

PERFECT

Planning for Environment and Resource eEfficiency in European
Cities and Towns

Green infrastructure Action Plan

Final Version

Bratislava Municipality Karlova Ves

Part I – General information

Project: PERFECT - Planning for Environment and Resource eEfficiency in European Cities and Towns

Partner organization: Bratislava Municipality Karlova Ves

Country: Slovakia

Nuts 3: Bratislava Region

Contact person: Zuzana Hudekova

Email: zuzana.hudekova@karlovaves.sk

Phone number: +421 2 707 11 143

Part II – Policy context

The action plan aims to impact:

- Investment for Growth and Jobs programme
- European Territorial Cooperation programme
- Other regional development policy instrument (national legislation)

Name of the policy instruments addressed:

- Operational Programme „Quality of the environment“, Priority Axis 1 and 2, the specific objective 2.1.1: Reducing the risk of flooding and negative effects of climate change
- Act No. 543/2002 Coll. on Nature and Landscape Protection (Amendment)
- Act No. 50/1976 Coll. on territorial planning and building order (Building Act) (Amendment)

Background and aim of the Action Plan

The action plan is a document providing details on how the lessons learnt from the cooperation will be exploited in order to improve the policy instruments tackled within the partner's region. It specifies the nature of the actions to be implemented, their timeframe, the players involved, the costs and funding sources (if known).

With the Bratislava Karlova Ves Action Plan we are intending to address following policies:

- The Operational Program Quality of the Environment for the 2014 - 2020 period (further on as OP)* Investment priority 2, the specific objective 2.1.1: Reducing the risk of flooding and negative effects of climate change. Especially relevant are the activities aiming on flood protection measures implemented in the urbanised landscape (residential areas of municipalities) where the green infrastructure could be supported
- Act No. 543/2002 Coll. on Nature and Landscape Protection and the Act No. 50/1976 Coll. on territorial planning and building order (Building Act) as the principle acts, that are regulating the natural elements and green infrastructure in settlements on the national level.

How the Action Plan is intending to influence these policies

Green infrastructure in urban areas is representing the complex system of the natural, semi-natural as well as man-made elements. Green infrastructure is one of the basic components of the urban and rural fabric and is particularly known for its positive effects on the quality of the environment. The multifunctionality of green infrastructure is unquestionable since it positively affects a number of areas, including the protection and promotion of biodiversity, adaptation to climate change, health, recreation, promoting of community building and economic aspects.

Identified problems and obstacles

1. On the National level, the concept of the green infrastructure is divided in the different sectorial policies without the clear definition and overlinkage. This is resulting also to the fact, that there is no one specific financing priority axes for green infrastructure, but the funding of green infrastructure is included within several priority axes. In some of the possible green infrastructure (GI) funding opportunities, these must compete with other no GI oriented projects for funds.
2. The topic of the green infrastructure is not sufficiently incorporated in the national legislation (Act No. 543/2002 Coll. on Nature and Landscape Protection and the Act No. 50/1976 Coll. on territorial planning and building order (called as Building Act). This might impact the way how the green infrastructure is tackled on the local level as well
3. The relevant policies on the local level are lacking behind the involvement of the green infrastructure, even the green infrastructure due to its multifunctionality has the potential to contribute to the achievement of the number of different other goals, e.g health, climate change adaptation etc. This fact is resulting to the difficulty to prepare successful application and obtain funding for GI projects, especially for the municipalities

Solutions

In relation to the identified problem 1

With the aim to influence the open call for projects to finance GI as priority under the Operational Program Quality of the Environment, Priority Axis 2 "Adaptation to the adverse effects of climate change with the focus on flood protection" we successfully used MAGIC matrix Guidance explaining other benefits in relation to positive influencing the local microclimatic situation, reducing dust and moderating summer heats. As result of our effort, this open call will provide funding to the sustainable urban drainage systems based on green infrastructure and fostering therefor the nature based solutions in urban areas

In relation to the identified problem 2

Through the advocacy, lobbying based on the PERFECT project results (e.g. published Guide for Municipalities, Questionnaire and SWOT) we presented the concrete proposals how to amend the Act No. 543/2002 Coll. on Nature and Landscape Protection and the Act No. 50/1976 Coll. on territorial planning and building order (Building Act) with the aim to more emphasize the nature based solutions resulting from the implementation of the green infrastructure. Based on our proposal the new

definition of green infrastructure that more accurately describes its functions and the better protection and promotion of green infrastructure in general has been approved.

In relation to the identified problem 3

Guidance for Municipalities and Action Plan of Bratislava Karlova Ves, has the model value and could serve as example how to deal with the separated green infrastructure elements in more integrated way taking into the consideration different aspects of the green infrastructure and the functions in the field of the adaptation and mitigation to the negative impact o climate change, biodiversity promotion, health, education etc.

The Guidance for Municipalities about green infrastructure and the Action Plan of Bratislava Karlova Ves will provide support for local municipalities with the preparation of strategical documents for GI as well as the proposals for funding of the GI

The Guidance for Municipalities as well as the Action Plan of Bratislava Karlova Ves, has the aim to enable better access to the funding available for the local and regional municipalities

All actions included in Action Plan of Bratislava Karlova Ves are referring to the concrete examples of different types of green infrastructure projects and providing therefore the knowledge base for possible call applications

Summarizing, the project PERFECT Green Infrastructure Strategy/Action Plan aims to improve the identified problems by the means of:

- Advocacy and lobbying activities based on the PERFECT project results that will lead to better integration of the GI issues on the national level policies and Acts
- Optimizing the financial support of Operational Programme „Quality of the Environment“ specific objective 2.1.1: Reducing the risk of flooding and negative effects of climate change to support the green infrastructure measures
- Helping the Municipalities to apply for new projects – especially in the field of sustainable rainwater management, adaptation to climate change and biodiversity with means of nature based solutions
- Supporting the Municipalities with the preparation of the green infrastructure strategical documents
- Enabling the realization of the GI projects on the local level by “paving” the way for other Slovak Municipalities based on the experiences and practical solutions gained by the realization of the actions in 4 priorities areas proposed the Action Plan of Bratislava Karlova Ves

Self Defined Performance Indicator:

20% increase in planned and implemented GI, benefiting from the PI based on additional GI uses through:

- Development of GI Strategy and Management Plan to be used as Guidance document with other Slovak municipalities
- Improved definition of OP policies in relation to GI
- Awareness raising of MA through interregional learning via stakeholder group
- Improve legal requirements for adaptation planning at local level
- Better integration of, and linkages between, GI issues to recognise multi-functionality
- Awareness-raising of increased international competitiveness through improved GI and better social cohesion

Role of the stakeholders

We cooperated very actively during the whole process of Green Infrastructure Strategy/Action Plan of Bratislava Karlova Ves preparation the with different kind of our stakeholders and this cooperation will remain during the second phase of the project Perfect as well. The stakeholders from the Ministry of the environment (Policy owners) were involved during the discussions about the green infrastructure measures as priorities for the funding of the green walls and green roofs through the Operational Programme "Quality of the Environment". Our stakeholders from the academic sphere were involved in the preparation of the detailed design requirements fostering the biodiversity promotion etc.

Exchange of experience – good practices that influenced the Action Plan:

- Green Agenda' for City Amsterdam
- Initiative Amsterdam "Rainproof"
- Consultations about the rainwater modelling (Waternet)
- Study visits and peer groups meetings (e.g. Betondorp in Amsterdam)
- Good practices from partners (e.g. Graz Stockholm trees planting)
- Magic Matrix
- Guidance for Municipalities about green infrastructure
- Green Infrastructure Partnership establishment (as running by TCPA),
- Handbook on participatory planning (Municipality of Ferrara);
- Factsheets and Expert papers (Town & Country Planning Association);
- Periodical Newsletters (whole partnership)

Part III – Details of the actions envisaged

Actions overview:

Based on the analytical part of the GI Strategy Karlova Ves we are proposing the 4 Priorities with the different detailed actions:

Priority 1

„Green infrastructure and climate change (including the sustainable rainwater management, built environment, public spaces etc)“

Actions:

- Green roofs and green walls
- SUDS - Rainwater permeability, Rainwater gardens and other forms of infiltration, Rain water capturing and secondary use (watering, sanitary)
- Increasing of Green infrastructure areas and elements with the aim to decrease summer heats, including the shadowing

Priority 2

„Green infrastructure and biodiversity“

Actions:

- Near-nature green space management (including flowering meadows)
- Improvement of the connectivity of the GI
- Protection of species
- Invasion plants

Priority 3

“Green infrastructure and resilience, social aspect and health”

Actions:

- School yards, community gardening,
- „Edible“ plants fruit trees
- Participatory planning of the open green spaces and squares

Priority 4

“Green infrastructure and planning, governance, education and information”

Actions:

- GIS project for planning and management of the green infrastructure
- Platform for Green infrastructure
- Educational programmes, public events
- Info-centre for local community

Priority 1

„Green infrastructure and climate change (including the sustainable rainwater management, built environment, public spaces etc)“

ACTION 1: Green roofs and green walls

1. The Background

The main effects of green roofs are water evaporation, shade for the vegetation, the ability to reflect solar radiation, power consumption for the process of photosynthesis, etc. Green roofs influence rainfall retention in several ways. A comparison of the "classic" roof with a green roof highlights not only a significant overall decrease in the water runoff but also the differences in its distribution, with intense rain runoff from the green roof being delayed to the end of the rainfall. Green roofs can also effectively promote biodiversity, for example, to integrate innovative elements and places that will become a haven for the appropriate species, etc.

Green facades and green walls

Green facades can be divided into 3 main groups. These are facades with either vertical greenery going down the prefabricated structure or climbing directly on the facade. The third group are "green walls," which are formed not only by the greenery but also have a special substrate and irrigation built into the green walls. The effectiveness but also the acquisition and operating costs differ based on this basic breakdown. In addition, the cooling effect varies on the facade itself, particularly if the lower part of the building is naturally shaded. Moreover, the special green walls could be placed in open spaces (standing alone).

Role of the stakeholders, relevant sources from the project Perfect Consortium and other EU projects

The example from Amsterdam (especially the presentation during the 2nd PSC) about the 'Green Agenda' for City Amsterdam gave inspiration as a good practice for proposing this action (we proceeded with partner by email exchanges especially oriented to the promotion of biodiversity while planning green roofs and green walls as well).

Moreover, this action is also based on several EU projects aiming on the green infrastructure and "green measures" e.g. EU funded project GrowGreen <http://growgreenproject.eu/> and RE-Nature project <http://renature-project.eu/> and others.

2. Action description

(please list and describe the actions to be implemented)

Step 1

Identify the possible localities and areas for the green roofs and green walls and facades installations, draft the principal requirements towards the biodiversity promotion (for the existing roofs, especially the construction statics evaluation is the principal condition).

Step 2

Design the green roofs and green walls in the selected facilities.

Step 3

. Realization of the – first pilot realizations on the Municipality Roof and green walls (the construction statics evaluation does not allow to build the green roof) on the Kindergarten Kolískova 14 and Elementary school ZŠ.Dubčka Majerníkova 62..

Step 4

Monitoring and evaluation.

3. Players involved

(please indicate the organisations in the region who are involved in the development and implementation of the action and explain their role)

- PERFECT team
- Professionals (designers, building construction statics)
- Professionals from the city of Bratislava working on GI
- Facilities management

4. Timeframe

Step 1 and 2: semester 1&2 2019

Step 3: 2020-2021

Step 4: 2021-2022

5. Costs

(if relevant)

- Municipality Roof – app. 44.000 EUR
- Kindergarten Kolískova 14. – app. 17.000 EUR /green wall

6. Funding resources

Programme LIFE, The EEA and Norway Grants ¹, Operational Programme „Quality of the environment“, Bratislava Region subsidies

¹ The EEA and Norway Grants are funded by Iceland, Liechtenstein and Norway. The Grants have two goals – to contribute to a more equal Europe, both socially and economically – and to strengthen the relations between Iceland, Liechtenstein and Norway, and the 15 beneficiary countries in Europe. More information: <https://eeagrants.org/about-us>

Priority 1

„Green infrastructure and climate change (including the sustainable rainwater management, built environment, public spaces etc)“

ACTION 2: SUDS - Rainwater permeability, Rainwater gardens and other forms of infiltration, Rain water capturing and secondary use (watering, sanitary)

1. The Background

Urbanized environment is typical with high share of the area with impermeable surface that may have significant adverse effects on natural water circulation in the landscape. These effects often exceeding the boundaries of the affected residential areas with impermeable surface suffer from strong overheating during hot periods, which can cause significant deterioration of the local microclimate and thus negatively influence local population.

The pluvial flood protection in urban environment is supported by the sustainable urban drainage systems (SUDS). On the other hand, SUDS could improve the natural values and biodiversity by the creation eco-corridors and multifunctional zones helping to maintain or restore healthy ecosystems, e.g. rain gardens, collection ponds, soaking elements e.g. soaking strips, infiltration trenches as a part of green infrastructure have the great potential.

However, for the successful realization of the green infrastructure sustainable urban drainage system (SUDS) it is crucial to have the results of the rainwater modelling, because only such model could provide the good baseline information for further green infrastructure interventions, e.g. it will show the concrete localization where to plant trees with the aim to aid in soaking up excess water in (especially in terrain depreciation and other low areas that become saturated after storms and there is a risk of flash flood) and about the right localization of green infrastructure SUDS elements such as raingarden, infiltration swales and strips, green roofs, green pavements, etc.

Role of the stakeholders, relevant sources from the project Perfect Consortium and other EU projects

Good practices from Amsterdam, especially different adaptation options in relation to the SUDS e.g. green roofs, rainwater garden, swales etc. belonged to the most useful for us to develop this action. All of these Amsterdam SUDS examples were presented in the Geertje Wijten presentation "Using the multiple benefits of green while densifying the city". Moreover, the brochure "Amsterdam Rainproof" distributed during the PSC4 in Graz by our Amsterdam partners serve as excellent inspiration as well.

Municipality of city Bratislava along with our expert visited and participated on the presentation of rainwater modelling in Amsterdam city (done by the company Waternet) as part of the Amsterdam Rainproof Initiative in June 2019. This presentation was organized in the frame of the peer work with our Amsterdam partner and through it we got a lot of inspiration. Based on the Amsterdam experience, where the modelling was used and proved by the realization of the Betondorp sustainable rainwater management using the nature based solutions, we would like to follow such approach and realize the Green infrastructure sustainable urban drainage system (SUDS) based on our model.

In the future we would like to follow with the rainwater modelling work for the whole densely populated area of our Municipality (actually only one part is covered by the pilot rainwater model).

The networking with other EU funded projects aiming on the green infrastructure and "adaptation to climate change" e.g. EU funded project ThinkNature served as the inspiration. We used the opportunities during the European Dialogue on nature-based solutions we participated last year (A Coruna <https://www.think-nature.eu/news/thinknature-brainstorming-forum-symposium-and-the-clustering-event/>) to get more familiar with SUDS within different EU Cities

We cooperated very actively with different kind of our stakeholders and this cooperation will remain during the second phase of the project Perfect as well. The stakeholders from the Ministry of the environment (Policy owners) were involved during the discussions about the green infrastructure measures as priorities for the funded of the green walls and green roofs through the Operational Programme "Quality of the Environment".

2. Action description

(please list and describe the actions to be implemented)

Step 1

Identify the possible localities and areas for the infiltration of water based on our rainwater modelling.

Step 2

Design the SUDS blueprints and obtain all the relevant permissions.

Step 3

Realisation of the pilot SUDS – first pilot realizations of the raingarden in the open spaces Veternicová, pedestrian zone Pribišova – infiltration swales and strips costs, rainwater capturing and reuse in the Kindergarten Kolískova 14 and Elementary School ZŠ A.Dubčeka, Majerníkova 62 and realizations of the raingarden in the public open spaces "Kaskády Park".

Step 4

Monitoring and evaluation.

- PERFECT team
- Professionals (designers, rainwater flows evaluation experts)
- Professionals from the city of Bratislava working on GI
- Facilities management

4. Timeframe

Step 1 and 2: semester 1&2 2019

Step 3: 2019-2021

Step 4: 2021-2022

5. Costs

(if relevant)

- Open spaces Veternicova – infiltration swales and strips costs app. 17.500 EUR. Pedestrian zone Pribišova - infiltration swales and strips costs, rainwater capturing and reuse app. 15.000 EUR.
- Rainwater capturing and reuse in the Kindergarten Kolískova 14, app. 51.000 EUR.
- Rainwater capturing and reuse in the Elementary School ZŠ A.Dubčeka, Majerníkova 62 – 67.000 EUR.
- Public open spaces "Kaskády Park" – system of rainwater gardens placed based of the rainwater model - app. 20.000 EUR

6. Funding resources

Programme LIFE, The EEA and Norway Grants 2,, Operational Programme „Quality of the environment“, Bratislava Region subsidies.

Priority 2

„Green Infrastructure and biodiversity“

² The EEA and Norway Grants are funded by Iceland, Liechtenstein and Norway. The Grants have two goals – to contribute to a more equal Europe, both socially and economically – and to strengthen the relations between Iceland, Liechtenstein and Norway, and the 15 beneficiary countries in Europe. More information: <https://eeagrants.org/about-us>

ACTION 1: Near-nature green space management (including flowering meadows)

1. The Background

(please describe the lessons learnt from the project that constitute the basis for the development of the present Action Plan)

The loss of biodiversity is the matter of highest concern. Biodiversity provides numerous ecosystem services that are crucial to human well-being at present and in the future, based on the different reports, biodiversity has declined by more than a quarter in the last 35 years³.

Despite the great potential of the green infrastructure to benefit biodiversity and to facilitate ecosystem functions and services, cities are often not sufficiently taking/using the opportunities given in different sectors, especially in the field of the green spaces maintenance, sustainable construction and rainwater management, as well as the urban design and planning.

Enhancement of natural processes by fostering nature based solutions and maintenance of greenery in a manner close to nature with pesticide-free management is of great importance and can help expand and enhance the biodiversity and natural value of green infrastructure areas. Renaturation and protection of watercourses with functional or shoreline vegetation, diversification of the land cover structure, planting of non-forest solitary trees or groups of trees and alleys, increasing the area of permanent grasslands, greening of agricultural land boundaries (edges of the plots, the boundary between arable land and road), etc., can contribute to the positive structural character of green infrastructure.

The principles of near nature green space management will be applied especially in the lawnmowing. The creation of flowering meadows, mosaic or altered (reduced) mowing regimes can significantly contribute to protect biodiversity, provide a shelter, corridor, and food for a variety of animals, including pollinators and the added value of such a solution is the increased visual attractiveness of the area for its users.

Role of the stakeholders, relevant sources from the project Perfect Consortium and other EU projects

The near nature management of greenspaces in Bratislava Municipality Karlova Ves started with the first steps already in 2016 with the installation of the „insect hotels“, the first model differentiated lawn moving etc. The inspiration was based as well as on the PERFECT project factsheet about the Green infrastructure and biodiversity (<https://www.interregeurope.eu/perfect/library/>).

There was also some exchanges with previous and actual EU funded projects (project Capital of biodiversity (<https://www.capital-biodiversity.eu/2.html>), ThinkNature (<https://www.think-nature.eu/>) and others. We presented our approach during the PERFECT meetings and discussed with several partners.

We cooperated very actively with the stakeholders from the universities (especially Faculty of horticulture of the Slovak University of agriculture in Nitra) as well as with the local NGOs (BROZ <https://broz.sk/?lang=en>, Živica <https://mestske-vcely.sk/> REC Bratislava www.recbratislava.sk and others).

2. Action description

(please list and describe the actions to be implemented)

³ http://wwf.panda.org/about_our_earth/biodiversity/threatsto_biodiversity/

The differentiated greenspaces management has the aim to optimise maintenance by taking into consideration the prevailing function of the individual green spaces (recreational, representative) see the Action 1 GIS project about the Urban Green Infrastructure planning under the priority 4 (described further).

Step 1

Based on the Urban Green Infrastructure planning and monitoring (action 1, priority 4) identify the relevant green spaces, where flowering meadows would be created and mosaic or altered (reduced) mowing regimes established, insect hotels and shelter for other species (e.g. hedgehogs) realised. The principles of near nature green space management will be applied especially in the lawnmowing. The creation of flowering meadows, mosaic or altered (reduced) mowing regimes can significantly contribute to protect biodiversity. provide a shelter, corridor, and food for a variety of animals, including pollinators and the added value of such a solution is the increased visual attractiveness of the area for its users.

Step 2

Planning and design activities. Preparation of detailed "Plan of the near-nature green space management in Karlova Ves" with description of individual activities.

Step 3

Realization of the activities described in the "Plan of the near-nature green space management in Karlova Ves". Communication and information activities.

Step 4

Monitoring and evaluation.

- PERFECT team
- Professionals (architects, landscape architects, ecologists, etc.)
- Professionals from the city of Bratislava working on GI
- Greenspace management and maintenance

4. Timeframe

Step 1 and 2: semester 1&2 2019

Step 3: 2019-2021

Step 4: 2021-2022

5. Costs

(if relevant)

App. 10.000 EUR

6. Funding resources

Programme LIFE, Bratislava Region subsidies, own resources.

Priority 4

"Green Infrastructure and planning, governance, education and information"

ACTION 1: Green Infrastructure Partnership - Platform for Green infrastructure

1. The Background

A multi-stakeholder platform will support the understanding and promotion of green infrastructure (GI) with the aim to foster nature based solutions and contribute to the different challenges of the further development (loss of biodiversity, climate change etc.) with the aim to secure the quality of life for urban populations.

Role of the stakeholders, relevant sources from the project Perfect Consortium and other EU projects

The PERFECT stakeholders' group has been created at the beginning of the PERFECT project implementation. Actually, the stakeholders' group is regularly up/dated and the members have a different level of knowledge and are focusing from different point of view to the issues of the green infrastructure in urban areas. The group of the stakeholders is regularly approached especially during the process of the developing of the strategic document Strategy of Green infrastructure/Action Plan on local level. The regular meetings, discussions and information exchange was organized on regular bases during the first phase of the PERFECT project implementation and as the platform will be running not only during the second phase of the project but on permanent base.

We gained the inspiration and the practical information about how to run the similar body during the 1st PSC in London, where the model of „The Green Infrastructure Partnership“ was presented by Mrs. Julia Thrift.

2. Action description

(please list and describe the actions to be implemented)

The platform for green infrastructure will serve as the continuous dialogue platform in all issues of the GI in Slovakia, will steer dialogue through forums and debates

- identify regulatory, economic & technical barriers
- foster collaboration at local, regional, national & EU levels
- develop synergy with other issues and topics (climate change, health etc.)

Step 1

Analysis of the stakeholders already involved in the actual stakeholder's group, identification of activities and working groups with similar scope.

Step 2

Establishing the permanent platform with the ToR, goal, mission and activities.

Step 4

Monitoring and evaluation of the activities.

4. Timeframe

Step 2: semester 2019

Step 3: 2019-2021

Step 4: 2021-2022

5. Costs

(if relevant)

Administration costs and costs for refreshment: 300 EUR / year

6. Funding resources

own resources

Priority 4

"Green infrastructure and planning, governance, education and information"

ACTION 2: GIS project about the Urban Green Infrastructure planning and monitoring

1. The Background

(please describe the lessons learnt from the project that constitute the basis for the development of the present Action Plan)

The Bratislava Municipality Karlova Ves is using the Geographical Information system (GIS) for the as interactive map for its habitants as well as effective tool for classification and management of green spaces. Bratislava-Karlova Ves has already the layers containing the surfaces of the lawns and the trees inventory (cadastre). However, the relevant classification and evaluation of the Ecosystem Services (ES) is not included in the geodatabase, as well as other GIS maps covering the issues such as TRees canopy coverage, accessibility of the greenspaces for the inhabitants and others.

Role of the stakeholders, relevant sources from the project Perfect Consortium and other EU projects

The idea of such GIS layers and geodatabase is the result of the project "Tools for Planning and Evaluating Urban Green Infrastructure: Bicester and Beyond" presented during the study visit of the First Meeting of the Perfect. Also we discussed this option with our partners from Ferrara and the inspiration we gained also learning about the experience of partners in using spatial mapping.

We cooperated very actively with the stakeholders from the universities (especially Faculty of horticulture of the Slovak University of agriculture in Nitra). Such approach has been discussed with the stakeholders from the Ministry of the Environment, department of Nature protection and the Ministry of construction with the aim provide the exemplary GIS about the GI also for other Slovak Municipalities.

2. Action description

(please list and describe the actions to be implemented)

The database on Green Infrastructure will serve as effective tool for planners, public decision-makers, technicians and management in the Municipality. It will serve for professional as well wide public (citizens).

Step 1

Define the methodology for data structure, modification of the GIS data structure with new classification of green areas in order to include Ecosystem Services and functions.

Selection of Ecosystem services and functions of GI:

- a. Provisioning services and regulation and maintenance services, essential for the quality of city life, such as air quality improvement, noise reduction, temperature mitigation, sustainable urban rainwater management.
- b. Promoting biodiversity

- c. Recreational services for inhabitants, educational, teaching and sport activity, but also touristic and aesthetics value
- d. Aestitical value

Step 2

Based on the methodology – implementing the detailed assessment of the existing GI.

Step 3

Design and development of a graphical interface before the use from external users. Communication and informational activities.

Step 4

Monitoring and evaluation

- PERFECT team
- Professionals (GIS experts,
- Professionals from the city of Bratislava working on GI
- Facilities management

4. Timeframe

Step 1 and 2: semester 1&2 2019

Step 3: 2019-2021

Step 4: 2021-2022

5. Costs

(if relevant)

Human resources costs

6. Funding resources

own resources



ANNEX 1:

Request for pilot action:

Infiltration swales/raingarden systems in the public open space “Kaskady Park”

approved by JS Interreg Europe on 17/03/2020



Request for pilot action

IMPORTANT: Before completing the template, the lead partner should first check the idea of a pilot action with their Policy Officer in the Joint Secretariat.

Pilot actions are implementation-related activities dedicated to testing a new approach. This usually refers to the transfer of existing practices between partner regions. But it can also relate to a new initiative jointly designed by the partner regions during phase 1 and jointly implemented in phase 2. As reflected in the present form, pilot actions are possible under Interreg Europe under strict conditions only, and the description provided in the form should be as detailed and as clear as possible.

A request for a pilot action must be submitted to the programme as soon as it is ready and by the end of phase 1 at the latest. It will then be assessed by the Joint Secretariat which may require further clarifications. In case the pilot action meets the programme’s requirements, the Joint Secretariat will recommend it for approval to the Monitoring Committee. If approved, the application form will be updated through a ‘request for change’ procedure. Further information can be found in section “4.2.2 Phase 2 – monitoring of the action plan implementation” in the programme manual.

Project Acronym:	PERFECT - Planning for Environment and Resource eFFiciency in European Cities and Towns
Project Index (PGI):	PGIOI983
Title of the pilot action	Infiltration swales/raingarden systems in the public open space “Kaskady Park”
Policy instrument(s) addressed:	The pilot action is addressing 2 instruments: <ul style="list-style-type: none"> • Operational Programme „Quality of the environment“, Priority Axis 1 and 2, the specific objective 2.1.1: Reducing the risk of flooding and negative effects of climate change • Act No. 543/2002 Coll. on Nature and Landscape Protection (Amendment)
Partner(s) concerned:	Bratislava Karlova Ves Municipality
Country (countries):	Slovakia
Date of request:	22.10.2019



Pilot action summary (information to be published in case of approval):

Please summarise in one sentence the pilot action requested.

The pilot action is dedicated to testing how the green infrastructure can solve the problems related to the negative impact of climate change (heavy rainfall) by the means of nature-based solutions and promotion of the biodiversity. For the first time (not only in the city of Bratislava, but national wide) we will be testing the complex approach how the use the green infrastructure to help the attenuation of the climate change negative impacts in the terms of expected heavy rain. The complexity is given to the fact, that we have the model of the flow paths and the dynamic simulation of flooding extent, water depth and flow velocities of the area, and in accordance to this model, we have chosen the pilot area where the new green infrastructure elements will be created, e.g. the new system of the raingardens, infiltration swales and strips will be realized. After the construction, the evaluation the effectiveness will be executed, both by modelling of the new situation and the terrain observations. The results will be widely disseminated by different means. One of them is the cooperation with the Union of Slovak cities and Municipalities, where this pilot will be promoted during the annual and special event dedicated to the cities and Municipalities. The cooperation with the policies instrument's owner, the Ministry of the Environment of Slovak Republic will occur in the frame of the specialized Working group on green infrastructure and the National working group on biodiversity, where we are taking part as member and therefore, we have the possibility to inform and influence these policies development itself.



A. Relevance of the request

A.1 Nature of the pilot action

Please describe what will be tested in the region? What is the precise nature of the activities envisaged?

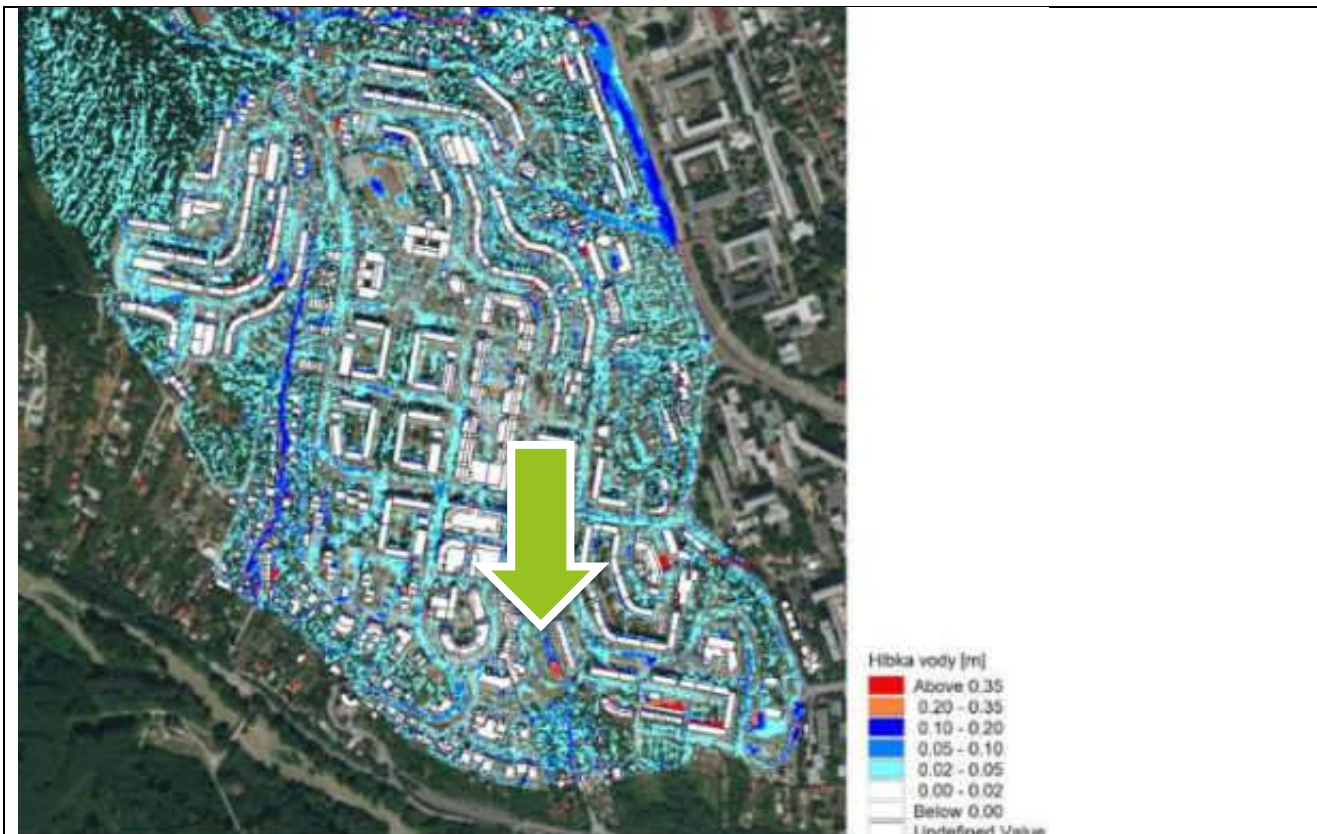
Context

Urbanized environment is typical with high share of the area with impermeable surface that may have significant adverse effects on natural water circulation in the landscape. The pluvial flood protection in urban environment is supported by the sustainable urban drainage systems (SUDS). SUDS could improve the natural values and biodiversity by the creation eco-corridors and multifunctional zones helping to maintain or restore healthy ecosystems, e.g. rain gardens, collection ponds, soaking elements e.g. soaking strips, infiltration trenches as a part of green infrastructure and therefore have the great potential.

The precondition for the successful realization of the sustainable urban drainage system (SUDS) is to have the results of the rainwater modelling, because only such model could provide the good baseline information for further green infrastructure interventions, e.g. it is showing the concrete localization where to plant trees with the aim to aid in soaking up excess water and about the right localization of green infrastructure elements such as raingarden, infiltration swales and strips, green roofs, green pavements, etc.

Nature of the pilot action

The proposed pilot action would represent the first pilot realizations of the infiltration basins/raingarden systems in the public open space in "Kaskady Park" in settlement Dlhé Diely in Bratislava-Karlova Ves Municipality. This locality belongs to the most problematic localities based on the rainwater model (above 35cm level of rainwater in the modelled rainfall 31 mm/ 30 min. - the green arrow is showing the locality on the model map).



Infiltration basins are vegetated depressions designed to store runoff on the surface and infiltrate it gradually into the ground. They are dry except in periods of heavy rainfall.

Infiltration basins will be integrated into an existing surrounding greenspace and will be planted by different ornamental but preferably domestic plants that will improve their visual appearance and provide habitats for wildlife. They will increase soil moisture content and help to recharge groundwater, thereby mitigating problems of possible flooding.

The green infrastructure (GI) is one of the basic components of the urban and rural fabric and is particularly known for its positive effects on the quality of the environment. The multifunctionality of green infrastructure is unquestionable since it positively affects a number of areas, including the protection and promotion of biodiversity, adaptation to climate change, health, recreation, promoting of community building and economic aspects.

In the proposed pilot project, the nature based solutions applied by the use of the infiltration basins will (according to Magic Matrix Guidelines¹) support various functions, especially they will help to mitigate the risk of floods in urban settlements, strengthen the resilience of ecosystems, mitigate the impact of urban heat islands and in the same time they will promote the biodiversity and increase the aesthetical experience.

¹ https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1526373149.pdf



Who will be the main beneficiaries of the pilot action?

Main beneficiaries of the pilot action are:

- Local inhabitants of district Bratislava-Karlova Ves Municipality, settlement Dlhe Diely
- Youth and children from the surrounding schools
- Visitors of the park
- Urban planners and landscape architects – as possible project multipliers
- Wide public

The additional beneficiaries from different other cities and municipalities in Slovakia based on the replicability of this pilot action (e.g. we started already some cooperation with Kosice city in this sense)

A.2 Compliance with the programme requirements

Please explain further how the pilot action complies with the programme's requirements in terms of:

A.2.1 Policy relevance

How will the pilot action contribute to improving the policy instrument addressed in the action plan? (Pilot action must be part of the action plan of the concerned region)

The pilot action of Bratislava Karlova Ves Municipality, has the model value and could serve as example how to implement the green infrastructure with the aim to solve the problems related to the negative impact of climate change (heavy rainfall) by the means of nature-based solutions and to promote the biodiversity.

The Operational programme "Quality of the Environment" as the policy instrument addressed is in its priority axis the sustainable rainwater management through the nature-based solutions.

Our pilot project will provide the knowledge base and support for local municipalities (as the possible applicants) with the preparation of similar GI projects as well as the proposals for funding of the GI.

The pilot action is a full part of the action plan, it is included under the priority 1.

Investing in pilot action with such a visible effect in open public space is the most valuable action, producing sustainable long-term effects. The benefits gained by the beneficiaries of this project will directly reflect in the quality of life of the local community in settlement Dlhe Diely. After completing financing by Interreg Europe the basic maintenance will be provided by means of Bratislava-Karlova Ves Municipality but the local community will be involved in different voluntary actions through the program of building green community in Karlova Ves as a part of Green Infrastructure Action Plan.

The pilot will provide the knowledge base and support for municipalities to prepare similar projects and this will be enabled through the dissemination activities (e.g. along with the Union of Slovak cities and Municipalities)



- Moreover, actually, the revision of the OP Quality of the environment is on the place. The cooperation with the policies instrument's owner, the Ministry of the Environment of Slovak Republic will occur in the frame of the specialized Working group on green infrastructure and the National working group on biodiversity, where we are taking part as member and therefore, we have the possibility to inform and influence these policies development itself. Even the meetings of both working groups are organized by the policy owner – the Ministry of the Environment of Slovak Republic, it is expected that such meetings will be organized at least twice per year. The principal aim of the working group for green infrastructure is to provide advises to the policy owner about the details and technicalities relevant to the call for projects. We are lobbying (in general) towards the systematic approach and stressing the importance to place the adaptation measures in appropriate location, where the impact of such constructed adaptation measure will be maximized. The condition for such approach is the relevant vulnerability assessment to the negative impact of climate change – where the exposure represented by the models and simulations is one of the precondition.

A.2.2 Durability

How will the results of the pilot action be evaluated? What are the measures envisaged to ensure its durability and / or generalisation in case of success? These actions should also be reflected in the work plan (section B).

After the construction, the evaluation the effectiveness of our approach will be executed, both by modelling of the new situation and the terrain observations. Considering the evaluation, we are counting on the cooperation with the modelling provider, academic institutions, e.g. Faculty of Natural sciences experts as well students. The results will be widely disseminated by different means, publishing in the specialized magazines, in the cooperation with the Union of Slovak cities and Municipalities, where this pilot project will be promoted during the annual and special event dedicated to the cities and Municipalities. Our approach used through the pilot project will be presented on the specialized event organized by the National Platform for the Covenant of Mayors, where the consultation to the possible applicants from the cities and Municipalities will be provided.

The durability of the constructed SUDS with the help of green infrastructure is ensured by the regular maintenance provided by the specialized services of the Municipality Bratislava Karlova Ves. There is an open call for funding for SUDS through the Operational programme Quality of the environment (until the availability of the dedicated amount of available funding for this concrete programme priority)

In general, Bratislava Karlova Ves Municipality itself is intending to apply for funding to OP and other relevant sources (e.g. the granting programme from the Bratislava self-governing Region) to finance further SUDS interventions based on the results of the pilot action.



A.2.3 Interregionality

How is the pilot action linked to the interregional exchange of experience process? How does it relate to knowledge / practices learnt from other project partners?

Good practices from Amsterdam, especially different adaptation options in relation to the SUDS e.g. green roofs, rainwater garden, swales etc. belonged to the most useful for while developing this pilot action. All of these Amsterdam SUDS examples were presented in the Geertje Wijten presentation “Using the multiple benefits of green while densifying the city” during the project partner’s meeting PSC3 in Ljubljana. Moreover, the brochure “Amsterdam Rainproof” distributed during the PSC4 in Graz by our Amsterdam partners served as excellent inspiration as well.

Along with our expert we visited and participated in person on the presentation of rainwater modelling in Amsterdam city (done by the company Waternet) as part of the Amsterdam Rainproof Initiative in June 2019. This presentation was organized in the frame of the peer work with our Amsterdam partner and we got a lot of inspiration through it. Based on the Amsterdam experience, where the modelling was used and proved by the realization of the Betondorp sustainable rainwater management using the nature-based solutions, we would like to follow such approach and realize the green infrastructure sustainable urban drainage system (SUDS) based on our pilot model.

The Amsterdam approach in its complexity, starting from the “modelling”, than “implementation of measures” “terrain observations” and at the end of this project circle the “evaluation of the implemented measures” and the possible adjustments as we learn from the “Betondorp” example will be tested and adapted to our local context.

A.2.4 Additionality

Why can the pilot action not be financed by the policy instrument addressed or by other local / regional / national funds?

Due to the limited resources allocated for different local / regional and national funds this pilot action cannot be financed through other projects. The proposed pilot action perfectly fit to the logic of our project PERFECT as it is built on experiences gained from our project partners and it is based on one of the external expertise generated in the frame of the project (rainwater model).

Actually, even the sustainable rainwater management through nature-based solutions (SUDS) could be financed through the OP Quality of the environment. However in many cases, the constructed SUDS are lacking behind the real potential being placed and constructed not on correct places and areas, due the missing analytical work, preliminary assessments and modelling. Such complex approach as we are implementing through our pilot action has been not financed so far



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B. Planned activities

Please describe precisely the different activities to be implemented for the pilot action during each semester of phase 2.

PHASE 2
Semester 1
Identification of the possible localities and areas for the infiltration of water based on our rainwater modelling. Design the SUDS blueprints and obtain all relevant permissions.
Main outputs : <ul style="list-style-type: none">- Design the SUDS blueprints.- All relevant permissions obtained (e.g. providing the announcement of the terrain works and getting feedback from the Construction office, obtaining the official statement from the specialized department of the District office).
The responsibility of the carrying out of all activities is the partner staff
Semester 2
Realization of the pilot SUDS – first pilot infiltration swales/raingarden systems in the public open space “Kaskady Park”.
Main outputs: <ul style="list-style-type: none">- infiltration swales/raingarden systems in the public open space “Kaskady Park”.
The responsibility of the carrying out of all activities is the partner staff
Semester 3
Monitoring and evaluation. The evaluation the effectiveness of such approach will be executed, both by modelling the new situation and the terrain observations. Preparation of the plan for taking the measures to ensure durability of the pilot action along with the wide dissemination and advocacy activities to the policies owner (Ministry of the environment of the Slovak



<p>Republic). The advocacy and lobbying activities will be realized through the regular meetings of the Working group on green infrastructure, where Mrs. Zuzana Hudekova is the working group member.</p> <p>Based on the previous cooperation with the National Platform for the Covenant of Mayors, the special event for Municipalities with the aim to present the results of the pilot action will be co-organised. One part of the event will be dedicated to detailed presentation of the whole process and results gained, another part to the discussions, answers and questions and the consultation for the Municipalities, as well as providing information about the possible financial sources for funding of such activities.</p> <p>Furthermore, the consultancy services would be provided for the possible applicants (emails, phone calls)</p> <p>Preparation of the several applications for funding to finance further SUDS interventions based on the results of the pilot action (based on the availability of financial sources).</p>
<p>Main outputs:</p> <ul style="list-style-type: none">- Evaluation of the pilot action – in form of the report widely distributed in electronic form.- Measures taken to ensure durability of the pilot action <p>Dissemination campaign – the co-organization of the event with the National Platform for the Covenant of Mayors with the aim to present the results of the pilot action, where the consultation to the possible applicants from the cities and Municipalities will be provided.</p> <ul style="list-style-type: none">- Cooperation and advocacy through the specialized working groups (Working group on green infrastructure and the National working group on biodiversity)
<p>The responsibility of the carrying out of all activities is the partner staff</p>
<p>Semester 4</p>
<p><i>No content related activities should take place in this semester. The last months of the project should be entirely dedicated to the project closure.</i></p>

C. State Aid

Funds used to implement pilot actions have to comply with state aid rules, in line with article 107 of the TFEU. Therefore, the JS has to assess if the pilot activities proposed by the project can be considered as state aid relevant. The activity carried out within the pilot could be state aid relevant if it has a commercial nature, is market related, it grants an economic benefit to the beneficiary that the beneficiary would not have received without the pilot and is thus able to distort the competition within the EU. If the proposed pilot action falls under state aid rules, the aid will be granted under the de minimis regulation². According to this regulation, an organisation cannot receive more than EUR 200,000 of de minimis aid in the last 3 fiscal years. This means that, if the pilot action is state aid relevant and the project partner will receive de minimis aid, there will be specific procedures to follow.

² 'Commission Regulation (EC) No 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to de minimis aid'



If the pilot benefits directly the project partner, a self-declaration will have to be provided by the project partner. In cases where third parties receive benefits from the pilot, they will be considered as the recipient of state aid/de minimis and projects partners bear the responsibility to ensure that state aid /de minimis rules are respected by the third parties, by collecting such self-declarations from them. Further information on state aid can also be found in section “2.7.5 State aid” in the programme manual.

In order to allow the JS to assess whether the proposed pilot is state aid relevant, we kindly ask you to reply to the questions below.

- Can any of the pilot activities be considered as an economic activity, i.e. market relevant, profit oriented or likely to improve the financial situation of the partner? Please justify as much as possible your answer, and if applicable, please explain how the pilot action could improve the financial situation of the project partner.

The pilot activities cannot be considered as an economic activity.

- Will there be a specific third party organisation or a selected group of third party organisations (other than the external experts sub-contracted in compliance with public procurement rules) involved in the pilot that could benefit from market related, or profit oriented activities, likely to improve their financial situation? If yes, please define the activities they will participate in and explain why you consider that they are market related and how they could bring an economic benefit to the third party.

No



D. Partnership

Which partner(s) of the project will be in charge of the implementation of the pilot action?

Partner name:	Country:	Role in the pilot:
Bratislava Karlova Ves Municipality	Slovakia	Coordinator of the action. The expected cooperation with the modelling provider, Faculty of Natural sciences experts and with the Union of Slovak cities and Municipalities as the main dissemination partner

Does the pilot action require the introduction of new partners in the partnership?

No.

If yes, please specify (*)

Partner name:	Country:	Role in the pilot:

(*) *In order to confirm the eligibility of the new partner(s) please fill in Annex 1 – Part B Partnership for each of the new partners joining the existing partnership.*

Will other stakeholders be involved in the implementation of the pilot action?

- PERFECT team
- Professionals and experts (designers, rainwater flows evaluation experts, landscape architects)
- Bratislava-Karlova Ves Municipality Office (facilities management)
- cooperation with the modelling provider, university of Natural sciences experts as well students. The results will be widely disseminated by different means, publishing in the specialized magazines, in the cooperation with the Union of Slovak cities and Municipalities



E. Budget (*)

Partner	Staff costs	Office and administration	Travel and accommodation	External expertise and services	Equipment	Total partner budget
Bratislava-Karlova Ves Municipality	2800	420	0	22 000	0	25 220
Total				22 000		25 220

(*) In addition to section E, please fill in the Excel file "Pilot Actions request template – section E budget"

F. Questions for the Joint Secretariat



Part to be completed by the Interreg Europe Joint Secretariat

1. JS clarifications

n/a

2. JS final recommendations

State aid relevance		Yes	No
1/ Does the pilot action represent a service which allows to make profit and for which a market exists (i.e. is it considered as an economic activity in the meaning of the Commission notice on the notion of State Aid (n° 2016/C 262/01)?			X
2/ Could the financial situation of the concerned partner(s) improve as a result of the pilot (i.e. could the pilot action potentially distort the competition)?			X
3/ Will there be any economic benefit to third parties? (indirect state aid relevance)			X
Conclusion	Not state aid relevant		

Fulfilment of criteria?		Yes	No
1/ Relevance		X	
2/ Additionality		X	
3/ Interregionality		X	
4/ Feasibility (including finance)		X	
Final recommendation	Recommended		