeholders, mechanisms of disclosing information, consulting and receiving feedback. It actively uses its website for communication of information and frequently updates it to inform the interested stakeholder on the current events.

SM RDA ROP 2021 – 2027 (version of Nov. 1, 2021) states that "Compliance with the provisions of the national legislation in force regarding equal opportunities, inclusion and non-discrimination will be a condition of eligibility in the applicant's guidelines". It also stipulates that "the principle of equal opportunities is a criterion for project selection, and potential beneficiaries of financial assistance through ROP have the obligation to demonstrate that the proposed projects do not contravene this principle". Therefore, the members of the Project Evaluation Panel may need induction or training on the topic, aimed at assisting them in applying clear eligibility criteria.

SM RDA is to continue its stakeholder engagement practices and further expand it during implementation, aimed at ensuring outreach to the general public, while seeking collaboration of specialised agencies and state authorities that have permitting mandate; apply ongoing stakeholder analysis and mapping, and involve them throughout the project cycle. To this extent, the adoption of a LAA mechanism as described in section 4.4 would be a solid lever.

SM RDA is to consider the provision of training related to gender equality and social inclusion, thereby supporting the development of eligibility criteria for the BGI project selection process and enhancing the capacities of the Project Evaluation Panel members.

### **5.4 Technical knowledge and tools**

With the EU having set its agenda to implement research and innovation projects on BGI and NBS to create more resilient and sustainable urban areas and societies, various European funded BGI/NBS projects (e.g., ThinkNature, EKLIPSE, OPPLA, UNaLAB, UrbanGreenUp, GrowGreen, NATURVATION, Nature4Cities, ClimateKIC ACT on NBS) have been implemented over the past years. As a result, many open-source or licensed tools and databases have been developed to guide the implementation of climate change adaptation measures.

Despite the potential of these tools to support wider uptake of BGIs in cities, there are still gaps and barriers for a wider uptake of such tools by cities and local authorities, thus hampering their contribution to mainstream BGI projects at a local level. End-users can only benefit from these tools when they are aware of their existence, they can compare the diverse available tools, they can make an informed selection of the instruments suitable to address specific challenges in their cities

and adapt them to their specific needs and local contexts. Unfortunately, there is not yet an overview of tools that indicates the suitability of these tools for addressing the various challenge(s) faced in the uptake of BGIs in cities.

## **5.5 Financial capacity and resources**

The municipality budget is prepared based on the past year values and approved annually, usually in the period March – May of the current year. This approach is related to the state budget approval, as part of the municipality revenues are coming from the state budget and is regulated by Law 273 from 2006 regarding the approval and centralization of local budgets.

It is recommended that the municipalities develop a medium-term strategy of 3 to 5 years on the projects to be developed and the investment resources needed to ensure a sustainable economic increase and increase of life quality in the cities.

Based on the knowledge on the current revenues and expenditures, and the estimated operational needs and investments in the following years, a multi-annual mid-term budget forecast might be developed to provide a better view on the future development of the municipality.

This will provide the basis for finding financial solutions and resources within the municipality or through external financing to implement investment projects needed by the community and ensure a sustainable development on the operational area through increased efficiency.

## APPENDICES

## APPENDIX A

### **Key EU and national Policies and regulations, regional policies and strategies and main strategic documents at the municipal and county level**

The **key EU policies and regulations** considered for the BGI projects definition and financing:

- o The **EU Cohesion Policy**'s key legislative acts relevant to understanding the ROP funding overarching governance (through the European Regional Development Fund - ERDF):
  - o **Regulation (EU) 2021/1058** of the European Parliament and of the Council of 24 June 2021 on the **European Regional Development Fund** and on the Cohesion Fund;
  - o **Regulation (EU) 2021/1060** of the European Parliament and of the Council of 24 June 2021 laying down **common provisions on the European Regional Development Fund**, the European Social Fund Plus, the Cohesion Fund, the Just Transition Fund and the European Maritime, Fisheries and Aquaculture Fund and financial rules for those and for the Asylum, Migration and Integration Fund, the Internal Security Fund and the Instrument for Financial Support for Border Management and Visa Policy (**CPR**);
- o **Green Deal - EU 2030 biodiversity strategy** – key in assessing the environmental challenges and objectives as well as in defining the proposed interventions within the BGI projects, considering the protected areas and species in the project areas
- o **EU Strategy on Green Infrastructures** and the *EU Guidance document on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure SWD (2019)* - ensuring orientation as a key tool in the assessment of projects under this assignment as it provides definition, criteria, and illustration of EU-level green and blue infrastructure
- o **The EU Strategy for the Danube Region (EUSDR)** - the macro-regional strategy adopted by the European Commission in December 2010 and endorsed by the European Council in 2011, jointly developed by the Commission, together with the Danube Region countries and stakeholders, in order to address common challenges together and to create synergies and coordination between existing policies and initiatives taking place across the Danube Region. SM RDA is part of the EUSDR Network dedicated to the Management Authorities of ERDF and of the Cohesion Fund.
- o **Climate policy and the 'EU Taxonomy' Regulation**, that lays the grounds and the upcoming technical screening criteria for the financing flows direction towards green investments as well as the monitoring and disclosure requirements related to the investments impact on the environment.

The **national policies and regulations** relevant for the BGI projects definition and financing:

- o **The National Strategy for Sustainable Development** – with the 2030 sustainable development objectives and targets to which all the regional, local, or sectorial strategy and investments should contribute
- o **The National Plan for Resilience and Recovery** (PLANUL NAȚIONAL DE REDRESARE ȘI REZILIENȚĂ (PNRR)) – the national strategic document approved by EU that will support the implementation by 2026 of crucial investment and reform measures put forward by Romania to emerge stronger from the COVID-19 pandemic, expected to contribute in the areas of sustainability of public finances system, healthcare, public administration, business environment, education, and green and digital transition;
- o **The Inter-Ministry Partnership Agreement for the 2021-2027 Financing period**, establishing the mechanism for ensuring the complementarities and synergies between the EU programmes, funds, and other instruments, and of the coordination and monitoring of Romania’s participation to the programs and initiatives managed by the EC at central level;
- o **National key sectorial policies, strategies and related law packages that had been punctually referred to in the environmental analyses:**
  - o **National Strategy for Climate Changes** with Annex 1 to the Government Decision no. 739/2016 - National strategy on climate change and economic growth based on low emissions and Annex 2 to the Government Decision no. 739/2016 - National Action Plan for the implementation of the National Strategy on Climate Change and Growth based on low carbon for the period 2016-2020
  - o **Water policy** with the Water Framework Directive, the River Basin Management Plans, the Floods Directive, the EU Drought policy, the EU water Blueprint – with the related initiatives undertaken at national level under the responsibility of the Ministry of Environment
  - o **Forestry policy** with the related initiatives undertaken at national level under the responsibility of the Ministry of Environment, Water and Forests
  - o **Air quality policy and Directive** as transposed in the national Law 124/2011;
  - o **National Strategy and Action Plan for the Contaminated Sites Management and related legislation.**

The key **regional policies and strategies** relevant for the BGI projects definition and financing, setting the integrated development regional context:

- o **SM ROP Draft** - presented in section 1.1;
- o **South-Muntenia Integrated Territorial Strategy 2021-2027** – offering a strategic framework for the development of the integrated territory development strategies elaborated by the county residences municipalities and the county councils according to art. 29 of the CPR, as well as a list of operations to be supported
- o **SM RDA Regional Development Plan 2021-2027** – derived from and supporting the regional Development Strategy

- o **Smart Specialization Strategy for SM (RIS3) 2021-2027** – areas of priority for innovation are defined also in relation to addressing the environment challenges and smart region development
- o **A Practical Guide for the Territory Integrated Development Strategy**, developed by SM RDA for the Municipalities and Country Councils, in accordance with article 29 of the Common Provisions Regulation (CPR)

**The main strategic documents available at the County Council and Municipality level, relevant for ensuring alignment of the BGI projects and to identify further relevant policy and strategy measures to be undertaken at local or county level as to enable BGI projects implementation:**

- o Development Strategies - mainly Integrated Urban Development Strategies (SIDU), including embedded or stand-alone Smart city strategies
- o Integrated Urban Mobility Plans,
- o Environmental Plans, mainly Air Quality Plans
- o Waste Management Plans, where applicable
- o Energy Efficiency Plans (PAED type)
- o Land Use & Planning Plans (PUG, PUZ).

## **APPENDIX B**

### **ROPSM BGI-potential eligible activities**



Specific Objective	Indicative Actions
<p>b(vii) <i>Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution</i></p>	<p>Blue-Green Infrastructure (BGI) are engineered solutions that mimic nature, connecting urban hydrological functions (<b>blue</b>) and permeable <b>green</b> spaces, with wider urban design and planning benefits, generating social and environmental value for targeted areas, while addressing the challenges of urban growth and climate change.</p> <p><b>Investments</b> in BGI* will target works, services and facilities to address flooding risk, pollution and mitigate climate change impacts, but also to provide additional ecosystem services, such as water quality improvement, air quality improvement, carbon sequestration, recreational activities, urban cooling, noise pollution reduction, biodiversity increase and added recreational values. <b>Measures include:</b> (*Note these systems can either replace, reduce or work in combination with traditional <b>grey</b> infrastructure):</p> <ul style="list-style-type: none"> <li>- Creation of public parks and gardens including 'pocket parks'; urban forests; botanical gardens; existing green areas (e.g. zoos) that could be refurbished as BGI, including significant green and blue components, as well as biodiversity features (over 50% permeable green spaces)</li> <li>- All forms of sustainable urban drainage systems (SUDS), including but not limited to permeable paving, green roofs and walls; swales, retention ponds, constructed wetlands</li> <li>- Rain water harvesting and other forms of off or on line storage - i.e. retention methods for flood and drought management</li> <li>- Water quality improvements with floating islands/floating wetlands/floating gardens in existing rivers/streams</li> <li>- Urban natural and semi-natural green spaces - arrangement of poorly used or abandoned lands, forests, bushes, meadows, wetlands (swamps), lakes and rivers / streams, rocky areas, etc.</li> <li>- Afforestation and re-afforestation of areas exposed to landslides</li> <li>- Green and blue corridors - rivers and canals, including their banks; river restoration/river re-naturalization (converting culverted streams to their natural state and river reprofiling), measures could also include upstream sediment management, retention/removal of large plastic items, natural embankments for flood management and protection, managed retreat that create new amenity spaces ranging from i) active water front development for pedestrians, cyclists, educational activities, etc.; to ii) creation of biodiversity spaces; greening of streets with grass, trees and flowers, 'eco-ducts', green pedestrian crossings, green spaces along: roads, railway corridors, tram lines, cycling routes, pedestrian paths; orbital forests around cities, etc.</li> <li>- Bringing the land to its original state in order to restore the ecosystem and creation, modernization and extension of existing green spaces;</li> <li>- Arranging the natural tourist objectives of public utility as well as the creation / modernization of the related infrastructures of public utility, including the facilities / berthing infrastructure for river tourist ships;</li> </ul> <p>Apart from the above BGI investments, the following actions will be eligible:</p> <ul style="list-style-type: none"> <li>- Strengthening the capacity of the Managing Authority, project developers and public authorities and institutions in the field of planning and development of green-blue infrastructure</li> <li>- Preparation of Plans for green-blue infrastructure.</li> </ul>

## APPENDIX C

### Regional projects

Name	Location	Key element
1. Regional project for integrating the Arges River in urban area and creating functional ecological connectivity between cities and protected areas	Arges County (Pitesti, Curtea de Arges, Topoloveni), Calarasi County (Oltenita), Giurgiu County (Comana, Mihailesti)	The key element taken into consideration is the river (Arges River)
2. Regional project for integrating the Ialomita River to enhance its attractiveness and ecosystem services	Dambovita County (Pucioasa, Târgoviște) Ialomita County (Urziceni, Țândărei, Slobozia)	The key element taken into consideration is the river (Ialomita River)
3. Blue and Green Infrastructure for the sustainable urban development of the municipalities in the SM Region, improving energy efficiency and liveability	Argeș County (Pitesti) Prahova County (Ploiesti) Dâmbovița County (Targoviste) Ialomița County (Slobozia) Calarasi County (Călărași) Giurgiu County (Giurgiu) Teleorman County (Alexandria)	Local project integrated in one project, having a similar approach
4. An innovative bike and pedestrian green connection generating bundles of ecosystem services along the Danube River	Giurgiu County (Giurgiu), Calarasi County (Călărași), Ialomița County (Fetești), Teleorman (Turnu Măgurele)	The key element taken into consideration was the river (Danube)

## APPENDIX D

Screening matrix – local project assessment

No.	Name	County	Location	Beneficiary	Description	Environmental Challenges	Estimated value	BGI Typologies that could be applied	Potential benefits	ROP activities	Gap Assessment	Consistent with existing plans and strategies	Promotes BGI and policy measures for a sustainable and climate resilient future	Opportunities to incorporate smart solutions
1	Development of Blue-Green Infrastructure in the protected natural area Balta Comana - Comana Monastery	Giurgiu	Comana National Park, Comana Commune	ATU (Administrative Teritorial Unit) Giurgiu, through the Giurgiu County Council. Final beneficiaries: Comat Commune ATU, Comana Monastery	The purpose of the project: development of green-blue infrastructure, rehabilitation and extension of Balta Comana dam, rehabilitation of county road DJ 411 (about 2 km as a dam) and roundabout construction, regularization of Neajlov river, arrangement of Neajlov river banks, park establishment / recreation area about 4 ha and pedestrian bridge over Neajlov (at Comana monastery), social spaces, administrative spaces, parking lots, electric charging stations, location of photovoltaic panels, etc.)	Lack of green space; Land conversion and loss of biodiversity; <b>Soil point pollution</b> ; <b>Air pollution</b> ; <b>Surface water pollution/quality</b> ; <b>Drought</b> ; <b>Flooding (basins to close to building blocks etc.)</b> ; Expansion and Development of human settlements, overexploitation of natural resources, high noise level	7 million euros	Parks and Gardens, Afforestation and Re-afforestation, Active Water Front, Thematic Parks	Improvement of environmental quality, increase of tourist attractiveness	1,2,3,4	Lack of data on environmental issues;	yes	yes	yes
2	Rehabilitation of the Pitesti Zoo - stage II	Argeş	Piteşti Zoo, Piteşti	Piteşti Municipality	Adaptation of the exhibition space to the European requirements in the field of ensuring the conservation of ex-situ biodiversity.	<b>Lack of Green Space</b> ; Loss of Biodiversity and Land Conversion; <b>Air pollution</b> ; <b>De-forestation</b> ; <b>Water pollution</b> ; Stormwater flooding; High Noise Level; <b>Landslides</b> ; <b>Drought</b> ; <b>Flooding</b> .	1.25 million euro (6,200,000 lei)	Thematic Parks, Urban Forest	Protecting wildlife and conserving biodiversity, by ensuring housing conditions for animals that meet their biological requirements and maintaining a high standard of animal husbandry, with a preventive and curative program developed for veterinary and food care, taking into account the identification zoos as conservation, research, education and entertainment sites.	1,2,3	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	yes	no	could
3	Realization of Lunca Argesului Park II	Argeş	Lunca Argesului Park along Argeş River, Piteşti	Piteşti Municipality	Functional reconversion of degraded lands and surfaces in order to revitalize the urban environment of Pitesti, reduce air pollution and increase opportunities for leisure and free time for residents.	<b>Lack of Green Space</b> ; Loss of Biodiversity and Land Conversion; <b>Air pollution</b> ; <b>De-forestation</b> ; <b>Water pollution</b> ; Stormwater flooding; High Noise Level; <b>Landslides</b> ; <b>Drought</b> ; <b>Flooding</b> .	2 million euro (9,600,000 lei)	Parks and Gardens, Urban Forest, Wet Plazas, Floodable Parks	Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants;	1,4	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	yes	yes	could
4	Rehabilitation and modernization of shore defense infrastructure, Central Park area in the Municipality of Calarasi	Călăraşi	Waterfront Central park, Călăraşi	Călăraşi County	The municipality of Călăraşi is located on the left bank of the Borcea arm, a tributary of the Danube river, the buildings built in the municipality being located in the immediate vicinity of the water. The increase of the river flow affects large areas of the municipality every year, causing considerable damage. In this context, interventions are needed on the shore defense infrastructure, which currently does not meet the safety standards of the resident population and the locality in general, which have been modified according to drastic environmental changes.	<b>Flooding (stormwater due to lack of drainage system)</b> ; Land conversion and loss of biodiversity; High noise level; Expansion and development of human settlements; <b>Lack of forest vegetation</b> ; Lack of green space; <b>Air pollution</b> , <b>Soil pollution due to agricultural activities</b> ; <b>Surface water pollution/quality</b> ; Lack of water resources; <b>Drought (one of the most exposed to drought)</b> .	7 million euro	Wet Plazas, Floodable Parks, Green Streets, Permeable Pavements	Reduction of flood risk from Danube, <b>Social and cultural benefits</b> , <b>Tourism</b>	1,4	Lack of data on environmental issues; Location/ perimeter of proposed project is not well defined;	yes	could	no
5	Greening and landscaping the banks of the Jirliău Canal and transforming it into a green corridor in order to prevent damage caused by floods	Călăraşi	Waterfront Central park, Călăraşi	Călăraşi County	Both Jirliău Lake and the Zoo are located in the immediate vicinity of the inhabited area of the municipality, presenting an increased risk in terms of safety in community life. Also, an important aspect is the existence in the Zoo of a very large number of dangerous wild animal species, for which it is necessary to ensure special safety conditions. Several years ago, when water safety quotas were exceeded, the damage was considerable, which was recorded at the same time as creating a high-risk situation, by the uncontrolled release of animals housed in the garden.  Carrying out specific shore defense works and landscaping for the creation of a new green corridor.	<b>Flooding (stormwater due to lack of drainage system)</b> ; Land conversion and loss of biodiversity; High noise level; Expansion and development of human settlements; <b>Lack of forest vegetation</b> ; Lack of green space; <b>Air pollution</b> , <b>Soil pollution due to agricultural activities</b> ; <b>Surface water pollution/quality</b> ; Lack of water resources; <b>Drought (one of the most exposed to drought)</b> .	5 million euro	Wet Plazas, Floodable Parks, Green Streets, Permeable Pavements, Bioretention Basin	Reduction of flood risk from Danube, <b>Social and cultural benefits</b> , <b>Tourism</b>	1,4	Lack of data on environmental issues; Location/ perimeter of proposed project is not well defined;	yes	yes	no

No.	Name	County	Location	Beneficiary	Description	Environmental Challenges	Estimated value	BGI Typologies that could be applied	Potential benefits	ROP activities	Gap Assessment	Consistent with existing plans and strategies	Promotes BGI and policy measures for a sustainable and climate resilient future	Opportunities to incorporate smart solutions
6	Rehabilitation and arrangement of the banks of the Settling Pond in Călărași Municipality	Călărași	Settling Pond, Călărași	Călărași County	The current state of the Settling Pond of Călărași Municipality, located in the immediate vicinity of the residential buildings in the southwestern part of the municipality, is a risk factor in terms of citizen safety, with present erosion of the banks. At the same time, through the proposed works, the area can become a recreation area. Carrying out the works for strengthening and securing the banks of the Settling Pond.	Flooding (stormwater due to lack of drainage system) ; Land conversion and loss of biodiversity; High noise level; Expansion and development of human settlements; <b>Lack of forest vegetation</b> ; Lack of green space; <b>Air pollution, Soil pollution due to agricultural activities; Surface water pollution/quality</b> ; Lack of water resources; <b>Drought (one of the most exposed to drought)</b> .	6 million euro	Wet Plazas, Floodable Parks, Green Streets, Permeable Pavements, Bioretention Basin, Afforestation	Reduction of landslides due to lack of vegetation and floods caused by rising runoff levels ( <b>landslide reduction, beautification, recreational value, social value, ecological value, biodiversity enhancement, Flood risk reduction</b> )	1	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	yes	no
7	Establishment of a forest plot in the area of the Tineret residential neighborhood	Călărași	Tineret residential neighborhood, Călărași	Călărași County	The Tineret District of Călărași Municipality represents a very new urban development, as its name suggests, being in full development process, the need for intervention being timely. Creating a forest curtain by planting trees near homes.	Flooding (stormwater due to lack of drainage system) ; Land conversion and loss of biodiversity; High noise level; Expansion and development of human settlements; <b>Lack of forest vegetation</b> ; Lack of green space; <b>Air pollution, Soil pollution due to agricultural activities; Surface water pollution/quality</b> ; Lack of water resources; <b>Drought (one of the most exposed to drought)</b> .	2 million euro	Parks and Gardens, Urban Forest, Wet Plazas, Floodable Parks	Creating a proper urban microclimate, air filtration, reducing noise pollution, creating a weather protection curtain	1	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	yes	no
8	Forest-Park development along the Borcea canal	Călărași	The forest along the Borcea canal in the area of Tineretului Beach in Călărași	Călărași County	The aim of the project is to arrange a forest-park along the Borcea canal, bringing added value to the area by preserving biodiversity, by special arrangements, by creating spaces for socialization and relaxation. The concept of forest-park is relatively new in our country, but it is implemented in important cities at European level. Through a series of actions and measures to improve environmental conditions and enhance the natural potential, the project contributes to Specific Objective b (VII) Intensification of actions for the protection and conservation of nature, biodiversity and green infrastructure, including in urban areas, as well as the reduction of all forms of pollution, Priority 2. A region with environmentally friendly cities, within the SOUTH ROP MUNTENIA 2021-2027. Within the project, the investments in the green-blue infrastructure will aim at works, services and endowments for the arrangement of an urban park forest and the revitalization of the unused land, even abandoned, by arranging the natural and semi-natural urban green spaces. The project proposes to highlight the natural potential of an area of the forest along the Borcea canal, taking into account the value of the ecosystem and the daily use for walks, sports and recreation. The interventions will be minimal and aim to improve the experience of those who will attend them, without disturbing the ecosystem in any way. On the contrary, through improved forest management, the aim is to conserve biodiversity, in parallel with increasing the quality of life for the inhabitants.	Flooding (stormwater due to lack of drainage system) ; Land conversion and loss of biodiversity; High noise level; Expansion and development of human settlements; <b>Lack of forest vegetation</b> ; Lack of green space; <b>Air pollution, Soil pollution due to agricultural activities; Surface water pollution/quality</b> ; Lack of water resources; <b>Drought (one of the most exposed to drought)</b> .	N/A	Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation, Active Water Front, Thematic Parks	Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants; Education	1,4	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	yes	no
9	Extension and modernization of the Greenhouses of the City Hall of Campina to be converted into a botanical garden	Prahova	Campina	Campina Municipality	<ul style="list-style-type: none"> <li>Extension of green areas within the urban environment;</li> <li>Arrangement of fountains, water meshes, walls with waterfalls - blue concept;</li> <li>Conservation of the natural environment;</li> <li>Creating a space for relaxation and beneficial leisure;</li> <li>Setting a promenade area</li> <li>Improving environmental conditions - reducing CO2, increasing air humidity, reducing temperatures</li> </ul>	Stormwater Flooding; Land degradation; Surface water pollution/quality; Drought; Soil Pollution caused by accidental pollution; .	2 million euro	Parks and Gardens, Thematic Parks	Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants; Tourism;	1,3	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	could	could
10	Doftana River Development	Prahova	Campina	Campina Municipality	<ul style="list-style-type: none"> <li>Greening the riverbed; its arrangement: extension, shore alignment, consolidations, etc.;</li> <li>Conservation of the natural ecosystem by arranging the land with natural materials: minerals - stone, sand, concrete, etc. and vegetal: wood, grass, trees, shrubs, natural ecosystem; arrangement of islands connected by bridges to the shore;</li> <li>Realization of protection plantations;</li> <li>Modeling the topography of the banks by arranging spaces and routes for the inhabitants;</li> </ul>	Stormwater Flooding; Land degradation; Air pollution; Surface water pollution/quality; Drought; Soil Pollution caused by accidental pollution; Land slide.	2 million euro	Wetlands, Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation, Active Water Front, Thematic Parks	Reduction of flood risk; Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants; Tourism;	1,2,3,4	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	could	could

No.	Name	County	Location	Beneficiary	Description	Environmental Challenges	Estimated value	BGI Typologies that could be applied	Potential benefits	ROP activities	Gap Assessment	Consistent with existing plans and strategies	Promotes BGI and policy measures for a sustainable and climate resilient future	Opportunities to incorporate smart solutions
					<ul style="list-style-type: none"> <li>•Arrangement of access, parking lots;</li> <li>•Inclusion of the area in the touristic and leisure circuit;</li> <li>•Highlighting the value of the green-blue concept, in conjunction with the protection, conservation and consolidation of natural capital;</li> </ul>			Thematic Parks	for inhabitants; tourism;					

No.	Name	County	Location	Beneficiary	Description	Environmental Challenges	Estimated value	BGI Typologies that could be applied	Potential benefits	ROP activities	Gap Assessment	Consistent with existing plans and strategies	Promotes BGI and policy measures for a sustainable and climate resilient future	Opportunities to incorporate smart solutions
11	Urban regeneration by transforming the decommissioned railway lines and creating a green axis within the city	Prahova	Campina	Campina Municipality	Landscaping of the area and planting of dendrological material; Creation of pedestrian routes and a corridor dedicated to bike lanes; Endowment with smart urban furniture; Extension and public lighting with LED, ornamental lighting, wi-fi, including facilities and equipment; Redeveloped/newly proposed green space area; Arrangement of fountains, rehabilitation and arrangement of existing lake, artificial water meshes; Conservation of the natural environment;	Stormwater Flooding; Land degradation; Surface water pollution/quality; Drought; Soil Pollution caused by accidental pollution; Land slide.	1 mil. Euro		Reduction of flood risk; Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants; Tourism;	1,2,3,4	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	yes	yes
12	Realization of afforestations in the area of running waters in rural areas	Dambovita	not available (N/A)	not available (N/A)	Realization of afforestations in the area of running waters in rural areas	Landslide; Land conversion and loss of biodiversity; Land degradation; Soil pollution; Water pollution; Flooding (river); Drought; Soil erosion and erosion of river banks.	N/A	Afforestation, Wetlands, Stream Restoration, Parks and Gardens	Reducing landslide risks; Increasing the attractiveness of the area; Improving air quality; Preventing the occurrence of natural disasters; Improving biodiversity	1,2,3,4	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project;	yes	yes	could
13	Creation of floodable parks / permeable green spaces in rural areas on poorly used or abandoned land	Dambovita	not available (N/A)	not available (N/A)	Creation of floodable parks / permeable green spaces in rural areas on poorly used or abandoned land	Landslide; Land conversion and loss of biodiversity; Land degradation; Soil pollution; Water pollution; Flooding (river); Drought; Soil erosion and erosion of river banks.	N/A	Parks and Gardens, Wetlands, Pocketparks	Reducing the risk of flooding these areas; Increasing the attractiveness of the area; Expansion and development of human settlements; Improving air quality; Preventing the occurrence of natural disasters; Improving biodiversity	1,2,3	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	yes	yes	could
14	Realization of afforestations and floodable parks / permeable green spaces in mountainous areas	Dambovita	not available (N/A)	not available (N/A)	Realization of afforestations and floodable parks / permeable green spaces in mountainous areas	Landslide; Land conversion and loss of biodiversity; Land degradation; Soil pollution; Water pollution; Flooding (river); Drought; Soil erosion and erosion of river banks.	N/A	Wetlands, Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation, Active Water Front, Thematic Parks	Reducing landslide risks; Reducing the risk of flooding these areas; Increasing the attractiveness of the area; Improving air quality; Preventing the occurrence of natural disasters; Improving biodiversity	2,4	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	yes	yes	could
15	Making forest curtains along county roads - Buffer Strips along County Roads	Dambovita	not available (N/A)	not available (N/A)	Making forest curtains along county roads - Buffer Strips along County Roads	Landslide; Land conversion and loss of biodiversity; Land degradation; Soil pollution; Water pollution; Flooding (river); Drought; Soil erosion and erosion of river banks.	N/A	Afforestation, Wetlands, Stream Restoration, Bioretention Basin, Bio Swales	Reducing landslide risks; Reducing the risk of flooding these areas; Reducing the risk of snow on county roads; Improving air quality; Preventing the occurrence of natural disasters; Reduction of soil pollution	2,4	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	yes	yes	no
16	Realization of floodable ditches / permeable green spaces along the county roads - Bio Swales along County Roads	Dambovita	not available (N/A)	not available (N/A)	Realization of floodable ditches / permeable green spaces along the county roads - Bio Swales along County Roads	Landslide; Land conversion and loss of biodiversity; Land degradation; Soil pollution; Water pollution; Flooding (river); Drought; Soil erosion and erosion of river banks.	N/A	Afforestation, Wetlands, Stream Restoration, Bioretention Basin, Bio Swales	Reducing landslide risks; Reducing the risk of flooding these areas; Reducing the risk of snow on county roads; Improving air quality; Preventing the occurrence of natural disasters; Reduction of soil pollution	2,4	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	yes	yes	could
17	Realization of some constructions with green walls along the county roads	Dambovita	not available (N/A)	not available (N/A)	Realization of some constructions with green walls along the county roads	Landslide; Land conversion and loss of biodiversity; Land degradation; Soil pollution; Water pollution; Flooding (river); Drought; Soil erosion and erosion of river banks.	N/A	Green Roofs and Walls	Reducing the risk of snow on county roads; Improving air quality	2,4	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis: Unclear	could	could	could

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						erosion and erosion of river banks.					scope.			



No.	Name	County	Location	Beneficiary	Description	Environmental Challenges	Estimated value	BGI Typologies that could be applied	Potential benefits	ROP activities	Gap Assessment	Consistent with existing plans and strategies	Promotes BGI and policy measures for a sustainable and climate resilient future	Opportunities to incorporate smart solutions
18	Ialomita - Targoviste river regularization by creating permeable green spaces along the riverbed	Dambovită	not available (N/A)	not available (N/A)	Ialomita - Targoviste river regularization by creating permeable green spaces along the riverbed	<b>Landslide</b> ; Land conversion and loss of biodiversity; <b>Land degradation</b> ; <b>Soil pollution</b> ; <b>Water pollution</b> ; <b>Flooding (river)</b> ; <b>Drought</b> ; <b>Soil erosion and erosion of river banks</b> .	N/A	Afforestation, Wetlands, Stream Restoration, Bioretention Basin, Pocket Parks, Orbital Frest	Reducing landslide risks; Reducing the risk of flooding these areas; Increasing the attractiveness of the area; Improving air quality; Preventing the occurrence of natural disasters; Improving biodiversity	4	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	yes	yes	no
19	County roads - green corridors for environmental protection and traffic participants	Călărași	Călărași County, on the side of the county roads	Călărași County	The aim of the project is to arrange green corridors, which consist of planting shrubs on the county roads. Through a series of actions and measures to improve environmental conditions and enhance the natural potential, the project contributes to Specific Objective b (VII) Intensification of actions for the protection and conservation of nature, biodiversity and green infrastructure, including in urban areas, as well as the reduction of all forms of pollution, Priority 2. A region with environmentally friendly cities, within the SOUTH ROP MUNTENIA 2021-2027. Within the project, the investments in green infrastructure will aim at works for the arrangement of green corridors on the county roads and the revitalization of the unused land, even abandoned, by arranging the natural green spaces. In the current context, the county roads are presented as lacking a natural vegetal border, following the deforestation, in accordance with the provisions of the national legislation in force of the trees that represented a danger for traffic safety, but with their elimination the problem of lack of delimitation of roads, lack of protection for snow, lack of natural color for the transit of wild animals, as well as lack of protection of crops from traffic pollution.	<b>Flooding (stormwater due to lack of drainage system)</b> ; Land conversion and loss of biodiversity; High noise level; Expansion and development of human settlements; <b>Lack of forest vegetation</b> ; Lack of green space; <b>Air pollution</b> , <b>Soil pollution due to agricultural activities</b> ; <b>Surface water pollution/quality</b> ; Lack of water resources; <b>Drought (one of the most exposed to drought)</b> .	N/A	Afforestation and Re-afforestation, Buffer Strips , Bio Swales	Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants	1	Lack of data on environmental issues; Location/ perimeter of proposed project is not well defined;	yes	yes	no
20	Multiple investments in green-blue infrastructure	Călărași	Multiple locations within Oltenita Municipality	Oltenita Municipality	1. Increasing the level of resilience to the phenomena caused by climate change (for example - sustainable stormwater drainage systems that lead to reducing the risk of floods, regulating air quality by planting trees and protecting existing green spaces, etc.). 2. Reconversion and defunctionalisation of degraded, vacant or unused lands, surfaces and buildings in order to capitalize on them by transforming them into modern areas of public utility (parks, small recreation areas, etc.). 3. Creation of the Local Public Transport Network, by creating the necessary infrastructure for public transport (buses, electric minibuses) - the project will contribute to reducing CO2 emissions. 4. Forest curtains around Oltenița Municipality, in order to reduce pollution and the possible risk of floods. 5. Encouraging a healthy lifestyle, by creating opportunities to practice sports and various exercises (swimming, rowing, walks on the waterfront, etc.). 6. Restoration of the pedestrian area of Argesului street (replacement of rainwater collection system, intelligent public lighting, bicycle track, green areas with trees, flowers, intelligent irrigation system, etc.). 7. System for production, distribution, storage of electricity from renewable sources. 8. Arranging a promenade park in the Oltenita port area. 9. Arranging a leisure area in Oltenita Port. 10. Elaboration of a plan for the green-blue infrastructure.	<b>Flooding (River + stormwater due to lack of drainage system)</b> ; Land conversion and loss of biodiversity; High noise level; Expansion and development of human settlements; <b>Lack of forest vegetation</b> ; Lack of green space; <b>Air pollution</b> , <b>Soil pollution due to agricultural activities</b> ; <b>Water pollution</b> ; <b>Drought (one of the most exposed to drought)</b> .	1.25 million euro (6,200,000 lei)	Wetlands, Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation, Active Water Front, Thematic Parks	Reduction of flood risk; Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants;	1,2,3,4	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	could	could	could

No.	Name	County	Location	Beneficiary	Description	Environmental Challenges	Estimated value	BGI Typologies that could be applied	Potential benefits	ROP activities	Gap Assessment	Consistent with existing plans and strategies	Promotes BGI and policy measures for a sustainable and climate resilient future	Opportunities to incorporate smart solutions
21	Promenades along Vedeia river	Teleorman	Alexandria	Alexandria Municipality	<ul style="list-style-type: none"> <li>Consolidating the dam, raising it and widening it in order to intervene with equipment, in order to reduce the risk of floods and its arrangement as a promenade area for the inhabitants of Alexandria, it can be part of the recreational area of the city adjacent to Padurea Vedeia Park.</li> <li>Transforming the banks into an attractive promenade area for all the inhabitants of the city - Esplanada Raului Vedeia.</li> <li>Creating a continuous, uninterrupted pedestrian and bicycle route on the left bank and along the dam on the right bank, ensuring easy access to Padurea Vedeia park.</li> <li>Superior capitalization of the existing park - Vedeia Forest, planting of trees and replacement of degraded urban furniture, including utilities and public lighting, as well as the creation of new green spaces;</li> <li>Improving pedestrian and bicycle traffic between the two banks;</li> <li>Introduction of sports / leisure navigation by creating a pontoon for vaporetto (small boat intended for transport for leisure) and for private boats;</li> <li>Increasing the activity of the Vedeia River and the surrounding areas (terraces, events, picnics, historical areas, etc.).</li> <li>The endowments and rehabilitation of the dam proposed in this variant will ensure the development of the site as a promenade area and will help to transform it into a symbol green area of the city.</li> <li>For the pedestrian alleys and for bicycles along the Vedeia River, only the following materials will be used: asphalt or natural stone (with a high aesthetic and qualitative standard);</li> <li>The slopes of the Vedeia River will be arranged in such a way as to preserve the existing natural character: the shore will be consolidated only with geocells or similar, destined to reinforce the vegetal land and to fix the vegetation on the slopes. Do not use waterproof material for reinforcement (reinforced concrete, etc.)</li> <li>Arranged accesses to the water will be provided at regular intervals. On certain segments, the banks will be arranged with gardens;</li> <li>Rehabilitation of the banks of the Vedeia River in the peripheral areas while preserving their natural appearance;</li> <li>Trees and shrubs will be planted on the banks of the Vedeia River and in the vicinity forming an alignment on the edge of pedestrian / bicycle alleys, without affecting the water flow in any way;</li> <li>Redevelopment of the banks of the Vedeia River with high quality urban furniture and playgrounds for children;</li> <li>Providing street lighting along the pedestrian / bicycle alley.</li> </ul>	<p>Air pollution/Population exposure to high levels of air pollutants; Land conversion and loss of biodiversity; Lack of green sapce; Soil Pollution by accidental pollution; <b>Soil pollution due activities in extractive and chemical industry; Surface water pollution/quality; Flooding; Drought.</b></p>	N/A	Wetlands, Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation, Active Water Front, Thematic Parks	Reduction of flood risk; Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants;	1	Lack of data on environmental issues; Unknown location/ perimeter of the proposed project; General description of project ideas rather than specific projects based on local analysis.	could	could	could
22	Expanding green spaces	Prahova	Ploiesti	Ploiesti Municipality	<p>Extending the green space by:</p> <ul style="list-style-type: none"> <li>capitalization of unused lands (izlaz, classified lands - potentially contaminated sites, orphan battle).</li> <li>installation of roof-like vegetation on roofs.</li> </ul>	<p>Stormwater Flooding; Lack of green space; Lack of forest area; <b>Land degradation; Air pollution;</b> Land conversion and loss of biodiversity; <b>Surface water pollution/quality; Drought;</b> Soil Pollution caused by accidental pollution; Soil Pollution; Lack of water resources; expansion and development of human settlement; overexploitation of natural resources; High noise level.</p>	N/A	Wetlands, Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation	Reduction of flood risk; Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants;	1,2,3,4	Lack of data on environmental issues; Location/ perimeter of proposed project is not well defined;	yes	could	no
23	Implementation of the blue-green corridor in Pârâu Dâmbu area and programming for adaptation to climate change	Prahova	Ploiesti	Ploiesti Municipality	<p>Study on the capitalization of the marginalized area in the vicinity of Dâmbu Creek and the integration of solutions to provide a response in emergency situations (heavy rains, floods, response to floods, rainwater discharges, etc.)</p> <p>Utilization of the riparian areas of the Teleajen river to increase the water absorption capacity (heavy rains, floods, floods upstream of the municipality, etc.).</p>	<p>Stormwater Flooding; Lack of green space; Lack of forest area; <b>Land degradation; Air pollution;</b> Land conversion and loss of biodiversity; <b>Surface water pollution/quality; Drought;</b> Soil Pollution caused by accidental pollution; Soil Pollution; Lack of water resources; expansion and development of human settlement; overexploitation of natural resources; High noise level.</p>	N/A	Afforestation, Wetlands, Stream Restoration, Parks and Gardens	Reduction of flood risk; Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants;	3	Lack of data on environmental issues; Location/ perimeter of proposed project is not well defined;	yes	yes	could

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24	Rainwater collection systems (there is currently no separate system for rainwater and wastewater collection)	Ialomita	Fetesti	Fetesti Municipality	Rainwater collection systems (there is currently no divider system for rainwater and wastewater collection)	Landslides; Soil pollution due to agricultural, industrial activities and traffic; Water pollution; Flooding ( One of the most affected municipalities, undersized sewerage system for rain events); Drought; Land Conversion and Biodiversity; Lack of Green Space	N/A	Wet Plazas, Floodable Parks, Green Streets, Permeable Pavements	Reducing landslide risks; Increasing the attractiveness of the area; Improving air quality; Preventing the occurrence of flooding; Improving biodiversity	1,2	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	could	could
25	Creating green spaces (current problem: lack of green spaces)	Ialomita	Fetesti	Fetesti Municipality	Creating green spaces (current problem: lack of green spaces)	Landslide; Soil pollution due to agricultural, industrial activities and traffic; Water pollution; Flooding ( One of the most affected municipalities, undersized sewerage system for rain events); Drought; Land Conversion and Biodiversity; Lack of Green Space	N/A	Wetlands, Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation	Reducing landslide risks; Increasing the attractiveness of the area; Improving air quality; Preventing the occurrence of flooding; Improving biodiversity	1,2,3,4	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	could	no
26	Solving the deficiencies of the water infrastructure - especially of the rainwater collection system (current problems: the rainwater network is undersized, old pumps, urban area flooding) Rainwater retention tanks and the use of rainwater for irrigation of green spaces (current problem: drought, groundwater pollution)	Ialomita	Slobozia	Slobozia Municipality	Solving the deficiencies of the water infrastructure - especially of the rainwater collection system (current problems: the rainwater network is undersized, old pumps, urban area flooding) Rainwater retention tanks and the use of rainwater for irrigation of green spaces (current problem: drought, groundwater pollution)	Landslide; De-Forestation; Soil pollution due to agricultural, industrial activities and traffic; Water pollution and Scarcity (affecting safe drinking water supply); Flooding; Stormwater Flooding (due to undersized sewerage networks) ; Lack of Green Space; Air Pollution; Surface water Qquality; Land conversion and loss of Biodiversity; Drought; Lack of water resources; Overexploitation of natural resources; Expansion and development of human settlements	N/A	Wetlands, Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation	Reducing landslide risks; Increasing the attractiveness of the area; Improving air quality; Preventing the occurrence of flooding; Improving biodiversity	1,2,3	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	could	could
27	Water transport infrastructure (boat point, recreation routes pedestrian access roads) spaces for the enhancement of flora and fauna – tourist attraction points (benches, intelligent lighting using renewable energy)	Ialomita	Ialomita Coridor	Ialomita County	Routes for cyclists and pedestrian paths that connect the following cities: Fetesti, Tandarei, Slobozia Routes for cyclists and pedestrian paths that connect the following cities: Fetesti, Tandarei, Slobozia Construction of a pedestrian passage for crossing the river Camping area, picnic and agreement Water transport infrastructure (boat point, recreation routes pedestrian access roads) spaces for the enhancement of flora and fauna – tourist attraction points (benches, intelligent lighting using renewable energy)	Landslide; Soil pollution due to agricultural, industrial activities and traffic; Water pollution; Flooding; Drought; Land Conversion and Biodiversity; Lack of Green Space	N/A	Wetlands, Bioretention Basin, Parks and Gardens, Afforestation and Re-afforestation, Active Water Front, Thematic Parks	Reduction of flood risk; Improvement of environmental quality; Improving biodiversity; Improving quality of life for inhabitants;	4	Lack of data on environmental issues; Location/perimeter of proposed project is not well defined;	yes	yes	yes

Legend

Name

Project is aligned with existing plans and strategies and promotes BGI as catalyser for another future

Project could be adjusted to align with existing plans and strategies or promote BGI as catalyser for another future

Project is either not aligned with existing plans and strategies or doesn't promote BGI as catalyser for another future

\* ROP activities

- Public parks and gardens, urban forests, botanical gardens, zoos;
- Permeable Green spaces, fences, green roofs and walls;
- Urban natural and semi-natural green spaces - arrangement of poorly used or abandoned lands, forests, bushes, meadows, wetlands (swamps), lakes and rivers / streams, rocky areas, etc.;
- Green corridors - rivers and canals, including their banks, street alignments with grass, trees and flowers, ecoducts, green pedestrian crossings, green spaces along: roads, railway corridors, tram lines, cycling routes, pedestrian paths, etc.

## APPENDIX E

BGI Typologies Brochure





**REGIONAL ANALYSIS ON GREEN AND BLUE  
INFRASTRUCTURE IN SOUTH MUNTENIA REGION,  
ROMANIA**

**Potential BGI Typologies**

**October 2021**

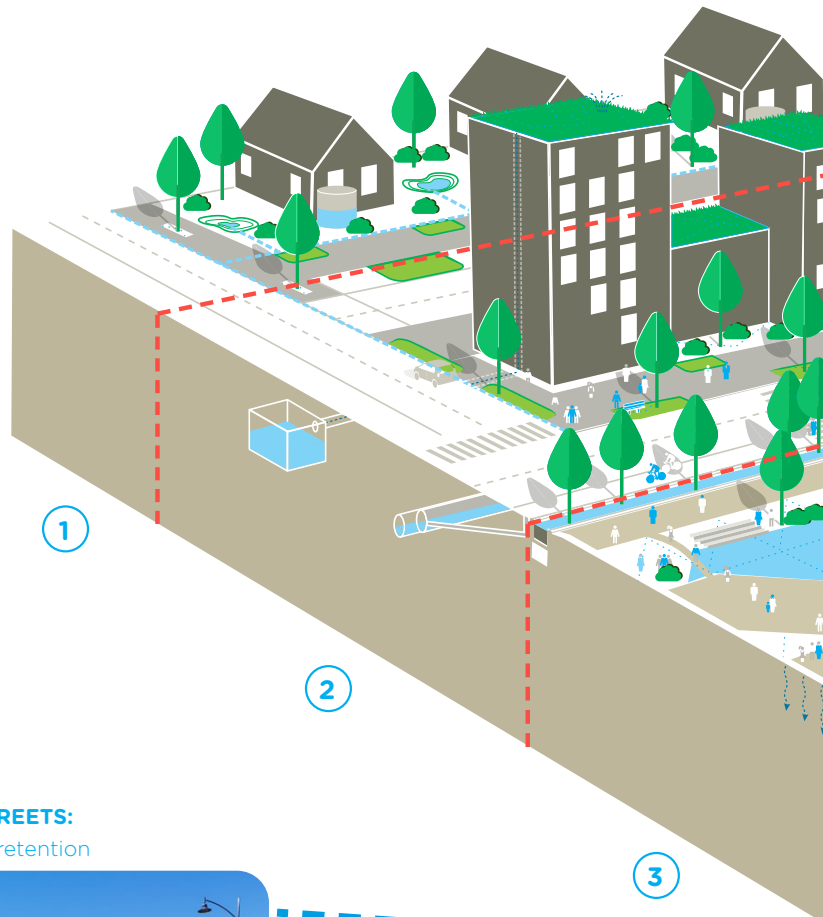


# WHAT IS BLUE GREEN INFRASTRUCTURE

BGI are engineered solutions that mimic nature, connecting urban hydrological functions (blue) and permeable recreational spaces (green), with wider urban design and planning benefits. BGI can address typical drainage issues such as water quality and extreme flooding, while generating social and environmental value for local areas, that also addresses the challenges of urban growth and climate change.

BGI includes features like bioretention basins, swales, raintanks, permeable paving, green streets, green roofs, water reuse, wetlands and floodable parks, to name a few. Where necessary, BGI is supported by traditional grey infrastructure and technologies to address specific issues or targeted water pollutants. At

all scales of development, BGI can be used to directly improve water quality, waterway health and beach swimability, address capacity issues in stormwater and combined network systems and provide flood risk reduction.



## 1. SMART HOME SOLUTIONS

Rainwater tank & Raingarden



### BENEFITS

Reduced potable water use, less runoff and reliance on public drainage networks, increased property value, reduced cumulative effects

## 2. GREEN STREETS:

Roadway bioretention



### BENEFITS:

Greener communities, less storm water pollution, aquifer recharge

## 3. STORMWATER PARKS:

Stormwater retention systems

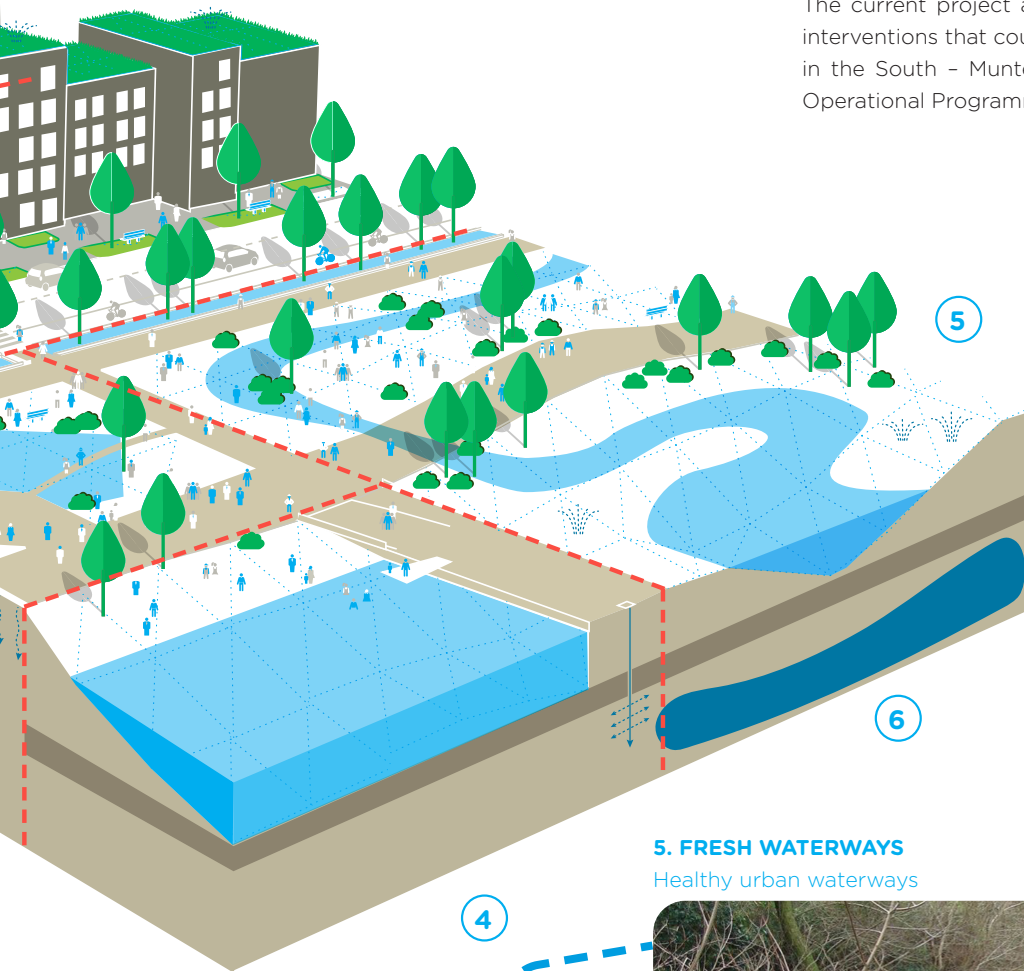


### BENEFITS

Dual use parks, enhanced community and aesthetics, flood protection

When BGI is considered as a common and accepted approach across the community and government agencies, then broad cumulative benefits of BGI can be realised. It has the ability to enhance mobility, social spaces, economic value, and longevity of existing assets through the development of multi-functional spaces.

In cities such as Copenhagen, New York and Singapore, water is now at the forefront of integrated urban and infrastructure planning, with BGI being the main driver bringing all key stakeholders together working for a common vision and tapping from the many benefits and co-benefits offered by BGI. Locally, the South - Muntenia Region in Romania presents a varied number of environmental challenges, ranging from drought, flooding, air pollution, loss of biodiversity, etc. The current project aims at identifying potential BGI interventions that could be financed and implemented in the South - Muntenia Region, under the Regional Operational Programme being currently developed.



**4. HEALTHY HARBOURS:**  
Active & Clean waterfronts



**BENEFITS:**  
Safe swimming & healthy marine environment

**5. FRESH WATERWAYS**  
Healthy urban waterways



**BENEFITS:**  
Natural, clean and resilient ecological areas

**6. RECHARGED AQUIFERS**  
Reliable drinking supply



**BENEFITS:**  
Clean drinking water

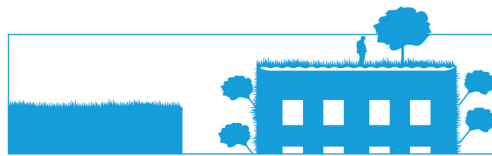


# POTENTIAL BGI TYPOLOGY

A typology is a congregation of functions adapted to local context. The specification of individual typologies should recognise stormwater *quantity* management as the project's primary driver but also acknowledge the water *quality* benefits, and wider environmental, cultural, and amenity enhancements, that accrue from BGI implementation.

## Living Roofs and Walls

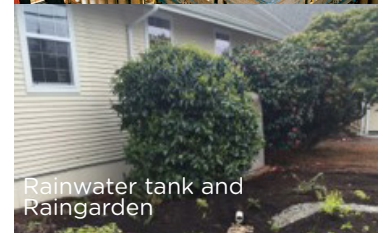
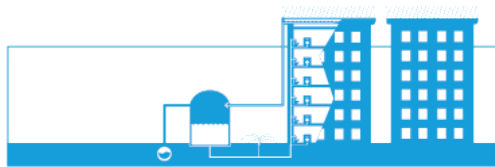
Integrating vegetation and storage potential into new buildings and infrastructure acts as a first response in reducing local cloudburst runoff. With multifunctional potential, living roofs replace underutilized hard surface spaces in cities with rain soaking materials and vegetation that can reduce stormwater volumes and improve water quality, as well as reduce the urban heat island effect.



City Hall Living Roof, Chicago Built

## Rainwater Tank

A rainwater tank is a retention container used to collect and store water that can be re-used for non-potable purposes. Rainwater tanks are generally used to supplement water supply systems and have nearby functions for both outdoor and in-house usage such as irrigation or toilet flushing.



Rainwater tank and Raingarden

## Permeable Pavements

Any system providing hard or trafficable areas which also provides for downward percolation of stormwater runoff. This includes no-fines concrete or porous asphalt, permeable pavers, porous pavers, and stabilised loose material. The flow of stormwater from the surface to the collection system is slowed through infiltration and is temporarily stored and slowly released by the base course, resulting in detention of the peak flow.



Marks Stigs Alle, Bagsværd, Denmark

## Wetlands

Constructed stormwater wetlands are ponded areas, densely vegetated with water-loving plants that mimic the treatment processes of natural wetlands with detention, fine filtration and biological absorption, to remove contaminants from stormwater runoff.



Bishan Ang-Mo Kio Park, Singapore Built

## Bioretention Basin

Bioretention basins such as rain gardens (including 'pocket parks'), planter boxes and swales can involve daylighting historic streams, formalizing existing streams, or creating new streams as quality improvement and conveyance connections between other cloudburst elements. Typically, smaller in scale, bioretention basins can re-establish or create new neighbourhood character and social spaces.



Arkadien Asperg, Stuttgart, Germany Built

## Urban Canal

Urban canals are larger infrastructure projects that typically involve daylighting of a stream or river within a dense urban area. They can be designed to create new and healthy oases in the city while increasing biodiversity and stormwater volume capacity.



Rochor Canal, Singapore Built

## Stream Restoration

Stream Restoration and re-profiling existing urban water edges can help build capacity for stormwater through retention and detention. Additionally, redesign of stream or riverfront parks to allow for seasonal and cloudburst flooding can reduce downstream flooding in unwanted areas. Inclusion of natural edges and floating islands/floating wetlands/floating gardens improves water quality and provides amenity enhancement.

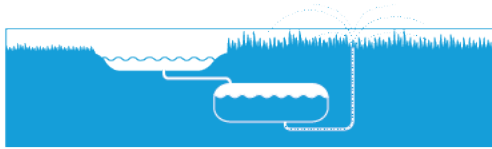


Bishan Ang Mo Kio Park, Singapore Built



## Underground Basin

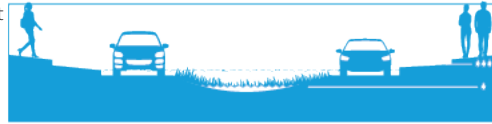
An underground basin is a buried system, which stores stormwater for either detention or large volume re-use purposes such as irrigation. It should be sized to manage excess stormwater runoff that cannot be stored by any other traditional or BGI component. It is often connected to a primary drainage system where it discharges to, by means of a regulator, to slowly release stormwater overflow to reduce peak discharges downstream.



Symfonivej, Herlev, Denmark

## Retention Boulevard

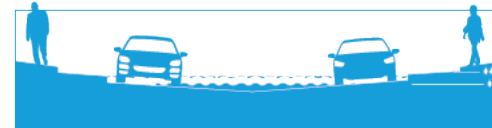
Retention boulevards are similar in scale to cloudburst roads, but incorporate large green, depressed medians that can detain and retain stormwater while allowing regular traffic use of the street. It requires taking away space from existing roads, but can be very effective along larger urban arteries that are underutilized.



Sankt Annae Plads, Copenhagen  
Built

## Cloudburst Roads

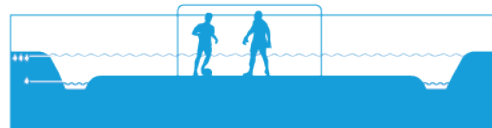
Cloudburst roads are used to channel and direct cloudburst water. These streets can be formed with a V-shaped profile and raised curbs to ensure water will flow in the middle of the road, away from the buildings. In addition, channels and swales can be established at the side of the road so that the water runs in urban rivers or green strips.



Copenhagen Cloudburst Street  
Visualization

## Floodable Parks

Floodable Parks and recreation spaces present the greatest opportunity for large retention spaces within urban areas. They can be located throughout the watershed and receive stormwater conveyance systems or adjacent water bodies. They can provide a combination of hydrological services including, water quality improvements via filtration, retention, detention, and infiltration.



Hans Tavsens Park  
Visualization - SLA A/S

## Cloudburst Pipes

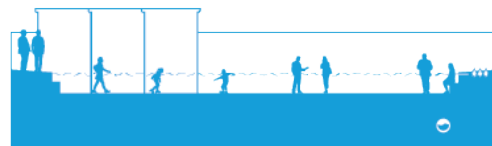
A cloudburst pipe handles rainwater in the same way as cloudburst roads. This is placed just below street level to ensure connection to other surface solutions. This solution is used if there is limited space for above ground conveyance.



Sankt Annae Plads, Copenhagen  
Built

## Wet Plazas

Wet plazas or floodable public spaces are another great opportunity for large retention capacity within denser urban environments. Typically hardscapes with some potential vegetation, these spaces collect, detain and retain stormwater to reduce flooding downstream. Additionally, they can incorporate drainage connections to allow the plaza, courtyard, etc. spaces to return to normal use quickly.



Mailänder Platz Stuttgart, Germany  
Built

## Green Streets

Green Streets (including railway corridors, tram lines, cycling routes, pedestrian paths) are located as upstream connections to all cloudburst roads or retention areas. The green streets should be established with a combination of small scale channels and stormwater planters or permeable paving. Stormwater should be collected, delayed, and then channelled toward the cloudburst roads.



Watts Branch, DC  
Visualization

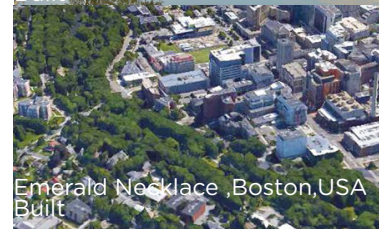
## Parks and Gardens

Parks and gardens are examples of green infrastructure that can host stormwater management solutions such as bioswales, cleansing biotopes/raingardens, retention and detention swales and lakes, infiltration systems and others. Parks and gardens present opportunities for improving the air quality and reducing the urban heat island effect incorporating a multifunctional design enhancing socio-economic and socio-ecological benefits.



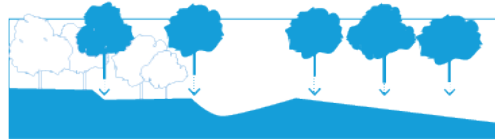
## Urban Forest

Urban Forests are highly effective ecological solutions for nature enhancement within city limits. The design consists of large, densely planted, high vegetation areas with few to no amenities. Urban forests are beneficial for mitigating heat island effect, enhancing biodiversity and strengthening urban ecosystems.



## Afforestation and Re-afforestation

Afforestation and re-afforestation consist in planting or growing forests in high risk areas. On top of the ecological value, afforestation and reforestation can mitigate landslides and flooding by serving as sponges, trapping water after heavy rains, and releasing it into waterways, reducing flood incidence and maintaining stream flow during dry periods.



## Active Water Front

Waterfronts present opportunities to integrate multifunctional solutions combining flood protection and public amenities. While serving an essential utilitarian function of protecting, waterfront designs can enhance livability and contribute to the aesthetic, functional, and cultural values of urban landscapes.



## Orbital Forests

Orbital Forests are a system of large, densely planted areas that surround cities and act as green buffers. Among a wide range of benefits, orbital forests are especially efficient for pollution mitigation, soil erosion control and biodiversity enhancement. They can also mitigate the dust storm and snow drift.



## Thematic Parks

BGI can host a variety of functions such as botanical or zoological gardens, amusement parks and temporary events. Thematic parks are a good example for BGI multifunctionality and added value as they enhance socio-economic benefits.



## Pocket Parks

Pocket parks are small green spaces with recreational value that hold the potential to integrate stormwater management solutions such as infiltration systems, raingardens, small retention and detention swales. Their small scale lends itself to phased implementation over a larger area.











## APPENDIX F

Field Visits Report 20-22 September 2021

# Field Visits Report 20-22 September 2021

## REGIONAL ANALYSIS ON GREEN AND BLUE INFRASTRUCTURE IN SOUTH MUNTENIA REGION, ROMANIA

Project name	<b>REGIONAL ANALYSIS ON GREEN AND BLUE INFRASTRUCTURE IN SOUTH MUNTENIA REGION, ROMANIA</b>
Project no.	<b>2021.003249</b>
Recipient	<b>South – Muntenia Regional Development Agency</b>
Document type	<b>Final</b>
Version	<b>3.0</b>
Date	<b>18/11/2021</b>
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Checked by	<b>Alvaro Fonseca</b>
Approved by	<b>Silviu Stoica</b>
Description	<b>This Field Visits Report presents the main findings during the site visit of the project area.</b>
Acknowledgements	<b>The Consultants very much appreciate the information that has been provided by the Client during this field visit.</b>



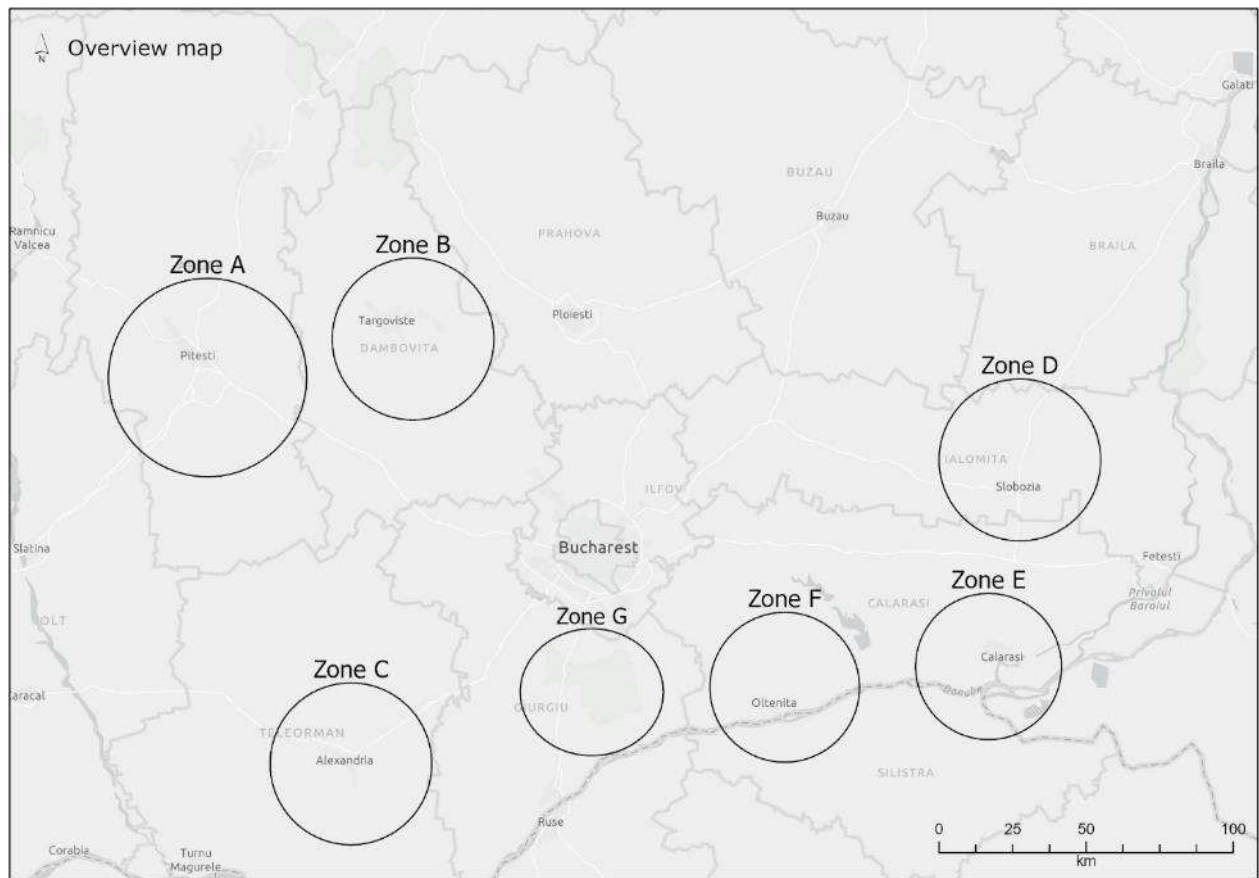
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## 1. Introduction

As part of Task 2: High-level environmental challenge identification, the Consultant participated in a three-day field visit during September 20-22, 2021. The objective of the field visits was to gain first-hand insights in the local situation and have direct interaction with stakeholders to increase mutual understanding of the challenges and how to address them.

The lesson learned from this experience is that whereas online meetings/workshops are efficient for preparing for decision making, decision making itself requires intensive multidisciplinary collaboration between all stakeholders involved, and face to face consultations; multiple-day field visit sessions are very suitable for that. Figure 1 shows an overview of the areas visited/discussed.



**Figure 1 - Overview of zones or areas visited during the site visit (see section 2.3 for details)**



## 2. Field visit program

The field visits took place in accordance with the plan previously established with RDA SM, EBRD and stakeholders, as follows:

### Day 1 – September 20<sup>th</sup>, 2021

- Călărași City, Călărași county
- Slobozia town, Ialomița county

The following attended the Working Meeting:

Local authorities	RDA Representatives	Consultant Experts
<u>Călărași County</u>	Mrs. Luminita Zezeanu-Management Authority ROP Director together with a representative of the local office of RDA SM have been present.	On behalf of the Consultant the following experts have participated: Koen Broersma - DTL, Carmen Stefan-Strategic Planning Expert, Eugenia Ganea - Stakeholder Engagement Expert & Social, Gender and Economic Inclusion Expert, Gabriela Musat- Environment Expert and Sabina Preda-Project Coordinator (local)
Headquarters of Călărași County Council with representatives from Călărași County Council, Călărași City Hall and Oltenita City Hall		
<u>Fetesti City Hall</u>		
<u>Ialomița County</u>		
Headquarters of Ialomița County Council with representatives from Ialomița County Council, Slobozia City Hall and the Water supply Company		

### Day 2 – September 21<sup>st</sup>, 2021

- Alexandria City, Teleorman County
- Comana Commune, Giurgiu County

The following attended the Working Meeting:

Local authorities	RDA Representatives	Consultant Experts
<u>Teleorman County</u>	Mrs. Luminita Zezeanu-Management Authority ROP Director together with a representative of the local office of RDA SM have been present.	Koen Broersma - DTL, Eugenia Ganea - Stakeholder Engagement Expert & Social, Gender and Economic Inclusion Expert and Sabina Preda-Project Coordinator (local)
Headquarters of Teleorman County Council with representatives from Teleorman County Council and Alexandria City Hall		
<u>Giurgiu County</u>		
Comana Monastery with representatives from Giurgiu County Council and Comana City Hall		

### Day 3 – September 22<sup>nd</sup>, 2021

- Pitești City, Argeș County
- Târgoviște City, Dâmbovița

The following attended the Working Meeting:

Local authorities	RDA Representatives	Consultant Experts
<u>Argeș County</u>		

Headquarters of Pitești City Hall with representatives from Pitești City Hall,	Mrs. Luminita Zezeanu-Management Authority ROP Director together with a representative of the local office of RDA SM have been present.	On behalf of the Consultant the following experts have participated: Koen Broersma - DTL, Carmen Stefan-Strategic Planning Expert, Eugenia Ganea - Stakeholder Engagement Expert & Social, Gender and Economic Inclusion Expert, Gabriela Musat- Environment Expert and Sabina Preda-Project Coordinator (local)
<u>Dâmbovita County</u> Headquarters of Dambovita County Council with representatives from Dambovita County Council, Targoviste City Hall Prahova County Council and Ploiesti City Hall		

During these meeting, the local authorities presented the environmental problems they face and the strategic actions to solve them (see section 2.1). Site visits were also made to identify areas with environmental problems that could be integrated into the blue-green infrastructure. Maps with the identified areas are shown in section 2.3.

## 2.1 Main Findings

### 2.1.1 Călărași City, Călărași County

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
Călărași City, Călărași County	<p><b>Air</b></p> <p>At the level of Călărași Municipality, they were not identified critical areas in terms of air pollution.</p> <p>The results of the air quality monitoring carried out in the previous years showed that occasionally there are exceedances of the allowed limit values for the PM10 concentration. These exceedances are determined by the heavy traffic (on Prelungirea Călărași Street) and the use for the production of thermal energy in the living spaces of some primary fuels (wood, coal).</p>	<p>Rainwater collection system for water discharge in the existing retention pond</p> <p>This also includes works to consolidate the shore of the pond, planting <b>shelterbelts</b>, landscaping of the area (in the vicinity of the proposed park in the area -that currently benefits funds through ROP)</p>	In the western part of Călărași	
	<p><b>Water Quality</b></p> <p>For the municipality of Călărași, the water source is the Danube (surface source). The treatment plant was rehabilitated, but in the past, they had problems with water quality.</p> <p><b>Flooding</b></p> <p>Floods produced during heavy rainfall - in the Borcea Channel area</p> <p>Lack of a rainwater drainage system in the urban area leads to flooding of streets and homes</p> <p><b>Green space</b></p>	<p>Green corridors connecting the southern part with the western part of the city and flood reduction works on the bank of the Borcea Channel</p>	south-western part of Călărași	<p>Currently, a tourist port and spaces for promenades are proposed.</p> <p>Water Basin Administration (WBA) proposed another type of works for the rehabilitation of the riverbanks on this channel.</p> <p>There are land areas that are owned by WBA</p>

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
	The average per capita of green space is below the county and national average.	Green corridors and parks in the residential area that is being expanded	In the north	

### 2.1.2 Oltenita City, Călărași County

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
Oltenita City, Călărași County	<b>Air</b> The results of the air quality monitoring carried out in 2014 showed that occasionally there are exceedances of the allowed limit values for the PM10 and CO concentration. These exceedances are determined by the heavy traffic (on DJ41/DN11), wind erosion and thermal power plant.	Works to reduce the risk of floods	In the western part of the city	ABA proposed for this area - consolidation of the Oltenita-Surlari - Doribantu defense line
	<b>Flooding</b> Floods produced during heavy rainfall – Argeș River (in the west part of the city)	Shelterbelts Network around the town	West	Measures taken into account in the Air Quality Maintenance Plan for Călărași County
	Lack of a rainwater drainage system in the urban area leads to flooding of streets and homes	Redirecting traffic from the central area, arranging pedestrian areas and green spaces to link the center to proposed agreement areas on the banks of the river Arges (in the west)	Center of the city to the west	The air modeling results presented in this plan show that in the absence of inadequate measures there will be exceedances of the
		Rainwater drainage systems in the urban area (current		

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
		problem: flooding the street and houses)		assessment threshold values for PM

Note: Oltenita not visited, the authorities presented the environmental aspects during the working meeting.

### 2.1.3 Slobozia, Ialomița County

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
Slobozia, Ialomița County	<p><b>Flooding</b></p> <p>The rainwater network is undersized, old pumps, urban area flooding</p>	<p>Solving the deficiencies of the water infrastructure - especially of the rainwater collection system</p>	<p>3 parks (Parcul Ialomița, Parcul Mare and along Bulevardul Matei Basarab) and retention basin/pump near Strada Răzoare</p>	<p>Proposals within the limits of the Natura 2000 sites (ROSCI 0152-Ialomița Corridor and ROSPA0290-Ialomița Corridor)</p> <p>Nature 2000 Sites Management Plan is not approved.</p>
	<p><b>Lack of water resources</b></p> <p>The area is affected by drought, groundwater pollution</p>	<p>Rainwater retention tanks and the use of rainwater for irrigation of green spaces</p>		
	<p><b>Natural Protected Area</b></p> <p>Elimination/reduction of pressures on the natural protected are (uncontrolled tourism, inadequate storage of waste, use of improper bicycle access ways)</p>	<p><i>Integration of the protected area (Ialomița Corridor) in the urban area</i></p> <p>Routes for cyclists and pedestrian paths that connect the following cities: Fetesti, Tandarei, Slobozia</p> <p>Construction of a pedestrian passage for crossing the river</p> <p>Camping area, picnic and agreement</p> <p>Water transport infrastructure (boat point, recreation routes pedestrian access roads)</p>	<p>Ialomița Corridor</p>	

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
		spaces for the enhancement of flora and fauna – tourist attraction points (benches, intelligent lighting using renewable energy)		

#### 2.1.4 Fetesti, Ialomița County

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
Fetesti, Ialomița County	<p><b>Flooding</b> Lack of a stormwater drainage system in the urban area leads to flooding of streets and homes</p> <p><b>Green space</b> The average per capita of green space is below the county and national average</p>	<p>Rainwater collection systems (there is currently no divider system for rainwater and wastewater collection)</p> <p>Creating green spaces (current problem: lack of green spaces)</p>		

Note: Fetesti not visited, the authorities presented the environmental aspects during the working meeting.

#### 2.1.5 Alexandria City, Teleorman County

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
Alexandria City, Teleorman County	<p><b>Degraded land</b> Soil degradation is related to soil erosion phenomena of surface or</p>	Expanded green spaces and create shelterbelts along Vedea river	Eastern part of Alexandria along the banks of Vedea River	In Alexandria City, a park was designed on a land that was used in the past

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
	<p>depth. Soil degradation also occurs by the deposition of alluvium during the overflow of the river Vedea. The lack of tree plantations, shelterbelts on the slopes and shrubs cause these phenomena.</p> <p><b>Flooding</b></p> <p>The city of Alexandria is located in the flood zone of the river Vedea.. In the buildable area of the municipality there are no special problems regarding the location of the constructions, except for the areas in the immediate vicinity of the Vedea River.</p>	<p>Rehabilitation and consolidation of the Vedea River protection dam</p>		<p>by a military unit. The project was funded by the Regional Operational Program.</p> <p>Total area of planted spaces = 17 972.00 m<sup>2</sup></p> <p>Arges-Vedea Water Basin Administration proposed in the flood risk management plan measures for reduce flooding risk on Vedea River.</p>

### 2.1.6 Comana Commune, Giurgiu County

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
Comana Commune, Giurgiu County	<p><b>Natural Protected Area – Comana Park</b></p> <p>Too low water level in the park.</p> <p>The main pressures that threaten the conservation status of</p>	<p>Improving the management of the protected area</p> <ul style="list-style-type: none"> <li>- Creating an infrastructure for non-motorized sports (eg bicycle routes)</li> <li>- Control of invasive species</li> </ul>	<p>At the edge of Comana park in areas of sustainable development</p>	<p>According to the provisions of the General Urban Plan of Aduna Copaceni Commune, in the northern part of the Comana natural park (at a</p>

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
	<p>species and natural habitats are:</p> <ul style="list-style-type: none"> <li>- Invasive species</li> <li>- Uncontrolled tourism - degradation of the area, improperly stored waste</li> <li>- Motor sports- can severely affect biodiversity through intense noise, vibration due to intense combustion engines, exhaust fumes, projector lights, and travel speed of vehicles, traces of wheels on the ground and the human presence, all disturbing, alerting and scaring the species in the areas of reproduction or feeding, especially of birds, during the nesting period.</li> <li>- Intensive agriculture - soil degradation</li> </ul> <p>Following the implementation of the project, the number of tourists in the area is expected to increase. The access of tourists to an infrastructure that allows them to practice non-motorized sports could have positive effects on the management of the protected area.</p> <p>Comana Monastery, which is located within the protected area, has</p>	<ul style="list-style-type: none"> <li>- Controlled tourism with visitor centre with viewing platforms</li> <li>- Parking and camping area across the road</li> </ul> <p>Higher level of the dam to increase/beter manage water level in the park</p>		<p>distance of about 3 km from the park boundary) it is proposed to build an airport.</p>



Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
	<p>been rehabilitated through the Regional Operational Program.</p> <p>For this protected area, a management plan was developed in 2018 but this plan is not yet approved, which makes it difficult to apply the necessary measures to eliminate pressures and reduce their impact on species and natural habitats.</p>			

### 2.1.7 Târgoviște, Dâmbovița County

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
Târgoviște	<p><b>Air</b></p> <p>According to the information provided by the city hall, the material particles are the main pollutants in Târgoviște Municipality, but they do not exceed the daily limit value for the protection of human health.</p> <p>Green space</p> <p>Targoviste City Hall has not yet completed the Green Space Inventory. The average per capita of green space is below the</p>	<p>Integration of Ialomița River in Târgoviște and creation of permeable green spaces along the riverbed</p> <p>The project proposes:</p> <ul style="list-style-type: none"> <li>- Regularization of river</li> <li>- Expanding green spaces and creating agreement areas</li> <li>-Promenade area</li> <li>-Bikes routes</li> <li>-Creation of an island</li> <li>- Fantasy Island 30</li> </ul>	From the North (above Mihai Bravu Street to Gimnazului Street)	

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
	<p>county and national average</p> <p><b>Landscape</b></p> <p>On the Ialomița river there are areas with spontaneous vegetation and the riverbanks are affected by erosion.</p>	<p>ha (arrangement with picnic areas, green space)</p> <ul style="list-style-type: none"> <li>- Facilitating water sports</li> <li>- Beaches</li> <li>- pedestrian walkways for crossing the river</li> </ul>		

#### 2.1.8 Pitești, Argeș County

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
Pitești	<p><b>Air</b></p> <p>Occasionally the PM10 concentration exceeds the upper assessment thresholds for human health.</p> <p>According to the Air Quality Plan prepared for Arges County by the Arges County Council, Pitești locality, the concentration of pollutants PM10, PM2.5, benzene, NO2, NOx exceeds the upper assessment threshold for the population's health</p>	<p>Rehabilitation of the rainwater collection canal (the canal collects water from the DJ 703 area and from the slopes)</p> <p>Rehabilitation of the Zoo (The surface of the garden is 12 ha of which only 8 ha are arranged and 4 ha is degraded land)</p>	<p>west</p> <p>west</p>	<p>The Zoo is located in the Trivale Forest, the rainwater collection channel passes through the Trivale Forest / Trivale Park</p>

Area	Environmental Issues	Projects proposed for solving environmental problems	Project location	Remarks
	<p><b>Flooding</b></p> <p>The water network is undersized, it cannot take over the entire amount of rainwater collected from the Trivale Park area and the adjacent road (west part of the city), so there are floods in the urban area.</p>			

## **2.2 Common findings and remarks on institutional aspects**

### **2.2.1 Governance structure**

According to art. 244 of the Administrative Code, the local and/or county council have established a public administrator role, to ensure modern public management, following the corporate governance model, and the segregation of the political level from the executive one. The public administrators present at the discussions proved to be professionals with technical, administrative and managerial knowledge and experience.

It is clear that the public administrator is working closely with all relevant stakeholders in their organizations, such as the Chief Architect, Investments / Project management Department, Economic Department in the City Halls, respectively Direction for Strategic Programs and Investments, Urbanism Division of the County Councils.

However, a dedicated multidisciplinary Projects Implementation Unit would ensure higher efficiency and governance at the institutional level, while being a driver for creating a true network effect between the public administrations and also with other key stakeholders like RDA and Romanian Waters etc.

Identifying a best practice to replicate would be recommended, as well as contracting technical assistance for capacity building.

- Complementarity between funding programs – as per the 2021-2027 Funding program analyses and continuity of the previous investments (finalized, under-implementation or to be implemented from the previous financing multi-annual framework) – an updated list from the Beneficiaries would be recommended to be consulted during the actual projects proposals planning for 2021-2027 ROP Program

Additional initiatives to support: e.g. for PODD (Sustainable Development Operational Program) the projects will be financed if part of a Smart City/Smart Village strategies – such strategies to be elaborated through specialized services for the elaboration of Smart cities/ smart villages strategies, additional to or part of the Local Development Strategies.

### **2.2.2 Regional Cooperation**

Regional Cooperation has two folds:

- To address in a unitary approach similar problems, challenges or opportunities
- To work in a strategic and coordinated way at each area level with a holistic view and an integrated master-planning approach at river basin level, considering the impact that an area / actions or lack of actions in the area could have on another area or the benefits of an overall connectivity through green corridors could generate to solve environmental challenges and create social-economic benefits – e.g. Ialomița river basin across Dambovita, Ialomița and Călărași Counties

To enable the implementation of regional projects, partnerships should be established between the Local and County Councils structure to maximize the funding and synchronize the implementation.

Thus, clear responsibilities should be set, land ownership clarification, co-financing rules and participation, funds allocation on the priority investments under each party responsibility as well the further governance, operation and ownership on the created infrastructures as a result of the projects funded by ROP. As well a very well-coordinated planning of the preliminary actions should be considered (e.g. eventual land expropriations procedures or land ownership transfer from Romanian Waters as per case etc).

### **2.2.3 Initiatives connected to the European Velo Route network**

All visited stakeholders mentioned initiatives related to developing bike-trails along the blue-green corridors envisaged in their project proposals. Especially Fetesti and Călărași Town-Hall representatives referred to the connection to the European Euro Velo 6 cycle route or Danube Route.

Thus, a regional approach would be beneficial by establishing a Regional Cycle Route Development Strategy for the unitary development of the cycle network across the South-Muntenia counties, incorporating unitary standards as well as promotion strategies to generate economic growth in the region, by following the European framework example and by inspiring from other similar initiatives in the European countries.

### **2.2.4 Integrated and long-term planning perspective**

Even if some proposed investments are being priorities according to the urgent needs especially related to the social development and population retention or attraction as well as social inclusion challenges, however, an integrated and long-term planning perspective should be considered at this very moment with phased further investments on the roadmap and related pre-requisite included in the requirements of the current project proposal. An example is Călărași residential area expansion in the North area, where the land is ceased to private investors with no additional obligation of certain green accompanying measures.

As well, for the public spaces that are under the municipality ownership, a more systemic and programmatic approach centered on BGI creating new green spaces but also connecting the new areas and impact with the old city is needed to be incorporated as a strategic long-term vision.

### **2.2.5 Driving public participation, awareness and civic responsibility accompanying measures**

All projects should be accompanied by a set of public participation, awareness and civic responsibility measures.

### **2.2.6 Thorough review of the relevant studies to fundament and support the project initiatives**

A thorough review of the relevant studies' availability and relevance to fundament and support the project initiatives is recommended as well as consequent planning for contracting such preliminary studies, as needed.

As well, the digitization of the topographic elements, and other relevant physical networks should be assessed and planned as needed.



2.3 Maps

2.3.1 Zone A, Pitești City, Arges County



**HIGH LEVEL CHALLENGES**

**Reducing the risk of Flooding**

The water network is undersized, it cannot take over the entire amount of rainwater collected from the Trivale Park area and the adjacent road (west part of the city), so there are floods in the urban area.

**Degraded lands**

Improve soil quality and afforestation

**Improve air quality**

Occasionally the PM10 concentration exceeds the upper assessment thresholds for human health.

**Zone A – Pitești City, Arges County**

**Photo site visit – 22 September 2021**

**Project proposed**

**1** – Rainwater collection channel (in the western part of Pitești City)



**2** -Rainwater collection channel (in the western part of Pitești City)



**3** -Rainwater collection channel (in the western part of Pitești City)



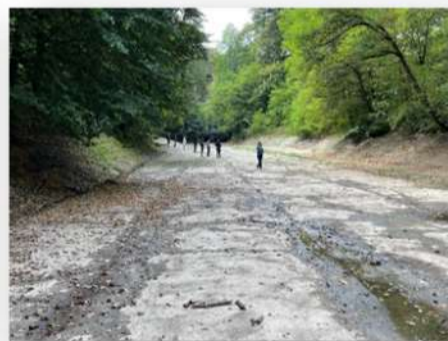
**AG 1 – Improve the rainwater collection system**

Rehabilitation of the rainwater collection channel (the canal collects water from the DJ 703 area and from the slopes) and integrating the channel in Trivale Park

**4** – Rainwater collection channel (in the western part of Pitești City)



**5** – Rainwater collection channel (in the western part of Pitești City)



**6** – Rainwater collection channel (in the western part of Pitești City)



**AG 2 – Zoo rehabilitation**

Rehabilitation of the Zoo (The surface of the garden is 12 ha of which only 8 ha are arranged and 4 ha is degraded land)





**2.3.2 Zone B, Târgoviște City, Dâmbovița County**



**HIGH LEVEL CHALLENGES**








**Expansion of Green Space**

Lack of green spacey - The average per capita of green space is below the county and national average

**Landscape Improvemets**

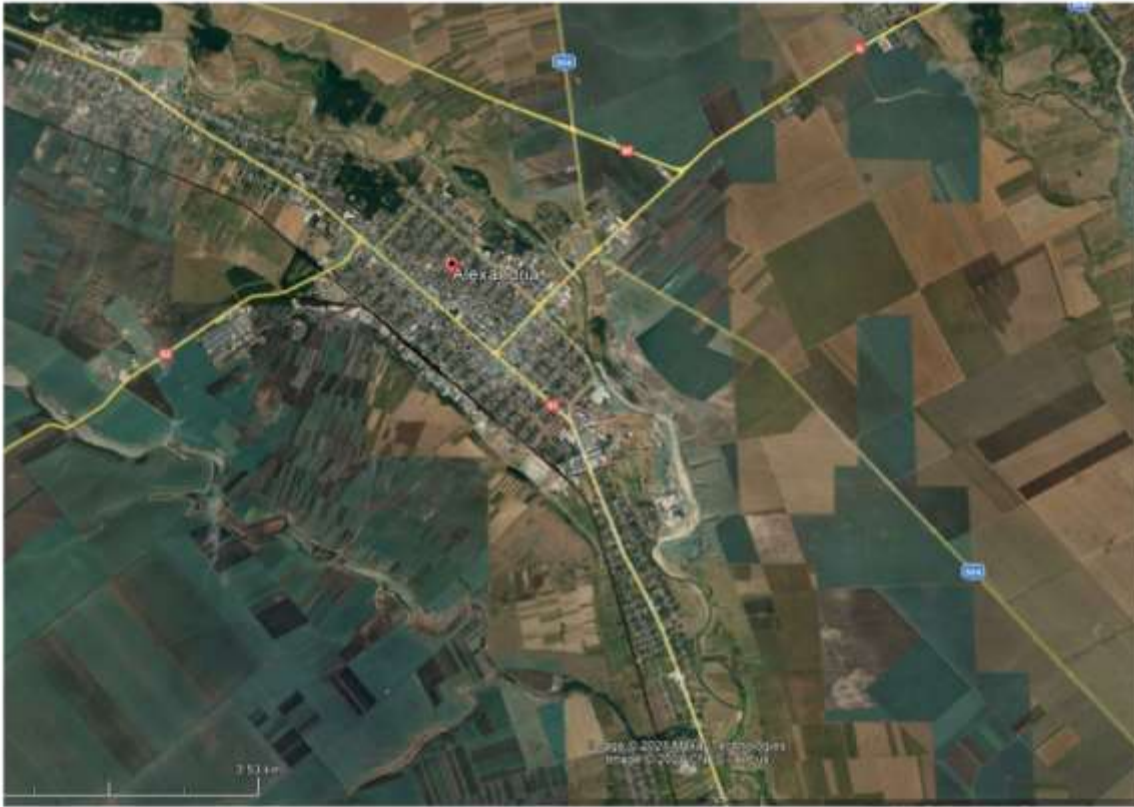
On the Ialomita river there are areas with spontaneous vegetation and the river banks are affected by erosion

**Zone B – Târgoviște City, Dâmbovița County**

Photo site visit – 22 September 2021			Project proposed	
<p><b>1 – Ialomita River (the intersection with Mihai Bravu street)</b></p> 	<p><b>2 – Ialomita River</b></p> 	<p><b>3 – Ialomita River – bank consolidation works made for road protection</b></p> 	<p><b>DB 1 – Integration of Ialomita River in Târgoviște and creation of permeable green spaces along the riverbed</b></p> <p>The project proposes:</p> <ul style="list-style-type: none"> <li>- Regularization of river</li> <li>- Expanding green spaces and creating agreement areas</li> <li>-Promenade area</li> <li>-Bikes routes</li> <li>-Creation of an island - Fantasy Island 30 ha (arranged with picnic areas, green space)</li> <li>- Facilitating water sports</li> <li>- Beaches</li> <li>- Pedestrian walkways for crossing the river</li> </ul>	
<p><b>4 – Banks of Ialomita River in the vicinity of Chindiei Lake</b></p> 	<p><b>5 – Ialomita River (the intersection with Mihai Bravu street)</b></p> 	<p><b>6 – Ialomita River (the intersection with Gimnaziului Street)</b></p> 		
				<p><b>DB 1 – Project Layout</b></p>



**2.3.3 Zone C, Alexandria City, Teleorman County**



**HIGH LEVEL CHALLENGES**

- Reduction of degraded land areas along the Vedeia River
- Floods risk reduction- Vedeia River
- expanding areas with green space and creating forest curtains to improve air quality

**Zone C – Alexandria City, Teleorman County**

**Photo site visit – 21 September 2021**

**Project proposed**



**Forest Vedeia Park**

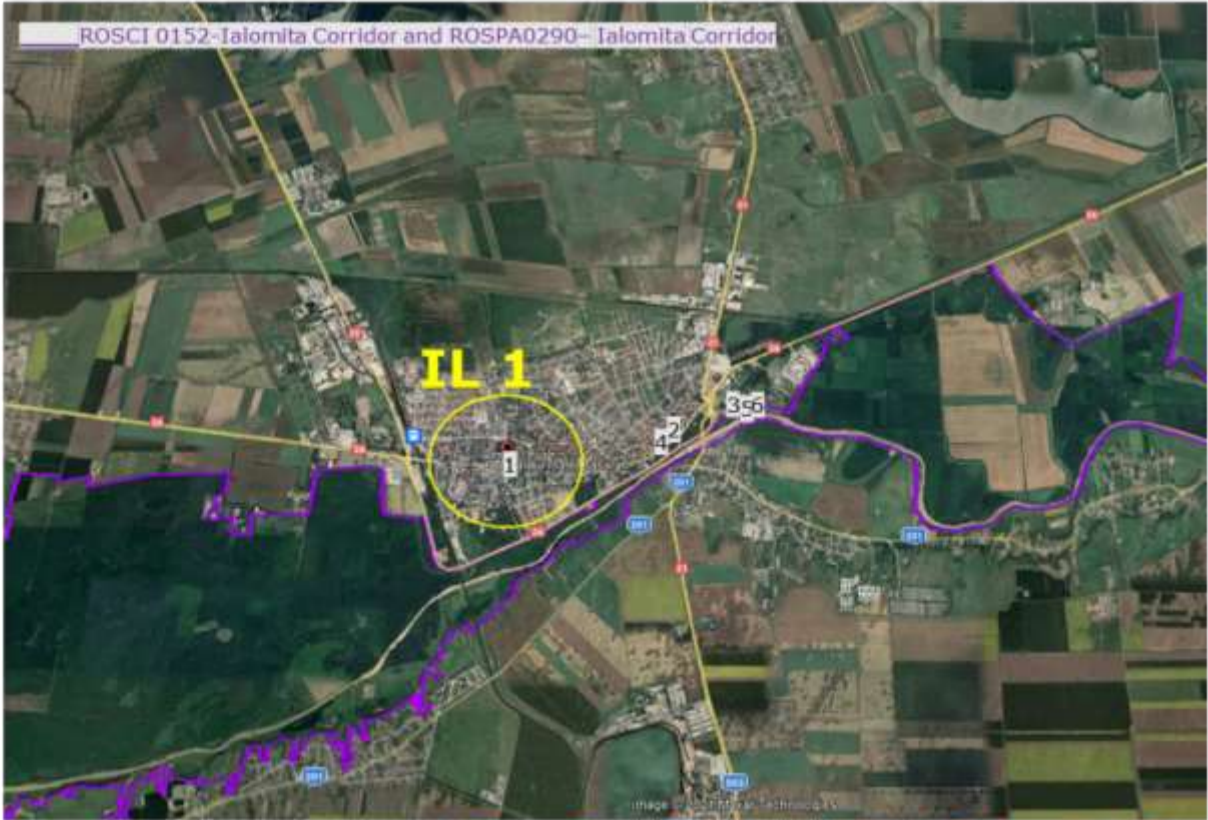







**TL1- Expended green spaces and shelterbelts creation**

**TL 2 - Rehabilitation and consolidation of the Vedeia river protection dam**

*(according to Sustainable Strategy 2014-2023)*



**2.3.4 Zone D, Slobozia and and downstream Ialomita river**

			<p><b>HIGH LEVEL CHALLENGES</b></p> <p><b>Reducing the risk of Flooding</b></p> <p>The rainwater network is undersized, old pumps, urban area flooding</p> <p><b>Improving the Water resources management</b></p> <p>The area is affected by drought, groundwater pollution</p> <p><b>Natural Protected Area</b></p> <p>Elimination/reduction of pressures on the natural protected are (uncontrolled tourism, inadequate storage of waste, use of improper bicycle access ways)</p>
<p><b>Zone D – Slobozia City, Ialomita County</b></p>			
<p><b>Photo site visit – 20 September 2021</b></p>			
<p><b>1 – Rainwater collection and discharge system</b></p> 	<p><b>2 – Intersection of Soseaua de Centera with Gura Podului Street</b></p> 	<p><b>3 – Treated wastewater discharge area</b></p> 	
<p><b>4 – Ialomita River (intersection with the Gura Podului Street)</b></p> 	<p><b>5 – Ialomita River in the vicinity of treated wastewater discharge area</b></p> 	<p><b>6 – Bank River Ialomita in the vicinity of treated wastewater discharge area</b></p> 	
		<p><b>IL 1 –Rehabilitation of Rainwater collection System</b></p> <p>Solving the deficiencies of the water infrastructure - especially of the rainwater collection system</p> <p>Rainwater retention tanks and the use of rainwater for irrigation of green spaces</p> <p><b>IL 2 – Ialomita Corridor Project</b></p> <p>The project includes:</p> <ul style="list-style-type: none"> <li>• Routes for cyclists and pedestrian paths that connect the following cities: Fetesti, Tandarei, Slobozia</li> <li>• Construction of a pedestrian passage for crossing the river</li> <li>• Camping area, picnic and agreement</li> <li>• Water transport infrastructure (boat point, recreation routes pedestrian access roads)</li> <li>• Spaces for the enhancement of flora and fauna – tourist attraction points (benches, intelligent lighting using renewable energy)</li> </ul>	



2.3.5 Zone E, Călărași City, Călărași County



**HIGH LEVEL CHALLENGES**








**Reducing the risk of Flooding**

Floods produced during heavy rainfall - in the Borcea Channel area  
Lack of a rainwater drainage system in the urban area leads to flooding of streets and homes

**Expansion of green space**

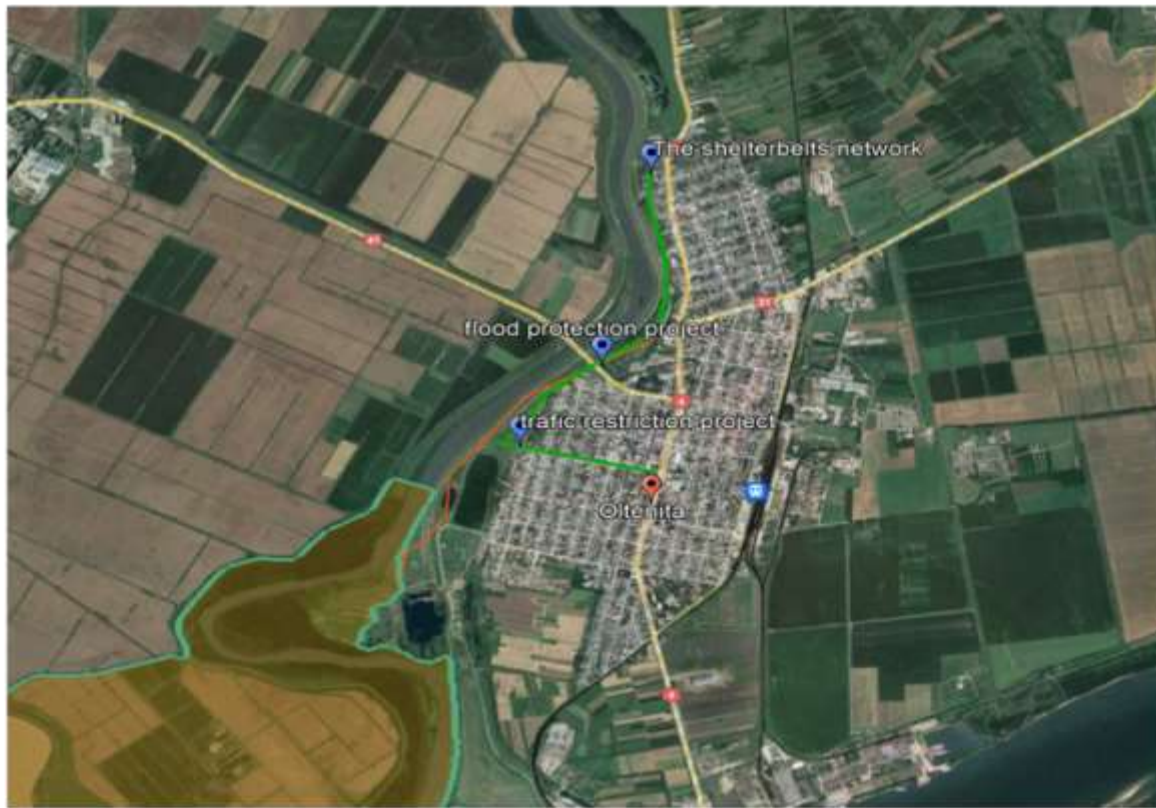
The average per capita of green space is below the county and national average.

**Zone E - Călărași City, Călărași County**

Photo site visit – 20 September 2021			Project proposed	
<p><b>1 - Iezer Lake (south part)</b> Stormwater collected from urban area is discharged in Iezer Lake</p> 	<p><b>2 - Iezer Lake (south – east part)</b></p> 	<p><b>3 - Iezer Lake shore</b> <i>Degraded land, improperly stored waste</i></p> 	<p><b>CL 1 – Iezer Lake Project</b></p> <p>Rainwater collection system for water discharge in the existing retention pond</p> <p>This also includes works to consolidate the shore of the pond, planting <b>shelterbelts</b>, landscaping of the area (in the vicinity of the proposed park in the area -that currently benefits funds through ROP)</p>	
<p><b>4 – Bank of the Borcea Channel (south-east part)</b></p> 	<p><b>5 – Bank of the Borcea Channel (north part)</b></p> 	<p><b>6 – Bank of the Borcea Channel (east part)</b></p> 		<p><b>CL2 – Green Corridors connecting Iezer Lake to Borcea Channel</b></p> <p>Green corridors connecting the southern part with the western part of the city and flood reduction works on the bank of the Borcea Channel</p>
<p><b>7 – New residential neighborhood (in the north part of the city)</b></p> 				



**2.3.6 Zone F, Oltenita, Călărași County**



**HIGH LEVEL CHALLENGES**

**Reducing the risk of Flooding**

Floods produced during heavy rainfall - Argeș River (in the west part of the city)

Lack of a rainwater drainage system in the urban area leads to flooding of streets and homes

**Air quality improvement**

The results of the air quality monitoring carried out in 2014 showed that occasionally there are exceedances of the allowed limit values for the PM10 and CO concentration.

**Zone F – Oltenița, Călărași County**

**Project proposed**

**CL 4 – Measures for reducing flood risks**

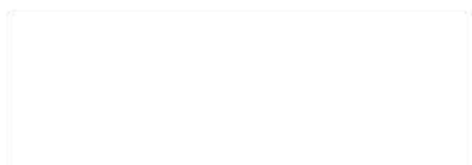
Works to reduce flood risks

Redirecting traffic from the central area, arranging pedestrian areas and green spaces to link the center to proposed agreement areas on the banks of the river Arges (in the west)

Rainwater drainage systems in the urban area (current problem: flooding of streets and houses)

**CL 5 – Air quality improvement**

Redirecting traffic from the central area, arranging pedestrian areas and green spaces to link the center to proposed agreement areas on the banks of the river Arges (in the west)






**2.3.7 Zone G, Comana, Giurgiu County**



**HIGH LEVEL CHALLENGES**  
 Reduce the main pressures that threaten the conservation status of species and natural habitats

**Zone G – Comana Park, Giurgiu County**

Photo site visit – 21 September 2021		Project proposed
 <p data-bbox="331 1774 546 1813"><b>Comana Lake</b></p>	 <p data-bbox="926 1774 1228 1813"><b>Comana Monastery</b></p>	<p data-bbox="1381 1279 1896 1347"><b>GR 1 –Improving the management of the protected area</b></p> <ul data-bbox="1381 1374 1896 1528" style="list-style-type: none"> <li>• Creating an infrastructure for non-motorized sports (eg bicycle routes)</li> <li>• Control of invasive species</li> <li>• Controlled tourism</li> </ul>
 <p data-bbox="751 2101 976 2139"><b>Neajlov Rivver</b></p>		



### 3. Photo Library – Site visits

#### 3.1 Zone E, Călărași County – September 20th, 2021



Photo – Călărași City, Călărași County, 20<sup>th</sup> September 2021

Borcea Channel



### 3.2 Zone D, Slobozia, Ialomița County – September 20<sup>th</sup>, 2021



Photo – Slobozia City, Ialomița County, 20<sup>th</sup> September 2021

Ialomita River, Wastewater discharge point





**Photo – Slobozia City, Ialomița County, 20<sup>th</sup> September 2021**

**Ialomita River (Coridorul Ialomitei – Natura 2000 site)**



Photo – Slobozia City, Ialomița County, 20<sup>th</sup> September 2021

Working meeting



Photo – Slobozia City, Ialomița County, 20<sup>th</sup> September 2021

Rainwater Collated and Discharged System



### 3.3 Zone C, Alexandria, Teleorman County – September 21<sup>st</sup>, 2021



Photo – Alexandria City, Teleorman County, 21<sup>st</sup> September 2021

Park Vedeia Site Visit



### 3.4 Zone G, Comana, Giurgiu County – September 21<sup>st</sup>, 2021



Photo – Comana, Giurgiu County, 21<sup>st</sup> September 2021

Comana Park Site Visit





Photo – Comana, Giurgiu County, 21<sup>st</sup> September 2021

Comana Park Site visit





**Photo – Comana Commubneity, Giurgiu County, 21<sup>st</sup> September 2021**

Comana Park Site Visit

### 3.5 Zone B, Târgoviste, Dambovita County – September 22<sup>nd</sup>, 2021



Photo – Targoviste City, Dambovita County, 22<sup>nd</sup> September 2021

Ialomita River





Photo – Targoviste City, Dambovita County, 22nd September 2021  
Ialomita River





**Photo – Targoviste City, Dambovita County, 22<sup>nd</sup> September 2021**

Ialomita River



### 3.6 Zone A, Pitești, Arges County – September 22<sup>nd</sup>, 2021



Photo – Pitești City, Argeș County, 22<sup>nd</sup> September 2021

#### Stormwater channel – Trivale Park

The water network is undersized, it cannot take over the entire amount of rainwater collected from the Trivale Park area and the adjacent road (west part of the city), so there are floods in the urban area.





**Photo – Pitești City, Argeș County, 22<sup>nd</sup> September 2021**

**Stormwater channel – Trivale Park**

The water network is undersized, it cannot take over the entire amount of rainwater collected from the Trivale Park area and the adjacent road (west part of the city), so there are floods in the urban area





**Photo – Pitești City, Argeș County, 22<sup>nd</sup> September 2021**

Stormwater channel – Trivale Park

The water network is undersized, it cannot take over the entire amount of rainwater collected from the Trivale Park area and the adjacent road (west part of the city), so there are floods in the urban area





**Photo – Pitești City, Argeș County, 22<sup>nd</sup> September 2021**

Working Meeting