

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

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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 PEFFECT 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.Dubčeka 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 toll 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. Aestitital 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