

# IMPLEMENTATION PLAN 2020–2024 CLIMATE CHANGE ADAPTATION STRATEGY CAPITAL CITY OF PRAGUE



**STRATEGIE  
ADAPTACE**  
HL. M. PRAHY NA  
ZMĚNU KLIMATU





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**A: GENERAL SECTION – BACKGROUND**

This section outlines the basis for the formulation of of Implementation Plans, primarily the Implementation Plan 2020- 2024, and gives general information regarding the Capital City of Prague Adaptation Strategy, as well as presents an evaluation of the previous pilot Implementation Plan 2018 – 2019.



**B: DESCRIPTIVE SECTION**

The second section draws on the Capital City of Prague Climate Change Adaptation Strategy and defines direct links between proposed measures and the results of their implementation, including the outcomes of individual projects within the Implementation Plan (IP) for 2020 – 2024. Furthermore, it outlines the methods of formulation and approval of IP 2020 – 2024, provides suggestions for media coverage of projects, and includes additional information concerning the new Implementation Plan for 2020 – 2024.



**C: PROJECT SECTION**

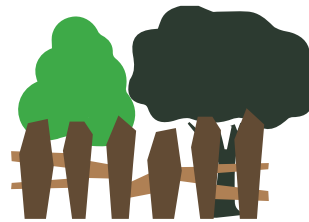
The project section contains a repository of short and long-term projects, as well as project proposals. These include projects led by the Prague City Hall, individual city districts, and projects undertaken by organisations established or founded by the city. Within this repository are further included the so-called strategic projects of the Capital City of Prague, supplementary projects, as well as scientific research projects undertaken within the city's territory. The repository is organised chronologically and according to the types of projects listed.





#### **D: SECTION DEFINING THE MANAGEMENT STRUCTURE OF THE IMPLEMENTATION PLAN**

The next section of the document delineates the structure and process of project and project proposal management, including methods of monitoring, reporting, and evaluation. It includes all levels of management structure within the Capital City of Prague.



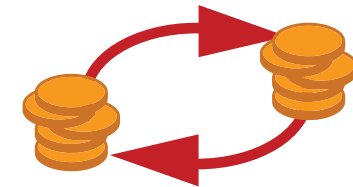
#### **E: SECTION DEFINING POTENTIAL BARRIERS AND THEIR ELIMINATION**

This section presents previously identified barriers to the execution of adaptation measures on the territory of the Capital City of Prague and suggests methods of their elimination.



#### **F: SECTION DEFINING METHODS OF MONITORING AND EVALUATION**

Projects of the Implementation Plan 2020 – 2024 must be monitored and evaluated continuously. Among the evaluation criteria used may be how projects are being implemented, possible barriers, risks, etc. Special attention will be paid to adaptation measure indicators in order to provide feedback on which measures – projects appear to be the most effective for the Capital City of Prague. Evaluation of the entire Implementation Plan will be conducted after its completion.

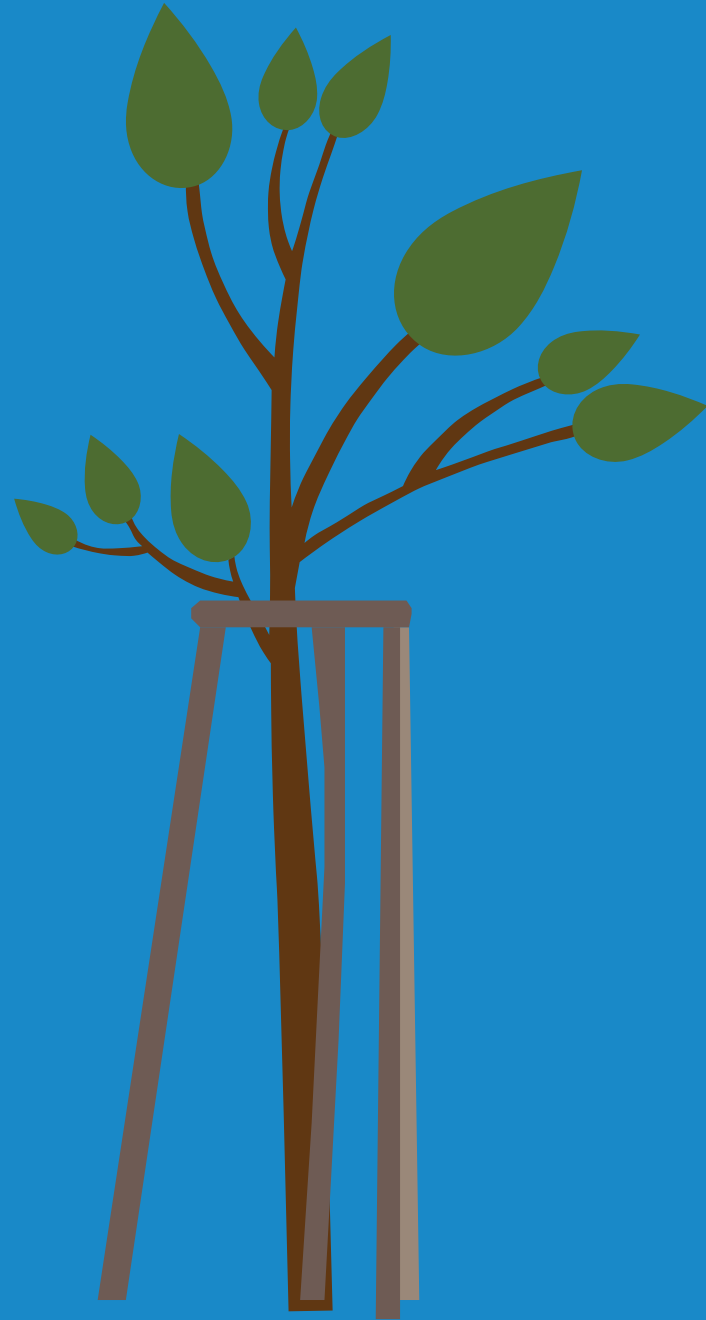


#### **G: FINANCE SECTION**

Any process of project implementation always remains closely tied to financial costs. These can be simplified into categories of investments and operational costs, which then further include wage and labour costs. Such expenditure is already estimated by guarantors for projects included in the live repository. However, these costs should rather be viewed as an investment in relation to adaptation measures, as the benefits of ecosystem and environmental services may far outweigh the initial expenditure.

A

**GENERAL SECTION  
PLAN BACKGROUND**







# 1. Introduction

**Recent decades have seen a rapid increase in the number and intensity of changes to the global climate, attributed by experts to human activities releasing the so-called greenhouse gases. The main factors contributing to these changes are energy, industry, transport and changes in land use.**

The number of people living in cities worldwide has experienced a marked increase in recent decades. Large cities are some of the major producers of substances which negatively impact climate change. However, they are also at most risk from such threats.

Populations of large cities are suffering from heat waves, overheated streets, floods as well as shortages and uneven distribution of water and greenery, all of which have been contributing to a decline in the quality of life in such areas. Capital City of Prague and its officials take note of these issues and have been actively attending to them. As a result, the Prague City Council approved a “Capital City of Prague Climate Change Adaptation Strategy” vision document in 2017 with the aim to achieve an adjustment of the city and its inhabitants to the changing climate conditions through a defined framework of adaptation measures and goals, and by extension improve the quality of life in the city of Prague.

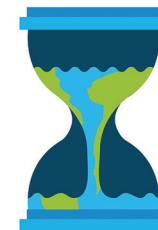
In light of these efforts, Prague followed the nationwide Strategy on Adaptation to Climate Change in the Czech Republic (MoE, 2015) and

consolidated a previous valuable partnership initiative with the cities of Munich and Vienna formed through the international Mayors Adapt (2015) programme.

Participation in European projects such as Urban Adapt and UNaLab also served as a valuable resource in the formulation of the Adaptation Strategy.

Implementation Plan 2020 – 2024 draws on the pilot Implementation Plan 2018 – 2019 but focuses more closely on specific adaptation measures and projects which will aid in attaining the targets of the Climate Change Adaptation Strategy.

Putting such projects into action allows the Capital City of Prague to monitor, based on quantifiable data, what types of adaptation measures are the most effective in their adaptational and socioeconomic impact, and aids in selecting which measures to focus on in the future.



## 2. Climate Change Adaptation Strategy of the Capital City of Prague

### What Is the Adaptation Strategy?

The Capital City of Prague Climate Change Adaptation Strategy (referred to as “Adaptation Strategy”) was developed by the Department of Environmental Protection, Prague City Hall and approved by the Prague City Council on 18 July 2017.

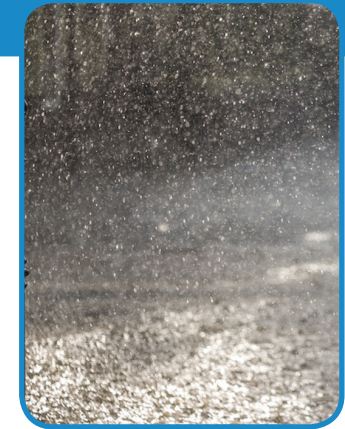
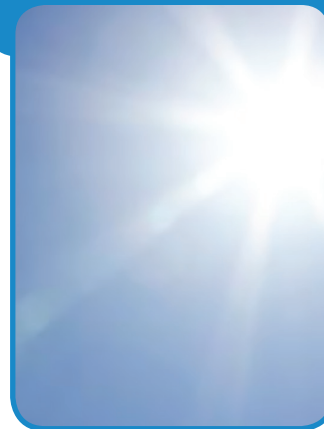
This document draws on the Strategy on Adaptation to Climate Change in the Czech Republic, which was approved in a decision passed by the Government of the Czech Republic in 2015.

A Pilot Implementation Plan (referred to as “IP”) for the years 2018 - 2019 was drawn up in 2018 as a follow-up to the Adaptation Strategy. The pilot comprised of projects specifically aiming at filling gaps in territorial information, as well as pilot projects contributing to lessening the impact of climate change. The Implementation Plan 2018 – 2019 is now succeeded by the Implementation Plan 2020 – 2024 described in this document.

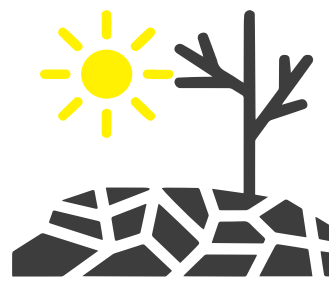
### WHAT ARE THE POTENTIAL IMPACTS OF EXTREME WEATHER?

Ongoing climate change manifests as a steady increase in mean annual temperatures and reflects in the growing number of warm fronts, their heightened intensities and longer durations, as well as extremely high temperatures and recorded tropical days (above 30°C) and nights (above 20°C).

The annual distribution of precipitation is changing – increase in precipitation during the winter months and its decline during the summer is becoming more common, as are growing numbers of days with zero precipitation altogether. Furthermore, large cities suffer from the so-called urban heat island phenomenon (asphalt and concrete infrastructure, surfaces, and housing blocks create heat “islands” which continue to radiate heat during the night. The temperature of such surfaces remains up to 8°C higher than the surrounding green areas, impairing living conditions and potentially negatively impacting the health of inhabitants).



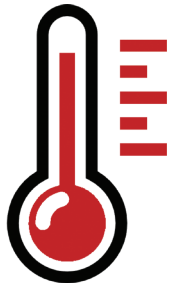




## Prolonged periods of no precipitation

### MAY CAUSE

- decline in groundwater levels, drying up of wells and springs,
- heightened evapotranspiration (sum of evaporation and transpiration), soil and wetland drying,
- watercourses drying up, decline in soil quality, dying vegetation, increased wind erosion of soils,
- eutrophication, worsening living conditions of aquatic animals and their abilities to reproduce, decline in the capacities of rivers to dilute wastewaters,
- warming of surface waters – oxygen deficit, growth of phytoplankton and zooplankton, decline in biodiversity,
- increased demand in water consumption – agriculture, watering of plants and gardens; limited drinking water supply, increased requirements in raw water treatment,
- soil surface drying and erosion,
- decline in the recreational potential and function of waters – lower quality of surface water and drying up of reservoirs.



## Continuously rising mean daily temperatures

### MAY CAUSE

- negative impact on health and quality of life of inhabitants,
- higher morbidity and mortality,
- lower levels of workplace productivity,
- decrease in alertness when driving,
- reduced economic performance,
- vegetation dieback.

## Extreme wheather

### MAY CAUSE

- torrential floods,
- flash floods.



360 km  
of watercourses  
290 ha of bodies  
of water

65%  
of green areas

WHEN COMPARED TO OTHER EUROPEAN CITIES, PRAGUE IS CHARACTERISED BY A HIGH PERCENTAGE OF BUILT-UP AREAS, PAVED SURFACES, AND HIGH CONCENTRATIONS OF AGRICULTURAL, INDUSTRIAL, AND TRANSPORT INFRASTRUCTURE. HOWEVER, IT ALSO BOASTS A LARGE PROPORTION OF GREENERY.

## What Are the Aims of the Adaptation Strategy?

The main aim of the Climate Change Adaptation Strategy is to enhance long-term resilience and reduce vulnerability of the Capital City of Prague to the effects of climate change.

It further strives to secure a high-quality living environment for Prague's inhabitants in the future. The Adaptation Strategy incorporates issues specific to the Capital City of Prague, in particular, its nature as an urban landscape characterised by a high percentage of built-up areas and paved surfaces, irregular dispersion of vegetation, as well as a high density of agricultural, industrial, and transport infrastructure, while also boasting a large number of green areas.

## How Does It Achieve These Aims?

The Adaptation Strategy aims to lower the negative impact of climate change through a systematic implementation of adaptation measures. It prioritises the use of ecosystem-based (nature-based) approaches in combination with grey – technical and soft measures – in cases where ecosystem-based approaches to adaptation cannot be applied. The Adaptation Strategy aims to utilise blue and green infrastructure and integrate the innate capacity of vegetation to cool down surrounding areas or, for example, retain and absorb precipitation into groundwater reserves.



Newly renovated Stromovka park  
Photo by Lubomír Stiburek





# 3. IP 2018-2019 Evaluation

## Authors

The Implementation Plan 2018 – 2019 was developed in collaboration with the CzechGlobe Global Change Research Institute of the Czech Academy of Sciences (CAS), Institute of Computer Science, CAS, Czech Hydrometeorological Institute, and a number of other stakeholders of the Capital City of Prague. The document was approved by Decision No. 1650 passed by the Prague City Council on 26 June 2018.

Management and coordination of projects included within the Implementation Plan for the 2018 – 2019 period commenced in January 2019. A final report was then approved by Decision No. 379 passed by the Prague City Council on 2 March 2020, after assessing the overall progress of projects as of 31 December 2019.

## Weakness of IP 2018-19

The pilot Implementation Plan 2018 – 2019 contained several weak points, which served as a stimulus for the formulation of the new plan for 2020 - 2024. The key flaw of the IP 2018 – 2019 was a lack of indicators forming a framework for evaluating the effectiveness and socioeconomic impact of individual adaptation measures and projects. Furthermore, as the project progressed, it became clear that the public output of the Adaptation Strategy of the Capital City of Prague needed to be revitalised and given a more attractive image, together with better media coverage within the Capital City of Prague.

Another identifiable weakness of the pilot Implementation Plan were insufficient links to projects of organisations established or founded by the Capital City of Prague and their long and short term goals, as well as a lack of involvement on the part of stakeholders, residents, and city districts. In addition, the project lacked a clear continuity with grant and subsidy policies of the Capital City of Prague.

*\* Reasons are listed for each project included in the Final Report of IP 2018 – 2019  
<http://adaptacepraha.cz/wp-content/uploads/2020/03/Závěrečná-zpráva-IP-2018-2019-1.pdf>*

## Projects

Proposals for specific projects of the Implementation Plan 2018 – 2019 were the product of working groups and can be organised into three thematic categories:

- analytical and methodological projects intended for practical use in fulfilling the aims of the Adaptation Strategy,
- research projects conducted in cooperation with involved research institutions, and projects funded from grants (OP PGP, TACR, etc.),
- pilot projects which were intended to serve as inspiration for the following Implementation Plan.

**FROM THE TOTAL 48 PROJECT,  
28 HAVE BEEN REALISED,  
13 ARE ONGOING,  
AND 7 ARE YET TO BE REALISED. \***

## Evaluation of IP 2018-2019

From a project standpoint, the overall collaboration with guarantors and authors of individual projects was carried out on a professional level. The project team was able to gather necessary information in order to carry out and manage the Implementation Plan 2018 – 2019. A final report was presented to the Committee on Infrastructure, Public Utilities, and Environment of the Prague City Assembly.

**PROJECTS LACKED CLEARLY DEFINED INDICATORS,  
THUS PREVENTING AN EFFECTIVE EVALUATION OF THEIR  
EFFECTIVENESS IN IMPLEMENTING ADAPTATION MEASURES.**

It is possible to conclude that the development of the Implementation Plan 2018 – 2019 and its management marks the beginning of an adaptation process of the Capital City of Prague to the effects of climate change. These developments follow the approved Climate Change Adaptation Strategy of the Capital City of Prague, the national strategy, as well as a larger global movement. Climate change adaptation forms one of the four pillars of the Committee on Sustainable Energy and Climate of the Prague City Council which serves as the main body responsible for fulfilling the aims of the so-called Climate Commitment for Prague, which was passed on 20 June 2019 by the Prague City Assembly in Resolution No. 8/42.



Terezka, a new pond near Liboc  
Photo by praha-priroda.cz

B



**DESCRIPTIVE SECTION**





# 1. Implementation plan for 2020 - 2024

## What Is an Implementation Plan?

Implementation Plan for the years 2020 – 2024 (hereinafter “IP 2020 – 2024”) consists of projects targeting climate change adaptation. That is, preparing the city and its inhabitants for those effects of climate change which may impact their everyday life in the Capital City of Prague. It is a document which stems from the Prague Adaptation Strategy. The formulation of a new Implementation Plan was assigned to the Department of Environmental Protection, Prague City Hall (hereinafter “DEP”).

## Formulation of IP 2020 – 2024

The Department of Environmental Protection, Prague City Hall began work on the new Implementation Plan 2020 – 2024 in early 2020. Alongside the main document, the preparations also involved the so-called live repository of projects, which has started accepting projects with finalised budgets, as well as project proposals which have yet to secure sources of funding.

**THIS DATABASE INVITED CONTRIBUTIONS FROM ALL PRAGUE CITY HALL DEPARTMENTS, CITY DISTRICTS, AND ORGANISATIONS LED BY THE CITY, WHICH EXPRESSED THEIR INTEREST IN PARTICIPATING.**

New possibilities for adaptation measures in the Capital City of Prague, together with insight gained from the Implementation Plan 2018 – 2019, were incorporated into the process of developing the new Implementation Plan for the 2020 – 2024 period.

Another important aspect which influenced the development of the IP was the establishment of a framework of adaptation measure indicators. This framework largely consists of groups of indicators, as well as data collection methods, and the evaluation of individual projects. Each project/project proposal will be assigned an indicator according to which it will be assessed, evaluated, and monitored. Furthermore, it was necessary to strengthen links to projects of organisations established or founded by the Capital City of Prague and their long and short term goals, increase interrelations with grant and subsidy policies of the Capital City of Prague, and encourage engagement with city districts and Prague’s residents. In addition, steps were taken to define and eliminate potential barriers to adaptation on the territory of the Capital City of Prague (section E of this document).

PROJECTS / PROJECT PROPOSALS WERE DIVIDED INTO 4 CATEGORIES

Blue-Green Infrastructure

Grey Infrastructure

Environmental Projects

Studies and Strategies

## Involvement of Public Bodies in Creating a Repository of Projects

### WORKSHOPS FOR PRAGUE CITY HALL DEPARTMENTS AND CITY DISTRICTS

The first workshops took place on 26 February and 4 March 2020 and were aimed at city districts and departments of the Prague City Hall. Their goal was to introduce the vision of climate change adaptation of the Capital City of Prague and its fulfilment through the Implementation Plan 2020 – 2024.

The main objective was to gather adaptation projects led by departments and city districts and ensure that their monitoring and evaluation is carried out using a unified methodology and that they are consistently assessed according to the same groups of indicators.

Ensuring this allows the Capital City of Prague to collect information about the effectiveness of individual adaptation measures, assess which measures necessitate more support, and identify what financial costs may stem from them.

The projects gathered in these efforts will form the basis of the project repository and will become a live database updated in annual intervals. The repository includes both short-term projects and project proposals with longer scopes of duration.

City districts and Prague City Hall have been requested to issue projects which align with defined requirements and measures.

#### Prague City Hall Departments Involved in Formulating the IP

Department of Environmental Protection (DEP)

Security Department (SD)

Department of Property Management (DPM)

#### City Districts Involved in Formulating the IP

Prague 2

Prague 3

Prague 4

Prague 6

Prague 7

Prague 8

Prague 10

Prague 12

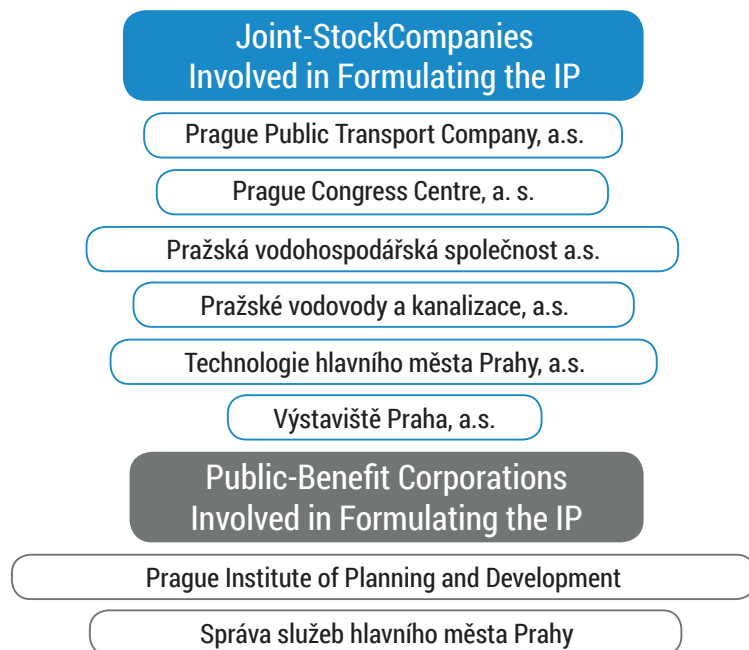
Prague 14

Prague-Čakovice

Prague-Slivenec

## CONSULTING CITY ORGANISATIONS WITH PROPERTY HOLDINGS ADAPTATION WORKING GROUP

In order to ensure stronger interconnectivity with projects of organisations founded or established by the city, statutory representatives of these companies were contacted with a request for collaboration and with an invitation to discuss these matters in person. Due to the sudden outbreak of COVID-19 these in-person meetings were cancelled and supplemented with other forms of communication (e-mail, telephone).



**List of all contacted organisations:** Prague Institute of Planning and Development, Operátor ICT, a.s., Prague Technical Road Administration, a.s., Prague Public Transport Company, a.s., Kolektory Praha, a.s., Obecní úřad, a.s., Prague City Tourism a.s., Pražská plynárenská Holding a.s., Pražské služby, a. s., TRADE CENTRE PRAHA a.s., Výstaviště Praha, a.s., Pražská vodohospodářská společnost a.s., Pražské vodovody a kanalizace, a.s., Prague Congress Centre, a.s., Pražská energetika Holding a.s., PPF banka a.s., Úpravna vody Želivka, a.s., Zdroj pitné vody Káraný, a.s., Prague Institute of Planning and Development, p.o., Technologie hlavního města Prahy, a.s., Botanická zahrada hl. m. Prahy p. o., Lesy hl. m. Prahy p.o., ROPID p.o., Správa služeb hlavního města Prahy p.o., Zoologická zahrada hl. m. Prahy p.o.

Further: City districts 1-57, PCH Security Department, PCH Department of Environmental Protection, PCH Department of Property Management, PCH Strategic Investment Department, PCH Department of Education and Youth

The Adaptation Working Group, set up by the Committee on Sustainable Energy and Climate and composed of members appointed by the Prague City Council, played a major part in evaluating the repository of projects/project proposals.

The main objectives of the working group were to assess the success of projects in meeting the aims of the Climate Change Adaptation Strategy, as well as determining their suitability, output, and implemented measures. The result of this process was a repository of projects which forms a part of the IP 2020 – 2024. Overall, 222 projects and proposals were submitted and evaluated. If these, 212 projects/proposals were integrated into the repository for 2020 – 2021.

## STEERING COMMITTEE ON ADAPTATION STRATEGY OF THE CAPITAL CITY OF PRAGUE

Following its completion, the finalised IP 2020 – 2024 was presented to the Steering Committee on Adaptation Strategy of the Capital City of Prague. The document was accepted and forwarded to the Prague City Council for approval.

## PRAGUE CITY COUNCIL COMMITTEE ON SUSTAINABLE ENERGY AND CLIMATE

The IP 2020 – 2024 document was presented to the Committee on Sustainable Energy and Climate of the Prague City Council.

## Managing the IP 2020 – 2024

Due to the broad scope of the Implementation Plan, its overall organisation, as well as the involvement of most external parties, will be predominantly project-based. Key projects and proposals will be continuously monitored and evaluated. Detailed management structure for the Implementation Plan is listed in section D of this document.

# Specific Targets

The main aim of the Implementation Plan is to increase Prague's long-term resilience towards the manifestations of climate change.



**Improving microclimatic conditions and decreasing the negative impact of extreme temperatures, heat waves, and the urban heat island effect on Prague's inhabitants and their quality of life.**

Proposed measures:

- Actively improve microclimatic conditions through the introduction of multipurpose green infrastructure
- Allow for climate change adaptation to be considered in planning processes and in drafting of background studies
- Establish and revitalise vegetation components throughout the city
- Unify the management of urban vegetation and tree avenues
- Create opportunities for suburban and urban agriculture development to operate as adaptation measures
- Strengthen the ecological stability of the landscape and its ability to regenerate
- Utilise technological and ecosystem-based approaches to lowering the accumulation of solar radiation in built environments.



**Lessening the impact of extreme hydrological events – torrential rains, floods, and prolonged periods of drought within the territory of the Capital City of Prague.**

Proposed measures:

- Flood prevention and control of the Vltava and Berounka rivers, as well as of other watercourses within the Capital City of Prague territory
- Improving methods of meteoric water (rainwater) management
- Implementing measures targeting the slowing of surface water runoff in the landscape and preventing erosion
- Introducing and gradually replacing impermeable surfaces with readily permeable or semi-permeable materials
- Continuing the process of integrated revitalisation of floodplains, watercourses, and reservoirs
- Examining the capacities of existing water management infrastructure and analysing methods of securing drinking water supply for the city's inhabitants
- Increase landscape permeability and its recreational capacities.



**Improving Prague's energy performance and supporting climate change adaptation in buildings.**

Proposed measures:

- Improve Prague's energy performance
- Support climate change adaptation strategies for existing and new buildings
- Implement sustainable urban development strategies
- Support rainwater management in buildings while remaining sensitive to the historic environment, its protection, and to the nature of the surrounding areas
- Support measures which actively lower the absorption of solar radiation
- Secure legal, technical, and organisational support for the implementation of adaptation strategies in practice.



# Specific Targets



## Improving preparedness and crisis management.

Proposed measures:

- Strengthen the resilience of hard infrastructure
- Reinforce strategies to safeguard the safety and protection of Prague's inhabitants and their property
- Strengthen crisis management.



## Improving Prague's framework for sustainable mobility.

The following proposed measures are a part of the *Sustainable Mobility Plan for Prague and the Metropolitan Area*:

- Ensure interconnectivity of sustainable mobility with other areas of urban sustainability
- Provide support for public transport and railways, electromobility in personal and public transport settings, pedestrians, and cyclists
- Promote carbon-free methods of transport
- Introduce opportunities for utilising local energy sources in public transport infrastructure
- Ensure suitable conditions (temperature) in public transport.



## Improving environmental education and outreach, supporting research and monitoring of the effects of climate change on Prague as a city.

Proposed measures:

- Promote environmental education and outreach efforts
- Improve access to information regarding public health and hygiene
- Secure effective support for science, research, technological advancement, and innovation in relation to the effects of climate change.



Revitalisation of Hloubětín – Vysočany – Rokytka  
Photo by praha-priroda.cz





# Adaptation Measures

Measures of the Implementation Plan 2020 – 2024 draw on the City of Prague Climate Change Adaptation Strategy and are organised into five thematic groups according to the specific targets of the Adaptation Strategy.

Measures for the open landscape



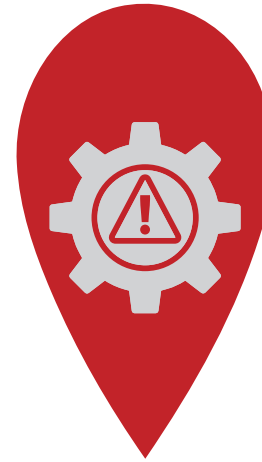
Measures for areas of urban development and the urban landscape



Measures for climate change adaptation in buildings



Measures for crisis management and public safety



Measures for promoting public awareness and enhancing outreach activities for Prague's inhabitants and city districts



# Ecosystem Services

All projects and project proposals of the Implementation Plan 2020 – 2024 were assigned indicators to assess their contribution to adaptation, as well as their other benefits. These contributions were originally juxtaposed with the Climate Change Adaptation Strategy but were not formally defined. For this reason, the authors of the IP 2020 – 2024 incorporated a methodology developed by the Institute for Economic and Environmental Policy at the J. E. Purkyně University in Ústí nad Labem and its paper on “Methodology for Economic Assessment of Green and Blue Infrastructure in Human Settlements” into the development process of a large part of the ecosystem services overview. This methodology was adapted as part of a project led by the Technology Agency of the Czech Republic (TACR).

The authors advocate for assessing the relative contributions of projects due to the potential economic impact of adaptation strategies as a result of their involvement in environmental protection, and in regenerating and enriching ecosystem diversity. Defined in simple terms, ecosystem services are the varied benefits of ecosystems to human well-being. These services can be divided into the following groups: regulating, provisioning, cultural, and supporting.

Regulating services refer to benefits stemming from ecosystem processes that regulate air quality, balance weather changes, control floods, limit erosion, aid in regulating human diseases, as well as manage water purification and regulation. Cultural services are represented by immaterial values which humans receive from ecosystems in the form of spiritual enrichment, intellectual development, new experiences, and through their recreational and aesthetic values. Provisioning services are marked by an emphasis on production of materials, such as food, wood, and water. Supporting services are a crucial factor in allowing all other ecosystem services to develop and function, as they maintain the production of oxygen, soil, and also sustain the nutrient cycle.

## Summary of the benefits of ecosystem services

### Regulating Services

Runoff regulation

Reduction in flood risk

Water quality

Noise reduction

Air quality

Soil erosion

CO2 reduction

Microclimate regulation

Pollination

Disease regulation

### Cultural Services

Recreational

Aesthetic

Educational

### Provisioning Services

Biomass production

Wood production

Crop production

### Other Benefits

Energy saving in heating/  
cooling of buildings

Increase in property  
values

Biotope formation



## Indicators and Indicator Groups

One of the most important tasks of the new Implementation Plan is the development of the so-called indicator framework, which aims to monitor the effectiveness of project measures in relation to their objectives.

For this reason, every project will be assigned a monitoring indicator which will play a crucial role in the final evaluation process. The extent to which these indicators were delivered on will be discussed in monitoring reports.

As a reaction to this approach, the Capital City of Prague joined the international project DELIVER based on a Memorandum approved by Resolution No. 2831 of the Prague City Council on 16 December 2019.

As part of this memorandum, the city joined efforts to develop and test CRELOCAF (Climate Resilient Low Carbon Factor) - a new and unique tool for monitoring, evaluating, managing, and disseminating information concerning adaptation and mitigation activities of participating cities.

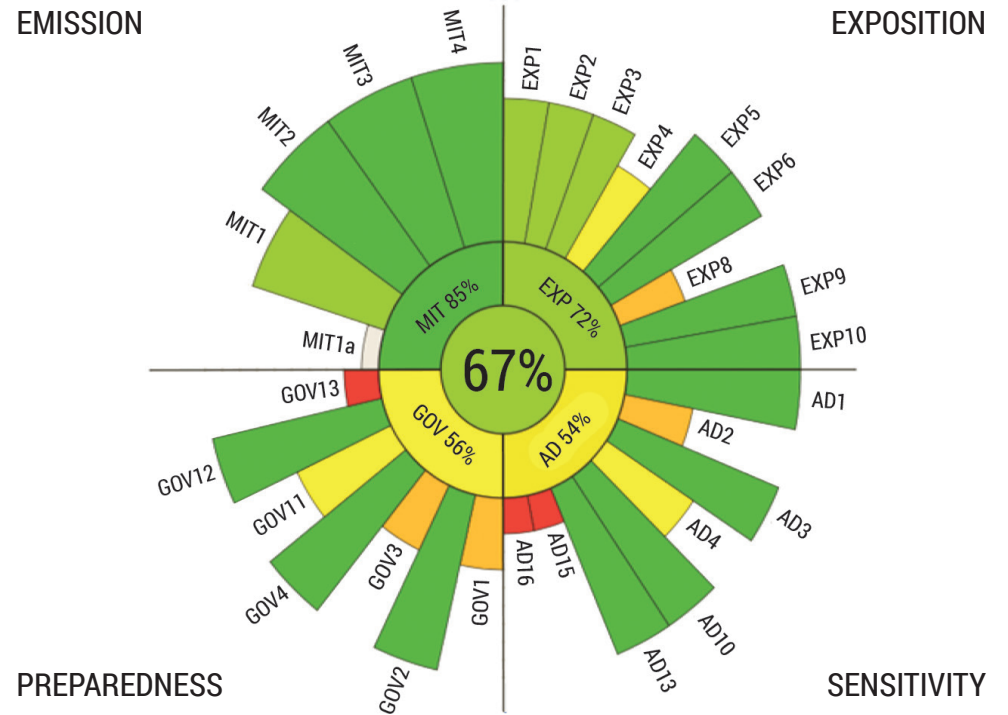
The so-called "KLIMSKEN" tool will also be developed within the context of this project and will allow for a comprehensive assessment of the city, city districts, and individual buildings from a climate change standpoint and an adaptation and mitigation perspective.

The authors of the IP 2020 – 2024 marked 2018 as the starting point, in relation to which the effects of adaptation and mitigation within the Capital City of Prague will be compared and measured.

The tool can be found online at <https://www.klimasken.cz> and also on [www.adaptacepraha.cz](http://www.adaptacepraha.cz).

# Climate Label

Example of KLIMSKEN's climate label





**YEAR 2018 WAS CHOSEN AS A STARTING POINT FOR MONITORING THE OUTCOMES OF ADAPTATION AND MITIGATION MEASURES.**

# Project Sheets

Every project/project proposal is archived along with its project sheet. The project sheet consists of 8 basic sections.

- 1 **Basic characteristics**
  - Project name
  - Project description
  - Project location
  - Target group
  - Relevant projects
  - References to strategic documents
- 2 **Specifications**
  - Character of adaptation measure
  - Types of measures
  - Specific target
  - Adaptation benefits (ecosystem services)
  - Other benefits
- 3 **Delivering Team**
  - Project guarantor
  - Authors
- 4 **Timeline**
  - Project phases
- 5 **Indicators**
- 6 **Finances**
  - Estimated project value
  - Sources of funding
- 7 **Risk management**
- 8 **Additional information**
  - Contact person
  - Involved parties

 <b>PROJEKTOVÁ KARTA</b> (projekt/záměr) 				
ZÁKLADNÍ CHARAKTERISTIKA				
Název projektu <i>- stručný výstižný název projektu</i>				
Popis projektu <i>- čeho má být v projektu dosaženo</i> <i>- cíle záměru</i> <i>- dílčí cíle záměru</i> <i>- výstupy projektu</i>				
Lokace projektu <i>- MČ</i> <i>- místo</i>				
Cílová skupina (uživatelé) <i>- definice cílových skupin (vě, velikost)</i> <i>- jakým způsobem bude cílová skupina zapojena do projektu</i> <i>- jak bude oslovena (je-li relevantní)</i>				
Související projekty (je-li relevantní)				
Vazba projektu na strategické dokumenty <i>- návaznost na strategický dokument (je-li relevantní)</i>	Strategie adaptace hl. m. Prahy na změnu klimatu xxx xxx			
SPECIFIKACE				
Znak adaptačního opatření				
Druh opatření				
Specifický cíl				
Přínos adaptace (ekosystémové služby)				
Jiný přínos				
REALIZAČNÍ TÝM				
Garant projektu <i>(konkrétní MČ, organizace města)</i>				
Řešitel (pokud je znám)				
HARMONOGRAM				
Fáze projektu <i>Předpoklad realizace</i>				
Zahájení realizace				
Ukončení realizace				
Vyhodnocení projektu				
INDIKÁTORY				
Indikátory projektu <i>- popis měřitelné ukazatele</i> <i>- hodnocení výstupu projektu</i> <i>- definice zdroje</i>				
FINANCOVÁNÍ				
Předpokládaná hodnota projektu (bez DPH)				
Investiční náklady (pořízení)				
Převozní náklady (servis, údržba)				
Mezové náklady				
Zdroj financování <i>- definovat zdroje financování projektu (MČ, MěMP, dotace)</i>				
ŘÍZENÍ RIZIK				
<i>Definice rizik technického, provozního, legislativního či jiného charakteru:</i>				
Název rizika	Popis rizika	Opatření pro eliminaci rizik	Pravděpodobnost výskytu (v %)	Dopad rizika na projekt
DOPLŮJÍCÍ INFORMACE				
Kontaktní osoba projektu				
Ostatní dotčené strany <i>- seznam dotčených stran a způsob komunikace (např. jméno MČ, zájmové skupiny, spolky...)</i>				
Vypracoval:				
Dne:				
Jméno:				

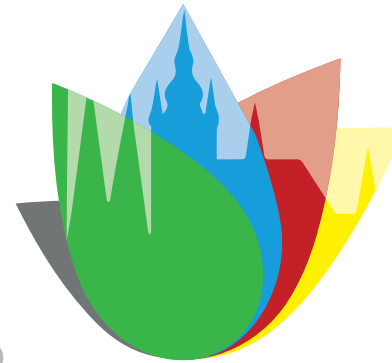
## Media Coverage of IP 2020-2024

A new online portal [www.adaptacepraha.cz](http://www.adaptacepraha.cz) was put in place to aid in publicising the Climate Change Adaptation Strategy and the Implementation Plans. It provides access to all necessary information, materials, and news. City districts, departments, and other involved parties can access the internal section of the website. This section contains methodologies and information aimed at assisting these parties with putting adaptation measures into place.

## Logo

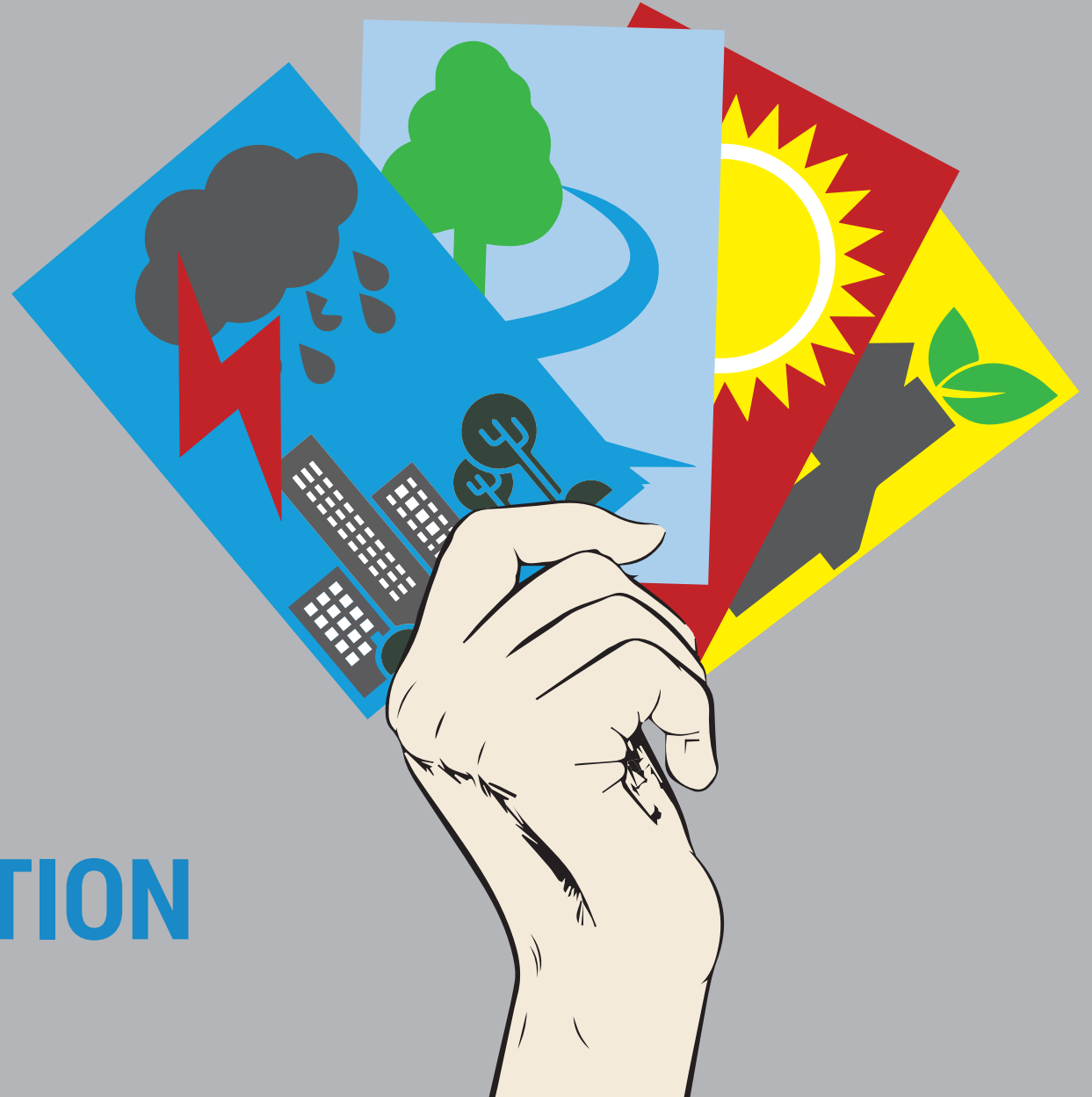
A marketing logo was designed to be used in adaptation projects and other documents related to the Adaptation Strategy.

Logo of the Climate Change Adaptation Strategy of the  
Capital City of Prague



**STRATEGIE  
ADAPTACE**  
HL. M. PRAHY NA  
ZMĚNU KLIMATU

C



**PROJECT SECTION**





# Projects organisation

This section of the IP 2020 – 2024 includes the so-called PROJECT REPOSITORY which will be regularly revised throughout the duration of the IP 2020 – 2024.

A revision is considered to be a process of evaluation, where projects will be assessed based on whether they should be implemented or whether there are significant reasons for the project to be eliminated from the IP 2020 – 2024.

Likewise, new projects fulfilling the criteria of adaptation measures may be added to the repository if their guarantors intend to implement them.

## A REVISION OF THE PROJECT REPOSITORY WILL BE CONDUCTED ONCE A YEAR.

The project repository includes projects divided into several categories. These categories will be used to evaluate and report on projects and aid in their organisation.

Outside of this repository, projects supported by grants of the Capital City of Prague, and which may serve as an “inspiration” in good practice for authors of similar projects may also be used. In addition, valuable data from such projects can be utilised further by the Capital City of Prague. Through this practice, the public will be able to take part in developing adaptation measures within the Capital City of Prague’s territory.

### PROJECTS ORGANISED ACCORDING TO TIMELINE

- Short-term (completed within 1 year)
- Medium duration (take 2 – 4 years to complete)
- Long-term (their duration exceeds the timeline of IP 2020 – 2024)

### PROJECTS ORGANISED ACCORDING TO THE TYPE OF GUARANTOR

- Departments of the Prague City Council
- City districts
- Organisations founded or established by the Capital City of Prague

### PROJECTS ORGANISED ACCORDING TO THE TYPE OF ADAPTATION MEASURES

- Measures for the open landscape
- Measures for areas of urban development and the urban landscape
- Measures for climate change adaptation in buildings
- Measures for crisis management and public safety
- Measures for promoting public awareness and enhancing outreach activities for Prague’s inhabitants and city districts

### PROJECTS ORGANISED ACCORDING TO THEIR SPECIFIC TARGETS

- Improvement in microclimatic conditions and decrease in the negative impact of extreme temperatures, heat waves, and the urban heat island effect on Prague’s inhabitants and their quality of life
- Lessening the impact of extreme hydrological events – torrential rains, floods, and prolonged periods of drought within the territory of the Capital City of Prague
- Improving Prague’s energy performance and supporting climate change adaptation in buildings
- Improving preparedness and contingency planning
- Improving environmental education and outreach, supporting research and monitoring of the effects of climate change on Prague as a city

### PROJECTS ORGANISED ACCORDING TO THEIR CATEGORIES IN IP 2020 – 2024

- Strategic (conceptual) projects of the Prague City Assembly
- Supplementary (methodological) projects
- Ongoing projects (projects continuing from IP 2018 – 2019)
- Project delivery (implementation)
- Scientific research projects concerning the territory of the Capital City of Prague



# Project Repository (Database Revised on 30 June 2020)

This section of the document lists examples of projects included as appendices of the IP 2020 – 2024 in the form of project sheets. Projects are listed according to the specific targets of the Adaptation Strategy. The repository will be revised periodically. Project sheets will be accessible at [www.adaptacepraha.cz](http://www.adaptacepraha.cz).

## PROJECT REPOSITORY (CONCEPTUAL, METHODOLOGICAL, IMPLEMENTATION, AND CONTINUING PROJECTS)

- 1 Improvement in microclimatic conditions and decrease in the negative impact of extreme temperatures, heat waves, and the urban heat island effect on Prague's inhabitants and their quality of life

### Examples of projects:

- Planting of trees as part of the "Action Plan for Tree-Planting in Prague"
- Revitalisation of orchards
- Reconstruction of town squares, parks, and riverbanks
- Construction of misting devices and drinking water fountains
- Seed sowing on meadows
- Revitalisation of courtyards
- Monitoring microclimatic parameters
- Potential of green or white roofs

### Project attributes and outcomes:

Projects included in this repository can be labelled as predominantly dealing with blue-green infrastructure. They are characterised by efforts to improve microclimatic conditions and lessen the impact of extreme temperatures through tree-planting and planting of tree alleys, revitalisation of forests, parks, and streets, and through the construction of misting devices and retention basins.

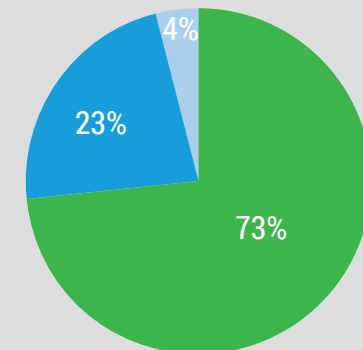
Drafts of projects and preparation of studies are also a part of this section, alongside implementation documentation. The main benefits of ecosystem services are the regulation of microclimate, noise reduction, reduction of CO<sub>2</sub>, better pollination, improvements in air quality, biotope formation, aesthetic value, or recreational potential.

### PROJECT REPOSITORY

#### Number and Ratio of Different Project Categories

Total number: 207

- Project: 151
- Project proposal: 48
- Continuing project: 8



30 June 2020

# Project Repository (Database Revised on 30 June 2020)



**2** Lessening the impact of extreme hydrological events – torrential rains, floods, and prolonged periods of drought within the territory of the Capital City of Prague

### Examples of projects:

- Standards of rainwater management for the Capital City of Prague area
- Construction of retention basins and reservoirs
- Flood protection
- Revitalisation of rivers, bottomlands, and streams
- Projects dealing with wells
- Transformation of non-permeable surfaces into permeable ones
- Improvements in landscape permeability and its recreational potential

### Project attributes and outcomes:

Projects within this section can fall into both blue-green and grey categories of infrastructure. They represent either implementation or concept projects dealing with issues of rainwater retention and use within the Capital City of Prague area, slowing of surface water runoff, transformation of the permeability of surfaces, or with efforts in revitalisation of waterways, bottomlands, and landscape areas. The outcomes of these projects target runoff regulation, reduction in flood risks, improvements in water quality, microclimate regulation, biotope formation, and recreational and aesthetic values.

**3** Improving Prague's energy efficiency and supporting climate change adaptation in buildings

### Examples of projects:

- Construction of vegetated (green) roofs
- Construction of photovoltaic (PV) panels
- Supporting "smart buildings"

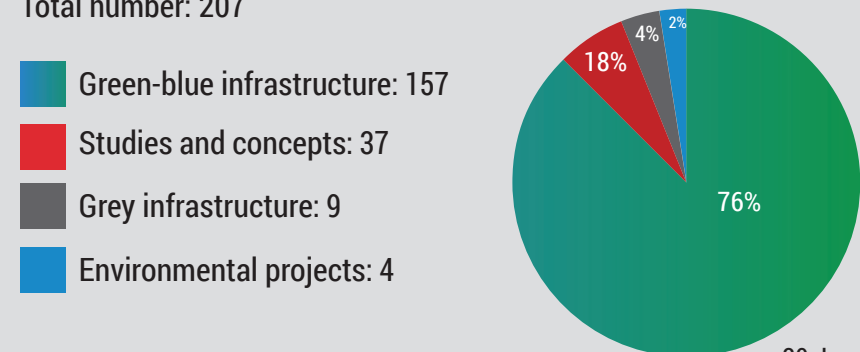
### Project attributes and outcomes:

Projects in this section are mostly pertaining to green-blue and grey infrastructure. They are closely connected to the construction of vegetated (green) roofs and façades, rainwater management and its recycled use, solar energy, and the construction of smart buildings. Notable ecosystem benefits are runoff regulation, CO2 regulation, aesthetic function, energy savings in heating and cooling, as well as increased property values.

## PROJECT REPOSITORY

Number and Ratio of Different Project Categories

Total number: 207



30 June 2020



# Project Repository (Database Revised on 30 June 2020)

## 4 Improving preparedness and crisis management

### Examples of projects:

- Implementing flood prevention measures
- Mapping of wells in the Prague city area
- Analyses and studies dealing with flood risks

### Project attributes and outcomes:

Project categorised under this target are primarily concerned with analyses of climate change in relation to flood risks. They aim to improve the safety of the city's population, together with improving methods of operational management when floods strike. The primary benefits would then represent lessened flood risks in the event that a crisis occurs.

## 5 Improving environmental education and outreach, supporting research and monitoring of the effects of climate change on Prague as a city

### Examples of projects:

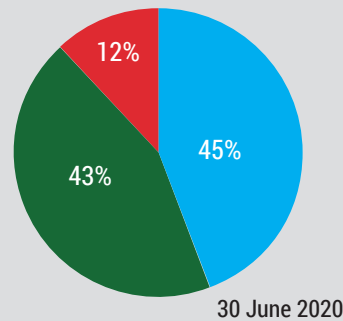
- EE (environmental education)
- Adapterra awards
- Implementation of educational goals

### Project attributes and outcomes:

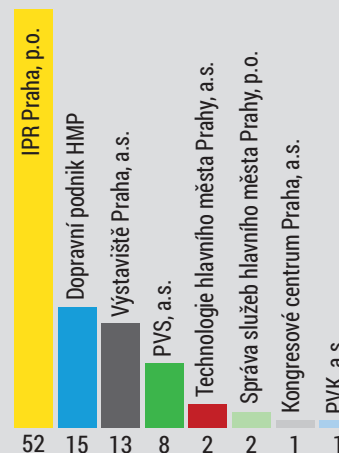
Projects organised under the last target are characterised by their educational and outreach aspects relating to adaptation measures within the Capital City of Prague territory. Educational programmes are essential for the understanding and involvement of inhabitants in the changes the Capital City of Prague is planning to implement. As such, the primary ecosystem services benefits are cultural and educational.

**PROJECT REPOSITORY**  
Number and Ratio of Guarantors  
Total number: 207

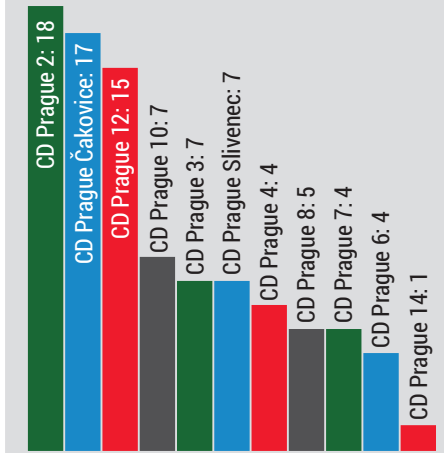
- City organisations: 93
- City districts: 89
- Prague City Hall: 25



**PROJECT REPOSITORY - CITY ORGANIZATIONS**  
Total number: 93 (on 30 June 2020)



**PROJECT REPOSITORY - CITY DISTRICTS (CD)**  
Total number: 89 (on 30 June 2020)





Petřín Park  
Source: praha-priroda.cz





## PROJECT REPOSITORY (SCIENTIFIC RESEARCH PROJECTS)

PROJECT NAME	START DATE	END DATE	NAME OF MAIN RECIPIENT
Call for adaptation projects in cities: Supporting sustainable planning and utilising integrated vulnerability assessment	2018	2022	Global Change Research Institute, CAS, p. r. i.
Analysis of adaptation measures aimed at lessening the impact of climate change and urbanisation on the hydrological regime of greater Prague	2018	2020	T. G. Masaryk Water Research Institute, public research institution
Recreational potential of water in Prague – Current situation and future prospects	2018	2020	T. G. Masaryk Water Research Institute, public research institution
Temperature, urban heat island, and air quality modelling in Prague, URBI PRAGENSIS project	2018	2020	Faculty of Mathematics and Physics, Charles University, in collaboration with Institute of Computer Science, CAS, and Czech Hydrometeorological Institute
Sustainable drainage basin management strategy	2018	2020	T. G. Masaryk Water Research Institute, public research institution
Clean water – Healthy city	2018	2020	T. G. Masaryk Water Research Institute, public research institution
Responsible water management in urban built-up areas and its relationship with the surrounding landscape “SWAMP”	2018	2020	Faculty of Environmental Sciences, Czech University of Life Sciences Prague
Rain Prague - Managing the cooling effect of vegetation in relation to city climate	2018	2020	Research Institute for Soil and Water Conservation, and Faculty of Environmental Sciences, Czech University of Life Sciences Prague
Sustainable drainage basin management strategy concerning the water quality of reservoirs	2018	2020	Faculty of Environmental Sciences, Czech University of Life Sciences Prague
Act on NBS Nature-Based Solutions	2017	2020	Technical University of Crete, Global Infrastructure Basel Foundation, Switzerland, and others
Urban Cool Islands	2019	2020	Veolia Paris, LGI Consulting and others
LIFE TREE CHECK	2018	2022	Nadace Partnerství, CzechGlobe, EKOTOXA, and others
Supporting the role of allotment gardens as a key component of green city infrastructure	Application		Faculty of Environmental Sciences, Czech University of Life Sciences Prague, and PCH DEP
Spatiotemporal model of thermal comfort in urban environments and its application in sustainable city planning	2020	2024	Institute of Computer Science, CAS; PCH DEP
Multi-stake holder dialogue platform to Implement Nature based solutions to societal challenges (Implement Nature)	Application		Global Infrastructure Foundation (GIF), Switzerland
Modelling temperature sequences and air circulation in densely built-up areas in Prague	2019	2019	Institute of Computer Science, CAS; PCH DEP
Innovative solutions for circular economy (Horizon 2020)	2020	2023	University of Chemistry and Technology Prague, Czech Technical University in Prague, PVS, a. s., in collaboration with Norwegian company Storm Aqua

## PROJECTS SUPPORTED BY ADAPTATION GRANTS REALISED ON THE TERRITORY OF THE CAPITAL CITY OF PRAGUE (2020)

The city on a bike	Pilgrim Garden (Poutnická zahrada)	Rainwater tanks with pump mechanisms
Best adaptation measures within the Capital City of Prague – Adapterra Awards	Community garden and composting in Řepy	Electric cars in education
Architectural sustainability in Prague	Green courtyards – an opportunity for city inhabitants 4	Rainwater retention study for a housing estate in Kobylisy
LANDSCAPE FESTIVAL ŽIŽKOV 2020	Vnitrobloky – inspirace pro udržitelné město III	Seminář ekologického stavitelství Příběhy domů
Pěšky městem	Bird monitoring on agricultural land of the Capital City as a foundation for sensitive agricultural management	Widening the scope of H2Ospodař and its innovation
Project proposal for revitalisation of the Na Beránku wetland area	Libůza community garden	Agroecology for high schools
Festival of urban farming and composting	Ekopradnypraha.cz – a city ready for climate change	Rocket&Raketa at Prague Market
Revitalisation of Pod Stárkou and Týmlova 423, Prague 4 courtyards	Monitoring and optimisation of nectar-bearing wildflower borders for pollinators on agricultural land in the Prague land registry	AutoMat guide for sustainable development
Permaculture farmstead Jinonice	Mindful agricultural management	Communication lab for green cities
6 climate challenges of courtyards: Utilising their potential for change through participation mapping	Experience the city differently 2020	“U dubu” field
Twelve Senses community garden	Ekolist.cz – on nature and the environment in Prague	Climate change as a topic in Scout troops education
Courtyards against climate change – Local leaders are preparing a programme of overall revitalisation	Nectar-bearing wildflower borders for pollinators	Analysis of surface temperature changes as aftermath of ecological measures
Educational programmes for preschool, primary schools, middle school, and high schools “Capital City of Prague Climate Change Adaptation” in 2020/2021	Revitalisation and eradication of landfill collection on the site of a natural freshwater spring	

**TOTAL AMOUNT OF 11,810,000 CZK WAS MADE AVAILABLE FOR THESE PROJECTS.**

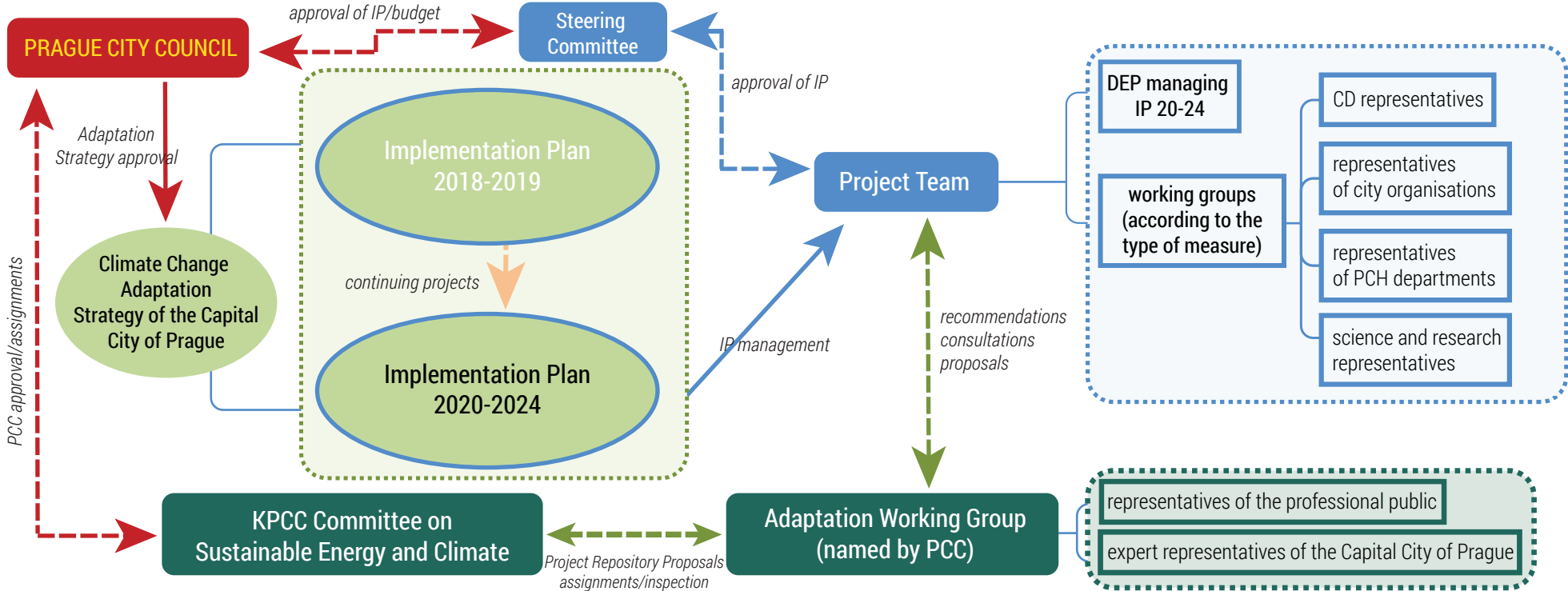
**D**



**SECTION DEFINING  
THE MANAGEMENT  
STRUCTURE OF IP 2020-2024**



# Flowchart detailing the management and inspection structure of the IP





Prague City Council entrusted the Department of Environmental Protection with the authority to produce and manage the Adaptation Strategy and Implementation Plans. However, the management and evaluation of the IP 2020 – 2024 outcomes will be conducted on multiple levels. The details of these are shown in a diagram on page 35. Each level will be assigned a closely defined role, as shown in the table below as a **Summary of Roles in Management and Evaluation of IP Outcomes**.

NAME	ROLE	ROLE DESCRIPTION
Prague City Assembly Prague City Council	A fundamental governing body of city administration directly elected by the PCA	Approves budget chapter related to adaptation projects Approves Adaptation Strategies Approves Adaptation Strategy of the IP Approves the implementation of essential projects
City Districts of the Capital City of Prague	Autonomous districts of the Capital City of Prague	Participate in the IP Adaptation Strategy Members of working groups Implement projects
Committee on Sustainable Energy and Climate	Enterprising and advisory body of the Prague City Council	Advises the Prague City Council on the direction and appropriate steps concerning sustainable energy and climate
Adaptation Working Group	Advisory body of the Prague City Council	Evaluates projects and proposals in the Project Repository Proposes the general direction of adaptation measures and appropriate steps to the PCC Committee Consults, advises, and proposes next steps to the IP Project Team
Adaptation Strategy Steering Committee	Advisory body of the Prague City Council Committee	Recommends Implementation Plans and Adaptation Strategies for further approval Recommends updates of the Adaptation Strategy for further approval
PCH Department of Environmental Protection	Implementation and management of the IP	Processes the IP, Appoints the Project Team, Manages the IP Manages communication and coordination of included projects Implements projects
Implementation Plan Project Team	Management body of the IP	Manages the IP and the Adaptation Strategy Ensures compliance of the city's strategies with their specific targets
Working Group	Advisory body of the Project Team	Processes and evaluates projects based on the targets of the Adaptation Strategy, Takes part in managing the IP
PCH Departments	Organisational section of the Prague City Hall	Implement projects Members of the working group
City Organisations	Organisations founded or established by the Capital City of Prague	Implement projects Participants of the Adaptation Strategy IP Members of the working group



Floating island DUN KOMORO II  
Source: praha-priroda.cz

Abbreviations: **PCA** – Prague City Assembly | **PCC** – Prague City Council | **PCC Committee** – Committee on Sustainable Energy and Climate  
**Adaptation Strategy** – Climate Change Adaptation Strategy of the Capital City of Prague | **IP** – Implementation Plans of the Climate Change Adaptation Strategy of the Capital City of Prague

# Approaches of the Project Team to IP 2020 – 2024 Management

One of the main tasks of the Implementation Plan 2020 – 2024 was to develop a systematic process of management. That is, maintaining continuous evaluation of projects, ensuring that Strategy targets are being met, assessing outcomes, secure compliance with the city's strategic documents, and arrange regular updates and evaluation of projects within the project repository.

**ALONGSIDE CONTINUOUS MONITORING, THE LIVE PROJECT REPOSITORY WILL BE UPDATED IN YEARLY INTERVALS.**

**The following tasks will be the main focus of the IP 2020 – 2024 management:**

- ➔ Regular monitoring (observing and reporting) of the extent to which specific targets of the Adaptation Strategy are being met
- ➔ Coordination and carrying out of IP adaptation measures
- ➔ Evaluation of adaptation measures according to the Adaptation Strategy and its indicators
- ➔ Including new projects into the live repository in compliance with previously defined criteria
- ➔ Discarding projects which cannot be realised
- ➔ Dissemination of new findings emerging in relation to climate change adaptation
- ➔ Cooperation with CD and city organisations in the scope of adaptation measures
- ➔ Managing and monitoring of indicators
- ➔ Pursuing sources of financing for projects/project proposals and aiding in their realisation
- ➔ Reporting for the Adaptation Strategy Steering Committee and the PCC Committee on Sustainable Energy and Climate
- ➔ Presentation of IP 2020 – 2024 outcomes
- ➔ Information updates for the [www.adaptacepraha.cz](http://www.adaptacepraha.cz) portal



E



**SECTION DEFINING POTENTIAL  
BARRIERS AND THEIR ELIMINATION**





# Barriers and Collision of Adaptation Measures

Adaptation Measure barriers are those obstructions that hinder fast and effective implementation of these measures. Such barriers were defined in November 2019 by the Adaptation Working Group of the PCC Committee on Sustainable Energy and Climate.

The main objective of this process was to identify methods which may be used to eliminate such barriers, as well as to establish necessary consensus and system changes. Consensus based solutions are necessary in cases where individual adaptation measures are at odds with each other (collision).

While the Implementation Plan 2020 – 2024 was being formulated, barriers defined in the 2019 proposal have already moved into the elimination stage. As such, an updated table of barriers is included in this document together with their proposed mitigation measures and solutions which are already in place.

This section of the Implementation Plan 2020 – 2024 will be updated once a year.



Revitalisation of Stromovka park  
Source: praha-priroda.cz



## Measures for Areas of Urban Development and the Urban Landscape

Description: PLANTING OF TREES/SHRUBS IN CITY SPACES

**Collision: Airflow cultivation in street spaces**

Solution presented by the Working Group on 30 December 2019

Request for an analysis of the impact of planting in street spaces in the project preparation phase

Resolved by 30 June 2020

Partially

Proposed actions resolved by 30 June 2020

Pilot project for the Bubny-Zátory study, which will be followed by a detailed feasibility study focused on blue-green infrastructure. IPR Prague now includes this requirement for all new conceptual studies. New city-wide requirements are being considered by the Working Group (WG) on Tree Alleys.

Overlap with other WGs

No



## Measures for Adaptation in Buildings

Description: SUPPORT FOR COGENERATION UNITS

**Collision: Emissions**

Solution presented by the Working Group on 30 December 2019

Changes to emission parameters of cogeneration units (CU)

Resolved by 30 June 2020

Yes

Proposed actions resolved by 30 June 2020

Guidance document for the installation of CUs within the area of the CCP and for establishing environmental protection parameters of CUs is being considered as part of the Action Plan for the Air Quality Improvement Program. Processed by DEP PCH.

Overlap with other WGs

Yes

PCC Committee Working Group (WG)

WG on Sustainable Energy



## Measures for Areas of Urban Development and the Urban Landscape

Description: SUPPORT FOR COMPOSTING FACILITIES

**Collision: Greenhouse gas emissions**

Solution presented by the Working Group on 30 December 2019

Defining priorities and parameters of the CCP

Resolved by 30 June 2020

No

Overlap with other WGs

Yes

PCC Committee Working Group (WG)

WG for Circular Economy



## Measures for Areas of Urban Development and the Urban Landscape

Description: ADAPTATION MEASURES OF THE CITY – AIR QUALITY

**Collision: Housing Estates**

Solution presented by the Working Group on 30 December 2019

Mandatory modelling, defining parameters of new housing developments

Resolved by 30 June 2020

No

Proposed actions resolved by 30 June 2020

Pilot modelling for the Bubny-Zátory study. Results expected in autumn 2020.

Overlap with other WGs

No





### Measures for Areas of Urban Development and the Urban Landscape

Description: WASTEWATER USAGE

**Barrier: No prior measures in existence included in the Adaptation**

Solution presented by the Working Group on 30 December 2019	Develop potential strategies for wastewater usage for the Capital City of Prague
Resolved by 30 June 2020	No
Overlap with other WGs	Yes
PCC Committee Working Group (WG)	WG for Circular Economy



### Measures for Areas of Urban Development and the Urban Landscape

Measures for the Open Landscape

Description: AGRICULTURAL AREAS

**Barrier: Lack of centralised agricultural policy of the Capital City of Prague**

Solution presented by the Working Group on 30 December 2019	Processing of agricultural policies
Resolved by 30 June 2020	Jointly DEP and IPR Prague
Proposed actions resolved by 30 June 2020	A project concerning the management of agricultural lands was drawn up as part of the IP 2020 – 2024. The PCC accepted guidelines of “ecological” agricultural practice on the lands of the CCP (processed by DEP PCH) and all contracts with agricultural companies were terminated. It is now only possible to lease agricultural land only if these guidelines are adhered to.
Overlap with other WGs	No



### Measures for Improving Education and Outreach for Citizens and City Districts

Description: AWARENESS OF ADAPTATION MEASURES

**Barrier: No established communication system**

Solution presented by the Working Group on 30 December 2019	1. Establishment of adaptation “coordination office” + widening focus to cover all of climate issues
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	The DEP PCH will test a pilot participation calendar for adaptation measures as part of the IP 2020 – 2024.
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	2. Managing the project database (Best Practice)
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	Processed via the IP 2020 - 2024
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	3. Creating a communication system
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	Processed via the IP 2020 - 2024
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	4. Participating office at IPR Prague
Resolved by 30 June 2020	Yes
Proposed actions resolved by 30 June 2020	Programme is being processed at IPR Prague
Overlap with other WGs	Possible
PCC Committee Working Group (WG)	All





Measures for Areas of Urban Development and the Urban Landscape, Measures for the Open Landscape, Measures for Adaptation in Buildings, Measures for Improving Education and Outreach for Citizens and City Districts

Description: ADAPTATION MEASURES OF THE CITY – GENERAL

**Barrier: Public procurement – competition targeting the lowest price (emphasis on quality missing)**

Solution presented by the Working Group on 30 December 2019	Establishing Rules of conduct for responsible public procurement
Resolved by 30 June 2020	Yes
Proposed actions resolved by 30 June 2020	Processed by the Adaptation WG. A draft submitted to the PCC expected in 2020.
Overlap with other WGs	Yes
PCC Committee Working Group (WG)	All + all of the Capital City of Prague

**Barrier: Building Act, current norms dictated by the Czech Technical Standard (CTS) not sufficient**

Solution presented by the Working Group on 30 December 2019	1. Setting up a framework under the competency of the Capital City of Prague, updating the Strategic Plan for Prague (SPP), etc.
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	Drawing up obligatory standards of rainwater management
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	2. WG for Tree Alleys (and their care)
Resolved by 30 June 2020	Yes
Proposed actions resolved by 30 June 2020	Realised
Overlap with other WGs	No

**Barrier: Lack of experts focusing on adaptation measures**

Solution presented by the Working Group on 30 December 2019	1. Establishment of adaptation “coordination office” + widening focus to cover all of climate issues
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	The DEP PCH will test a pilot participation calendar and information office for adaptation measures as part of the IP 2020 – 2024.
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	2. Better coordination and utilisation of research projects
Resolved by 30 June 2020	Yes
Proposed actions resolved by 30 June 2020	Scientific research projects will be monitored under the IP 2020 – 2024 and their outcomes will be forwarded to agenda information systems of the PCH, CD, and organisations.
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	3. Utilising information provided by the Scientific Council of the Committee
Resolved by 30 June 2020	No
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	4. Employing innovation monitoring
Resolved by 30 June 2020	No
Overlap with other WGs	Yes
PCC Committee Working Group (WG)	All



Measures for Areas of Urban Development and the Urban Landscape, Measures for the Open Landscape, Measures for Adaptation in Buildings, Measures for Improving Education and Outreach for Citizens and City Districts

Description: ADAPTATION MEASURES OF THE CITY – GENERAL

**Barrier: No existing team dedicated to publicising the ideas of Adaptation outside of political representation**

Solution presented by the Working Group on 30 December 2019	Establishment of adaptation “coordination office” + widening focus to cover all of climate issues
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	The DEP PCH will test a pilot participation calendar and information office for adaptation measures as part of the IP 2020 – 2024.
Overlap with other WGs	No

**Barrier: Non-existent coordination between blue-green and grey infrastructures**

Solution presented by the Working Group on 30 December 2019	Establishment of adaptation “coordination office” + widening focus to cover all of climate issues
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	The DEP PCH will test a pilot participation calendar and information office for adaptation measures as part of the IP 2020 – 2024.
Overlap with other WGs	No

**Barrier: Lack of knowledge and willingness to adopt new technologies on behalf of city organisations (i.e. network operators)**

Solution presented by the Working Group on 30 December 2019	Drawing up guidelines
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	Defining obligatory standards of rainwater management
Overlap with other WGs	No

**Barrier: Heritage conservation**

Solution presented by the Working Group on 30 December 2019	Improving collaboration with heritage protection in project planning
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	The DEP PCH will test a pilot participation calendar and information office for adaptation measures as part of the IP 2020 – 2024.
Overlap with other WGs	No

**Barrier: Spatial planning (building density priorities over greenery)**

Solution presented by the Working Group on 30 December 2019	Political decision
Resolved by 30 June 2020	No
Overlap with other WGs	No



## Measures for Improving Education and Outreach for Citizens and City Districts

Description: OUTREACH CONCERNING ADAPTATION MEASURES

### Barrier: Unsatisfactory support for citizen participation in adaptation measures

Solution presented by the Working Group on 30 December 2019	1. Education
Resolved by 30 June 2020	Partially
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	2. Establishment of adaptation "coordination office" + widening focus to cover all of climate issues
Resolved by 30 June 2020	Partially
Proposed actions resolved by 30 June 2020	The DEP PCH will test a pilot participation calendar and information office for adaptation measures as part of the IP 2020 – 2024.
Overlap with other WGs	No
Solution presented by the Working Group on 30 December 2019	3. Subsidy programme
Resolved by 30 June 2020	No
Proposed actions resolved by 30 June 2020	IP 2020 – 2024 will include grant and subsidy flowcharts.
Overlap with other WGs	No



## Measures for Areas of Urban Development and the Urban Landscape Description: MANAGEMENT AND MAINTENANCE OF GREENERY

### Barrier: Role of management and maintenance underestimated

Solution presented by the Working Group on 30 December 2019	Defining Standards of management and maintenance of greenery is essential
Resolved by 30 June 2020	Yes
Proposed actions resolved by 30 June 2020	WG for Tree Alleys is currently working on guidelines for boulevards. This document should be produced by the end of 2020.
Overlap with other WGs	No



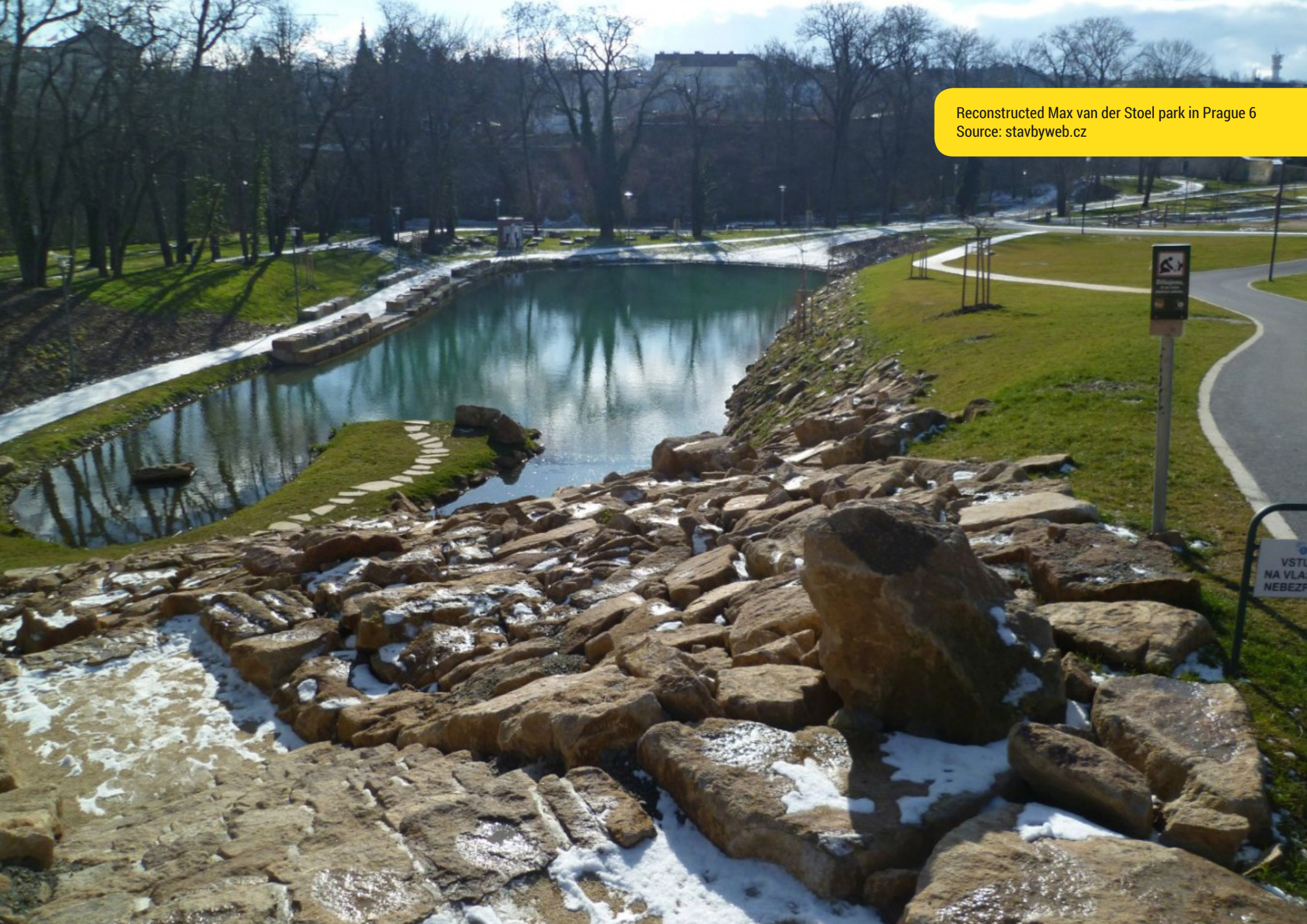
## Measures for Areas of Urban Development and the Urban Landscape Description: MANAGEMENT AND MAINTENANCE OF GREENERY

### Barrier: Public procurement – competition targeting the lowest price (emphasis on quality missing)

Solution presented by the Working Group on 30 December 2019	Establishing Rules of conduct for responsible public procurement
Resolved by 30 June 2020	Yes
Proposed actions resolved by 30 June 2020	Processed by the Adaptation WG. A draft submitted to the PCC expected in 2020.
Overlap with other WGs	Yes
PCC Committee Working Group (WG)	All + all of the Capital City of Prague



Reconstructed Max van der Stoel park in Prague 6  
Source: stavbyweb.cz





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# SECTION DEFINING METHODS OF MONITORING AND EVALUATION



Fulfilling the targets of the Implementation Plan, risk identification, reacting to changes, and initiating reviews of the Implementation Plan are all subject to regular monitoring and continuous, as well as final, evaluation of the Implementation Plan.

## What Is Regular Monitoring?

Regular monitoring will be focused on tracking the realisation of key projects of the Implementation Plan. This information will then be passed on to the relevant management bodies.

Basic parameters of project realisation (timeline, risks, and changes to the project) will be monitored periodically, and the information will be forwarded to relevant management bodies of the IP.

Regular monitoring and efficient relaying of information will ensure that regulatory measures can be implemented in time if problems arise with carrying out key projects, which could otherwise have a negative impact on fulfilling the targets of the IP and aligning its results with the established indicators.

Regular monitoring will also provide up to date information about the stages of project realisation to leading representatives of the Capital City of Prague and allow them to better inform the public. The basis for the formulation of a monitoring report will be monthly updates delineating the progress of projects, produced by project managers or those responsible for their realisation.

The output of regular monitoring will be a numbered monitoring report, which will serve as a foundation for meetings of the Project Team and the Steering Committee.

## What Is Continuous Evaluation?

Continuous evaluation focuses on regular assessment of adherence to the entire IP. This includes also the cooperation and coordination of individual involved parties. Monitoring reports, records from individual management levels, questionnaires, and interview processes will form the basis of such evaluations. Information about public dissemination of information regarding realised projects and its impact, as well as adherence to the IP outcomes will form a separate category.

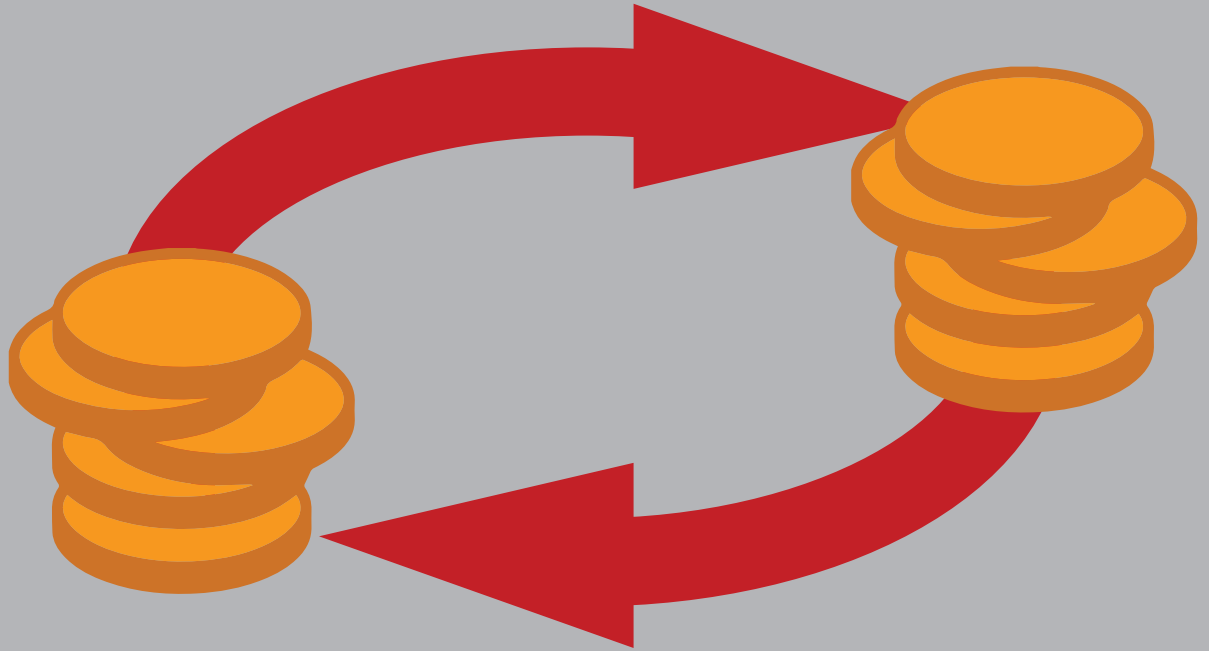
The aim of continuous evaluation is to independently assess the overall function of the management and coordination system of the IP, together with timely reporting of information regarding potential issues and suggestions for improvement. A continuous evaluation report will be presented to the project team and the steering committee at least once a year.

## What Is a Final Evaluation?

A final evaluation report will be submitted after the realisation of IP 2020 - 2024 is completed within its designated timeframe. The aim of this report is to assess whether the desired IP outcomes and indicators were or were not met successfully, as well as to describe positive and negative experiences gained in the process of realisation, followed by suggestions for future improvement. The foundation for the final evaluation report will be formed primarily from continuous evaluation reports, meeting minutes, questionnaires, and personal interviews. As part of the final evaluation, media coverage and interest in the realisation of the IP and its key projects will also be assessed, together with a survey conducted with residents of the Capital City of Prague.

The output of the final evaluation will take form of an evaluation report, which will then be presented to the project team and the steering committee for annotations, and finally forwarded to the PCC for approval.





**FINANCE SECTION**



# Financial Requirements of Projects/Project Proposals

Estimated financial requirements for the realisation of individual projects were presented by their guarantors as part of the live repository. Some of these projects already possess sources of funding, while for some the sources of funding remain unknown.

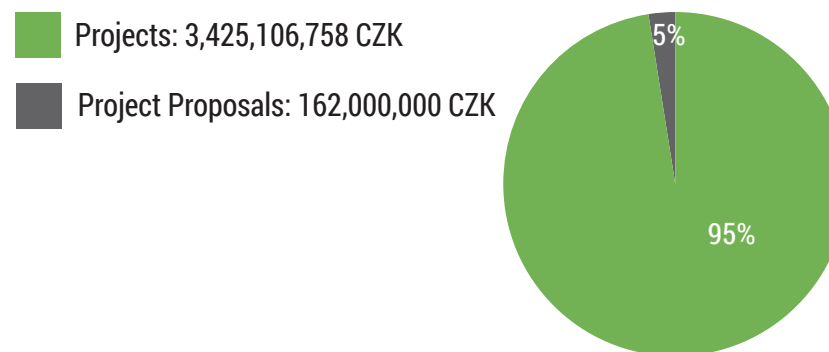
As part of the IP, the main task of the project team will be to present ways of securing funds for such projects, be it from CD budgets or from other sources.

It is important not to overlook operating costs which may exceed investment costs for certain categories of adaptation measures.

These overall costs should not be viewed purely from a financial perspective but should also include an insight into the socioeconomic importance of ecosystem and environmental services, where the benefits of adaptation far outweigh the costs of project realisation. Operating costs will be included in the process of monitoring for project realisation, as will be the monitoring of overall financial costs in relation to the Capital City of Prague's budget, that is, current and capital expenditure.

## AMOUNT AND RATIO OF PROJECT AND PROJECT PROPOSAL FINANCES

The overall expenditure is 3,587,106,758 CZK



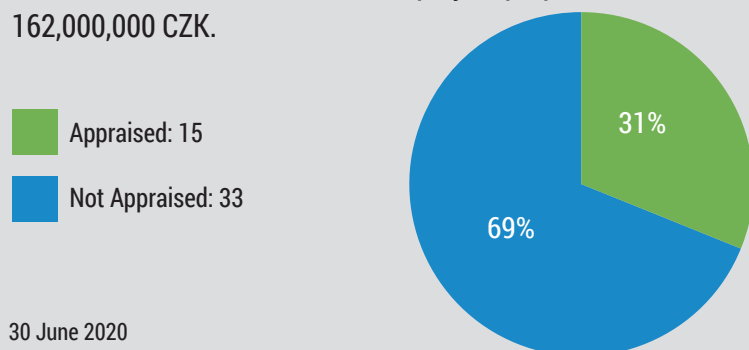
## PROJECT REPOSITORY

### Number and ratio of project proposals

15 out of the total of 48 project proposals have been appraised.

The total estimated costs of these project proposals are:

162,000,000 CZK.



30 June 2020

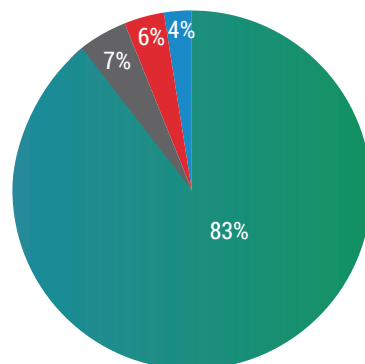
**FROM THE PERSPECTIVE OF ECOSYSTEM AND ENVIRONMENTAL SERVICES, THE SOCIOECONOMIC BENEFITS OF ADAPTATION MEASURES CAN FAR OUTWEIGH INVESTMENT AND OPERATING COSTS.**

# Financial Requirements of Projects/Project Proposals

## ESTIMATE OF COSTS FOR PROJECTS/PROJECT PROPOSALS ACCORDING TO CATEGORY

The total estimate of costs is 3,587,106,758 CZK

- Blue-green infrastructure: 2,976,455,458 CZK
- Studies and conceptual studies: 224,171,300 CZK
- Grey infrastructure: 236,480,000 CZK
- Environmental Projects: 150,000,000 CZK

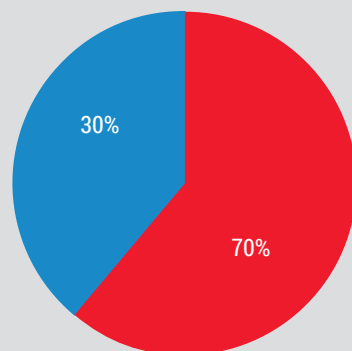


30 June 2020

## AMOUNT AND RATIO OF ALLOCATED/UNALLOCATED FINANCES

2,520,438,162 CZK has been allocated from the total of 3,587,106,758 CZK.

- Allocated: 2,520,438,162 CZK
- Unallocated: 1,066,668,596 CZK



30 June 2020

## PROJECT REPOSITORY COSTS (UPDATED ON 30 JUNE 2020)

Costs listed in the repository are mostly estimated amounts linked to project realisation or estimates regarding project proposals. However, the repository also includes project proposals which still lack defined estimates, but which are desirable due to their fit with the Adaptation Strategy targets. The main aim of the IP 2020 – 2024 will therefore be to find a suitable source of funding for such projects.

The total costs for projects are currently estimated at over 3.4 billion CZK, while project proposals are currently expected to fluctuate around 162 million CZK. However, the latter is an estimate based on 15 project proposals only.

Over 2.5 billion CZK has been allocated for individual project budgets. This implies that the realisation of these projects is highly likely to move forward. The following charts show expenditure based on project/project proposal categories, numbers and ratios of estimated numbers, or the ratio of allocated finances.

The majority of projects/project proposals are included in the blue-green infrastructure group, for which the total amount is close to 3 billion CZK.



# Methods of Project Financing

One of the main tasks of the project team will be to propose the means of financing projects which are, or will be, included in the live repository of projects, or those which have ties with other adaptation projects. A possible method of financing may be the establishment of a budget allocation of the Capital City of Prague for adaptation measures or securing subsidy of grant offers at the city and country levels.

## **What are the Options for Financing Adaptation Measures Outside the Capital City of Prague Budget?**

At the time of the IP 2020 – 2024 completion, the project timeframe of 2020 is ending, and EU funded projects are to be completed by 2022.

- A new programming period has yet to be approved, and the Czech Republic is currently in the process of discussing such matters with the European Commission. Most of the financial support from the Operational Programme Environment 2021 – 2027 (see concept documents at <https://www.opzp.cz/dokumenty/detail/?id=2216>) is targeting NUTS 2 with the exception of CZ-01 Prague agglomeration. Nevertheless, the Capital City of Prague is the subject of chapter 2.A.3 of Climate Change Adaptation (floods – drought – extreme weather – climate change awareness), specific objective 1.3 Support for Sustainable Water Management.

### **FINANCIAL SUPPORT IS EXPECTED FOR THE FOLLOWING ACTIVITIES:**

#### **2.A.3 Climate Change Adaptation (floods – drought – extreme weather – climate change awareness):**

- Establishment and revitalisation of naturalised bodies of water in the landscape and in built-up environments;
- Establishment and revitalisation of vegetation components and structures, including measures targeting water and wind erosion;
- Adjustment of forest stands towards naturalised structures and species composition in order to strengthen their stability;
- Revitalisation of common green areas and spaces, including community gardens;

- Removal or elimination of negative impacts of drainage facilities in the landscape;
- Implementation of flood prevention measures;
- Implementation of measures aiming to slow drainage, percolation, retention, and accumulation of rainwater together with taking into consideration its further uses such as green roofs, ways of utilising grey water and infiltration of surface water into groundwater; drawing up studies and plans (studies focused on urban green spaces, studies of drainage situation in urban areas, percolation maps, landscape spatial planning studies, plans for the Territorial System of Ecological Stability);
- Construction, expansion, and improvement of alert, announcement, prediction, and warning systems on a national and local level, digital flood plans;
- Supporting flood response operations, increasing the capacity and technology of individual municipalities to react to flood, increasing public awareness of flood risks;
- Clearing flood prone areas and supporting the establishment of flood control parks;
- Strengthening the stability of slopes and hillsides, stabilisation and remediation of extreme instabilities caused by stabilisation and remediation of slopes and hillsides, stabilisation and remediation of extreme instabilities with natural causes;

- Elimination of waterworks and built structures on river courses negatively acting as flood obstructions;
- Updating the slope instability register;
- Investing in modernisation of environmental education centres.

#### 2.A.4 Specific Objective 1.3 Support for Sustainable Water Management

- Construction and completion of wastewater treatment plants;
- Intensification of wastewater treatment plants with the aim of removing individual types of pollution;
- Completion and modernisation of sewerage systems;
- Measures limiting wastewater discharge through sewerage system updates (accumulation reservoirs, retention reservoirs, chemical pre-treatment, etc.);
- Construction and modernisation of tap water feed pipes and water mains;
- Supplementing technology for eradicating specific pollutants;
- Construction, intensification, or revitalisation of current water sources.

#### THE MAIN TARGET GROUPS ARE:

- Landowners or administrators regardless of their legal status in regard to measures implemented in the landscape;
  - Municipalities and other public subjects for measures implemented in built-up urban spaces;
  - Organisations supporting climate related education and outreach;
  - Municipalities as owners of water management infrastructure systems (municipalities themselves or corporations owned at least 50% by public bodies).
- We estimate that operational programmes and first call for proposals will be realised in 2022. Thus, they will not have a significant effect on the first term of IP 2020 – 2024 except for projects put together before the very first calls.

- As part of the Operational Programme Environment (OPE) a call for projects is currently open until 11 January 2021 in support of rainwater management and its further utilisation within built-up urban spaces, with the intention to avoid hasty redirection of sewerage systems into waterways. Accessible at <https://www.opzp.cz/nabidka-dotaci/detail-vyzvy/?id=151>
- For 2020 and the first half of 2021 Norway Grants with focus on environmental protection remain open for applications (<https://www.eeagrants.cz/en/calls>). The programming period for Norway Grants covers years 2014 – 2021. As such, the IP 2020 – 2024 falls into the initial phase of a new programming period.
- The State Environmental Fund of the Czech Republic announces new open calls on a continuous basis. It is crucial to follow the individual definitions of possible subsidy recipients.

#### What Are the Recommendations for Managing Project Funding?

Throughout the first year of the IP 2020 – 2024 the project team should be focusing on preparing subsidy and grant schemes aimed at supporting projects realised by the Capital City of Prague, city districts, and organisations founded or established by the city, non-profit organisations, developers, or city inhabitants. These subsidy and grant schemes will be interconnected with already established tools of the Capital City of Prague. Their aim will be to secure the maximum amount of funds in relation to adaptation measures, which will in turn aid in fulfilling the targets of the Adaptation Strategy and IP 2020 – 2024.



# Conclusion and Acknowledgements

The processing of the Implementation Plan of the Climate Change Adaptation Strategy for 2020 – 2024 has shown that involved parties, which have presented projects or project proposals to be included in the live repository, are indeed invested in the implementation process of climate adaptation measures.

They have demonstrated a responsible approach to cooperation and to formulating individual steps taken by the Prague City Council and the Prague City Assembly.

Some of these steps included joining the international Mayors Adapt (2015) initiative, approval of the Climate Change Adaptation Strategy (2018), adopting the Climate Commitment pledge (2019), processing of the Implementation Plan 2020 – 2024 (2020), joining the Covenant of Mayors for Climate & Energy (2018), and processing the Sustainable Energy and ClimateAction Plan (SECAP) (2020).

Implementation Plan 2020 – 2024 includes sections which are crucial for its processing, management, and assessment of its outcomes. However, it also contains sections which will be updated in regular intervals. These include primarily the “live repository of projects”, together with expenditure and methods of project funding outside the scope of the Capital City of Prague budget, as well as the section defining potential barriers to the realisation of adaptation measures.

Climate change and the course of its effects have become a reality which we can no longer reverse. However, we can influence the ways in which we adjust to these situations (heat waves, poor microclimate, water scarcity, extreme precipitation) and find suitable adaptation measures which will contribute to a better and safer life for Prague's inhabitants.

The authors would like to extend their gratitude to all involved persons and parties for submitted projects, project proposals, and insightful comments throughout the process of formulation of the Implementation Plan 2020 – 2024.



Photo of Prague by Václav Hykeš



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- Strategic Plan for Prague, updated 2016
- Communication, Education and Public Awareness Regional Strategy for the Capital City of Prague
- Air Quality Improvement Programme for Prague Agglomeration CZ01 (until 2020)
- Capital City of Prague Municipal Objectives Policy for 2013 – 2033
- Prague Public Space Design Manual
- Prague Riverbank Policy, IPR 2014
- UNALAB TECHNICAL HANDBOOK OF NATURE-BASED SOLUTIONS, 2019
- [www.klimatickazmena.cz](http://www.klimatickazmena.cz)
- [www.urbanadapt.cz](http://www.urbanadapt.cz)

# Abbreviations

**Adaptation Strategy:** Capital City of Prague Climate Change Adaptation Strategy  
**AQIP:** Air Quality Improvement Programme  
**BGI:** Blue-green infrastructure  
**CCP:** Capital City of Prague  
**CD:** City district  
**CO2:** Carbon dioxide  
**CRELOCAF:** Climate Resilient Low Carbon Factor  
**CU:** Cogeneration Unit  
**DEP:** Department of Environmental Protection, Prague City Hall  
**DPM:** Department of Property Management, Prague City Hall  
**EU:** European Union  
**IP 2018 – 2019:** Implementation Plan for 2018 – 2019  
**IP 2020 – 2024:** Implementation Plan for 2020 – 2024  
**IP:** Implementation Plan  
**KLIMSKEN:** A tool allowing for a comprehensive assessment of the city, city districts, and individual buildings from a climate change standpoint and an adaptation and mitigation perspective  
**MoE:** Ministry of the Environment  
**OPE:** Operational Programme Environment  
**PCA:** Prague City Assembly  
**PCC Committee:** Prague City Council Committee on Sustainable Energy and Climate  
**PCC:** Prague City Council  
**PCH:** Prague City Hall  
**PV:** Photovoltaics  
**SD:** Security Department, Prague City Hall  
**SECAP:** Sustainable Energy and Climate Action Plan  
**SEF:** State Environmental Fund



