Greening Roofs and Urban Spaces in Podgorica, Montenegro

City Climate Finance Gap Fund

Podgorica, Montenegro

CURRENT CHALLENGES AND SOLUTIONS

Podgorica is increasingly exposed to climate risks such as heatwaves, droughts, heavy rainfall, and flooding, with urban development intensifying the urban heat island effect and reducing green space. Despite the adoption of the city's Climate Change Adaptation Strategy (2016) and Biodiversity Action Plan (2017), practical implementation of green infrastructure remains limited.

To address these challenges, Podgorica initiated a prefeasibility study with Gap Fund support to explore nature-based solutions. The study focused on piloting green roofs, green façades, and opening sealed surfaces on selected public buildings and areas to enhance climate resilience.

Solutions Include:

- Installation of green roofs and façades on public buildings to reduce energy use, mitigate heat, and extend roof lifespan.
- Opening sealed surfaces and adding greenery in public spaces to support biodiversity and improve stormwater management.
- Demonstrating financial viability with positive returns from energy savings, reduced CO_2 emissions, and improved public spaces.
- Establishing a scalable model to promote broader adoption of green infrastructure across public and private sectors in Podgorica.

GREEN INFRASTRUCTURE MEASURES FOR PODGORICA

Through this intervention, the city of Podgorica will validate the effectiveness of green roofs, green façades and unsealed surfaces as a climate change adaptation and mitigation strategy, aiming at tackling urban heat islands while reducing greenhouse gas emissions and increasing energy efficiency. This model is expected to be a showcase for further scaling up to other public sector buildings and potentially also adopted by private owners, thus promoting sustainable urban development.

Green roof design for Podgorica's City Parliament

THE GAP FUND'S SUPPORT

1. Selection of three public buildings for piloting green roofs and façades.
2. Identification of three public areas with potential for opening up sealed surfaces.
3. A pre-feasibility analysis of the pilots, investment volume, and potential scaling-up of the business model to other city areas.

Sector

Green Spaces and Urban Infrastructure

Project stage

Prefeasibility

Idea — Implementation

1, 268 sq.m.
Green roofs and facades

160 sq.m.
Green pavement areas

31.551
Number of direct beneficiaries

1,804 kgCO2
CO2 emissions avoidance per annum

136,985 EUR
Investment cost

THE INTERVENTION AT A GLANCE

The intervention enhanced comfort and public service environments in public buildings, yielded significant energy (45%) and cooling energy savings (28%). The technical assistance provided a financing model for future municipal programmes.

According to the cost-benefit analysis, the installation and maintenance of green roofs negatively impact net present value (NPV). However, considering benefits like roof lifespan, noise management, and aesthetic improvements lead to a positive NPV. The investment costs will be recovered in the first year, and subsequent years show positive cash flow from energy reduction benefits exceeding maintenance costs.

BENEFITS OF THE INTERVENTION

- Environmental benefits include air quality improvement, reduction of the urban heat island effect, stormwater management and maintaining biodiversity.
- Economic benefits include enhanced energy efficiency of buildings, increased aesthetic value and catalysed budgetary savings.
- The project will also reduce noise and improve citizens' health and wellbeing.

FINANCIAL PATHWAYS

The Agency for Housing of the City Podgorica is identified as the suitable institution for implementing the proposed financial model. Leveraging its mission, legal status, and experience in energy efficiency projects, the Agency can play a pivotal role in executing the model.

Although the model operates on a revolving principle, the Agency for Housing may need stable sources of financing, including international loans, donor programmes, and EU pre-accession funds, to sustain and expand its support for energy efficiency initiatives.

PROJECT CHALLENGES

There are uncertainties on whether the Local Government will be able to allocate the required budget to implement the first pilot measures.

However, Podgorica is part of the 100 Climate Neutral Cities initiatives, which could facilitate the implementation of the proposed climate investments.

SCALE-UP POTENTIAL

The proposed financial model demonstrates a high potential for replication. By aligning with existing municipal budgeting procedures, the model could be easily replicated in other cities across Montenegro or even in neighbouring regions.

The proven success of the Montenegro Energy Efficiency Project (MEEP), with substantial energy and cost savings, provides a strong justification for scaling up this sustainable financing approach.

NEXT STEPS

To achieve the successful implementation of the project, the City of Podgorica should continue empowering the Agency for Housing in budget negotiations. It should also define clear procurement steps and establish a Project Implementation Unit for efficiency. Moreover, the city should develop an energy-saving tracking system, secure initial capitalisation and build a project pipeline, ensuring supervision.

Further, the city should enhance its adaptation planning and climate risk assessments, prioritise energy efficiency measures in all municipal buildings and continue promoting the implementation of green infrastructure as adaptation measure.

TA PARTNER AND BENEFICIARY

TA IMPLEMENTED BY

THE GAP FUND IN A NUTSHELL

Since its launch in 2020, the City Climate Finance Gap Fund provides technical assistance to cities in low- and middle-income countries to support the early preparation of climate-smart infrastructure projects, including energy, transport, waste, water, wastewater and nature-based solutions (NbS).

Find more about the City Climate Finance Gap Fund on:

For additional information, please contact:
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Summary of the pre-feasibility study on greening roofs and urban spaces in Podgorica, Montenegro

Federal Ministry for Economic Cooperation and Development
Federal Ministry for Economic Affairs and Energy
IKI International Climate Initiative
The Government of the Grand Duchy of Luxembourg, Ministry of the Environment, Climate and Biodiversity
European Investment Bank
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
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