ACTION PLAN 2023–2025

Circular Prague 2030 Strategy

CIRCULAR PRAGUE

PRAHA PRAGUE PRAGA PRAG

CONTENTS

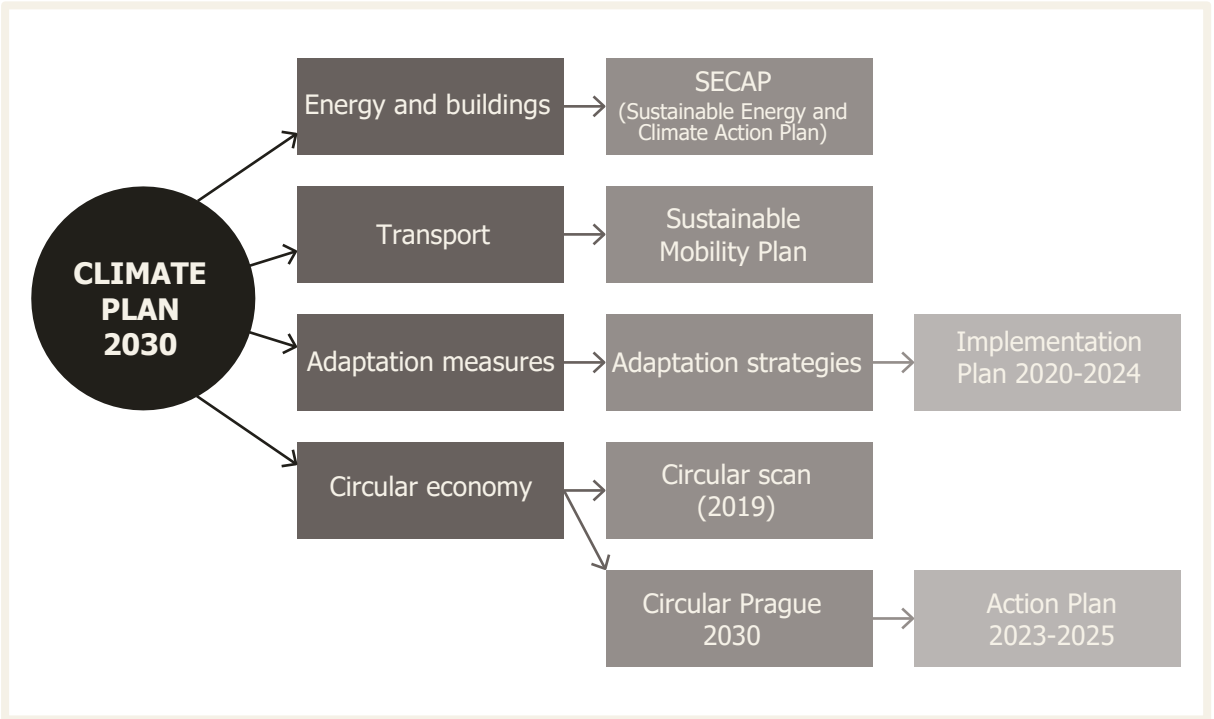
INTRODUCTION

A/ History and Purpose of the Document

On 27/01/2022, the City Council of Prague unanimously approved the Strategy of the City of Prague for the Transition to a Circular Economy – Circular Prague 2030 by Resolution No. 33/17.

It is a strategic framework document that sets out strategic and specific objectives **in seven areas** (civil engineering; water; agriculture and food; waste; public procurement; business support, innovation and awareness; governance and implementation). **Circular Prague 2030** is one of the 4 pillars of the **Prague Climate Plan 2030** and proposes typical measures and projects that can reduce the consumption of material resources and the amount of waste and strengthen the regenerative functions of the ecosystems within the territory of the capital city of Prague. **The overarching goal and vision of the Circular Prague Strategy is to contribute to achieving climate commitments and move towards carbon neutrality in 2050.**

The climate plan and its link to the various areas of city administration:



With the adoption of the Strategy for the Transition to a Circular Economy, Prague has announced its ambition to become a circular innovation hub, where the city supports digitisation, development and use of new technologies, materials and processes through the implementation of strategic and pilot projects, and can be an inspiration for other cities in the region.

Resolution of the City Council of the City of Prague (No. 33/17) tasked the Department of Environmental Protection (DEP) of the City of Prague with preparing and submitting to the Prague City Council for approval the first Action Plan of the Strategy of the City of Prague for the Transition to a Circular Economy (hereinafter referred to as the Action Plan) with updated projects, an organisational scheme for their implementation and indicators by the end of 2022. According to Resolution of the Council of the City of Prague No. 42 of 17/ 01/ 2022, a report on the implementation of the Strategy shall be submitted to the Prague City Council at annual intervals and a Strategy Action Plan containing an updated list of upcoming projects at two-year intervals.

Vision of the Circular Prague 2030 Strategy

Prague continuously reduces ecological and carbon footprint (the resource intensity of consumption), and aims for carbon neutrality in 2050. It motivates Prague's stakeholders, including the private sector and the public, to manage resources responsibly and contributes to a reduction in the overall CO_2 emissions of the city through the implementation of cost-saving measures and waste prevention.

B/ Methodology for the preparation of the Circular Prague 2030 AP

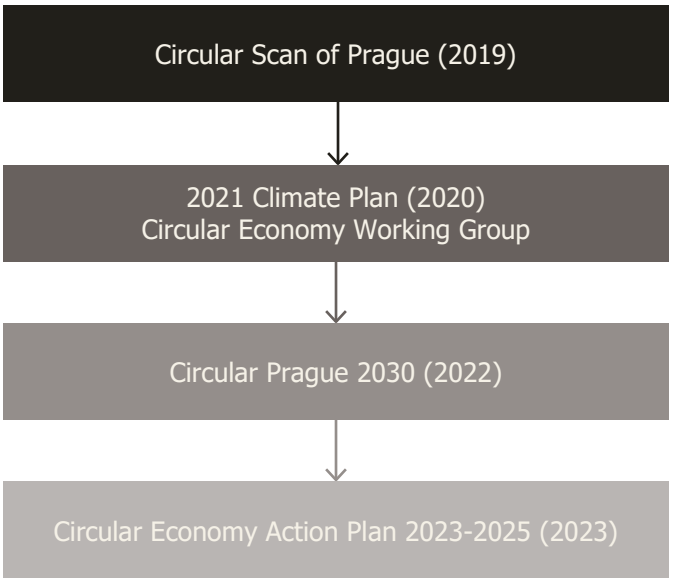
Action Plan 2023-2025 builds on the **Circular Prague 2030 Strategy**, which was prepared in 2021/22 by Pražský inovační institut, z.ú. in cooperation with the DEP of the PCC, the Circular Economy Working Group, the Circle Economy consultancy firm and a number of other stakeholders. It proposes 7 strategic objectives, 27 specific objectives, 78 measures and 37 project cards with the aim of contributing to greater material efficiency, reduced greenhouse gas emissions and carbon neutrality by 2050 (Prague Climate Target) through changes in the management of material resources on both the production and consumption side. The analytical part of the Circular Prague 2030 Strategy was largely based on data from the 2019 **Circular Scan**, which was prepared by INCIEN, BIC Brno, s.r.o. and the Circle Economy consultancy group as a research project of the Technology Agency of the Czech Republic (TA CR). Based on the analysis of material flows, the circular scan recommended that Prague should further focus 1) on the construction and demolition sector, 2) on the development of re-use centres, and 3) on the processing of biomass into BioCNG and its use to power the vehicle fleet of Pražské služby. Another input source used to create the Circular Prague 2030 Strategy was the **Climate Plan of the City of Prague of 2021**, which was developed under the Climate and Energy Commission of the City of Prague, in cooperation with the Circular Economy Working Group, and defined 12 strategic projects for the circular economy, including the preparation of the Circular Prague Strategy, with the ambition to contribute to the climate commitment of the City of Prague by reducing total CO_2 emissions by up to 5%.

The main changes that the Climate Plan will bring to the city:

Energy industry	Buildings	Transport	Circular economy	Adaptation
- 60% reduction of CO_2 emissions from electricity and heat supply	**- 15%** reduction of heat and gas consumption through energy saving measures	**- 17%** reduction in consumption of fossil fuels in transport	**+ 38%** Increase in sorting of municipal waste (from 27% to 65%)	**+ 1.5 million** trees planted
+ 2.3 TWh of electricity from new zero- and low-emission generation plants	**+ 23 thousand** buildings fitted with solar and cogeneration sources of electricity	**+ 150 million** more passengers carried annually by public transport	**+ 3 mill. m_3** of biomethane from bio-waste for use in transport	**- 28%** of the share of drinking water for watering public green spaces
+ 2.36 TWh of heat from new emission-free and low-emission plants	**+ 70 thousand** low-emission heat sources (condensing boilers and heat pumps)	**+ 900** clean electric buses in everyday transport	**- 50%** production of mixed (residual) municipal waste	**+ 5%** adaptability to climate change impacts in public buildings managed by the city, city districts
0 MWh of heat and electricity from coal	**+ 500 thousand** smart meters in households and institutions	**+ 10 thousand** publicly accessible charging stations to promote electromobility in the city	**0 tonnes** of waste disposed of without purpose by landfilling	**+ 7 m_2** of land converted from impermeable surfaces to blue-green infrastructure per 1,000 inhabitants/year

Note: The baseline for the vast majority of indicators is 2010. The target year is 2030.

Strategic anchoring of the circular economy in the city:



The Circular Economy Action Plan was developed from June 2022 to January 2023. The initial set of information for the preparation of the Action Plan consisted of 37 project cards, which are part of the Appendix of the approved Circular Prague 2030 Strategy. In addition to the above-mentioned documents (Circular Scan and Climate Plan of the City of Prague), the sources include the recommendations of Circle Economy made as part of preparing the Strategy preparation and taking into account the feasibility and impact of individual proposed measures.

Preparation of the Action Plan included the revision of the project cards from the Circular Prague 2030 document and the creation of an updated **stack of 59 projects (the number of projects was thus increased by 22 project proposals compared to the Circular Prague strategy)**, which are divided into two groups:

1) **projects ready for implementation;**
2) **intended projects to be finalised and have their implementation scheme set up, including cooperation with project partners.**

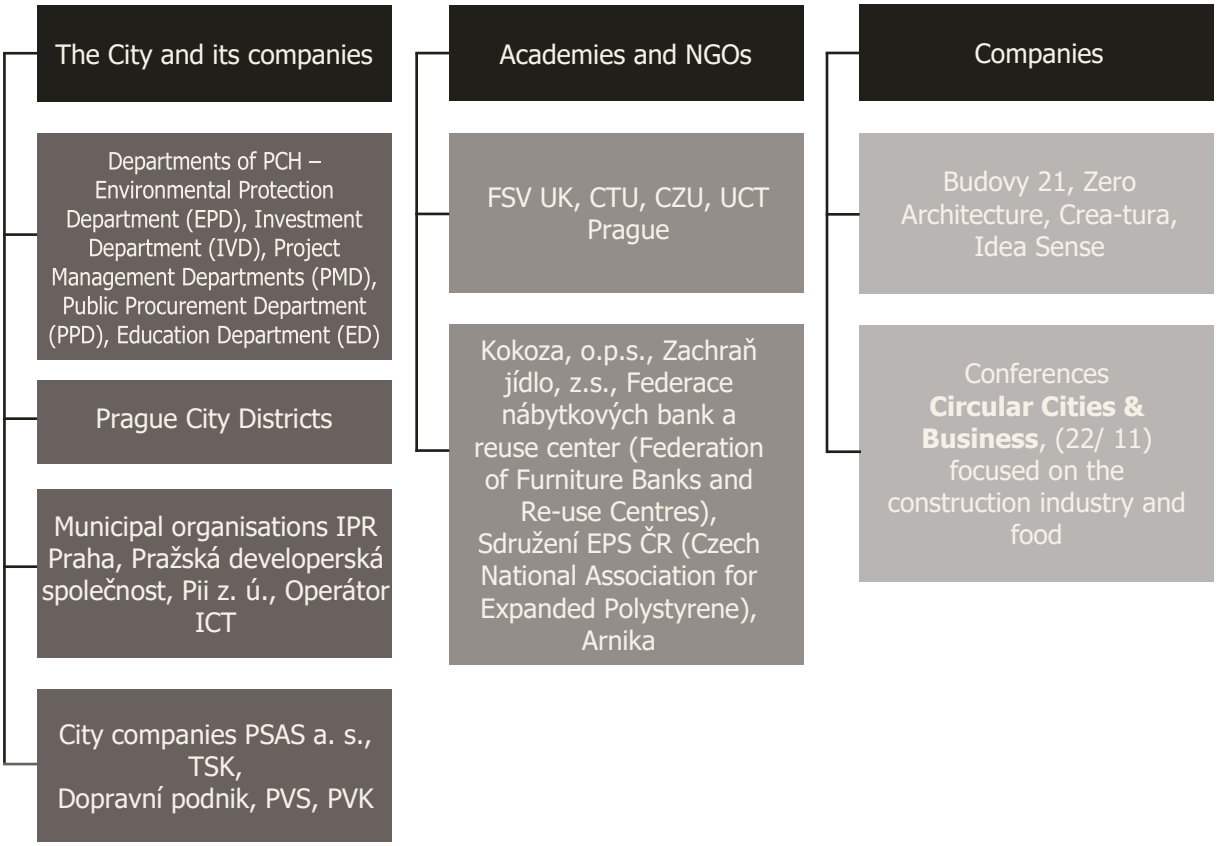
An important source were the suggestions and comments from stakeholders in the city (city districts, city organisations, companies, the academic sector, and the non-profit sector), who were contacted to analyse the current status of projects that comply with circular principles or to update the status of projects already underway. The information was further gathered through dozens of individual or group discussions.

The stack of projects will be evaluated and updated in the annual **Implementation Reports** of the Action Plan of the Circular Prague 2030 Strategy for 2023-25. In the Management and Implementation chapter, the Action Plan proposes **a system of management, monitoring and evaluation** and sets out priority topics and recommendations for individual thematic and cross-cutting areas (at the level of strategic objectives).

The Action Plan was prepared by Veronika Doubnerová in cooperation with Pražský inovační institut, z.ú. and the DEP of the PCC in cooperation with the stakeholders responsible for the implementation of individual project cards.

The stakeholders asked for cooperation in the preparation of the Strategy and Action Plan 2023-25:

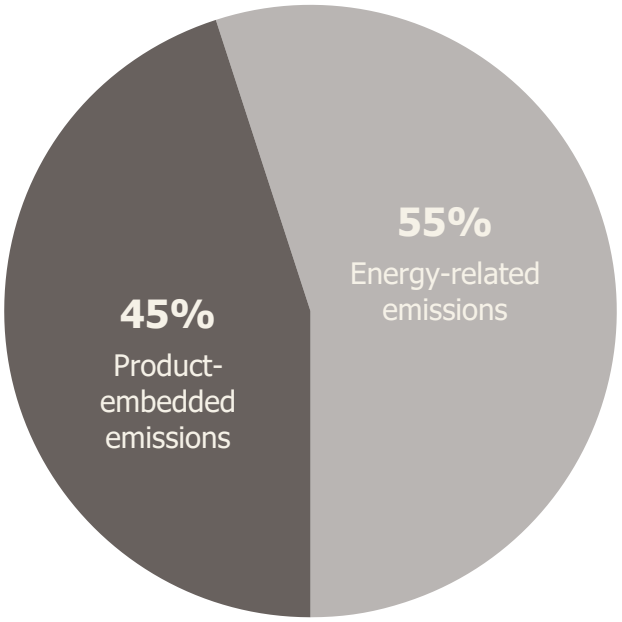
Collection of initiatives from the private sector also included the international conference "Circular Cities & Business", which was organised by Pražský inovační institut on 22/ 11/ 2022. The event focused on cooperation between the city and companies in two specific areas that have already been identified in the preparation of Circular Prague 2030 as having great potential for impact in the circular economy in Prague: construction industry and food.



C/ Climate targets and the circular economy in cities

The circular economy is an important pillar in efforts **to reduce CO_2 emissions** and the impact on the environment. At the same time, it is a major way of increasing resource management efficiency. The introduction of measures for the transition to a circular city **significantly reduces greenhouse gas emissions connected to the consumption of its inhabitants in their daily lives**. These emissions are embedded in the products and services we consume and use. By switching to renewable energy, it is possible to reduce **CO_2 emissions by about 55%** by 2050[1]. The remaining emissions are "stored" in materials (cement, steel, aluminium, plastics are among the most energy-intensive) and **everyday consumer products** (cars, food, clothing, electronics, etc.). By changing the way they are produced and consumed, it is possible to radically reduce CO_2 emissions and aim towards **carbon neutrality**.

Current CO_2 emissions according to the Ellen MacArthur Foundation



In the EU, the impact of consumption is addressed by, among others, the European Commission's Sustainable Products Initiative. It identified the following as key value chains in the production and consumption of materials and products in 2020: packaging, plastics, electronics, batteries, vehicles, textiles, construction and food[2].

Another important area of circular economy is the bioeconomy, i.e., the care of natural ecosystems and the intensified use of natural materials and processes for economic purposes.

Source: Ellen MacArthur Foundation: https://ellenmacarthurfoundation.org/completing-the-picture

[1] Ellen MacArthur Foundation: https://ellenmacarthurfoundation.org/completing-the-picture

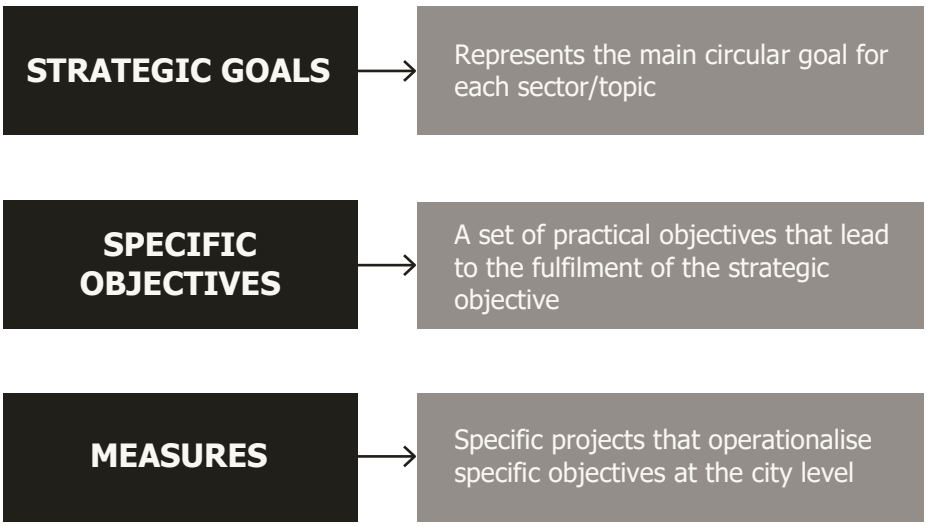
[2] European Commission: https://ec.europa.eu/ info/law/better-regulation/have-your-say/initiatives/12567-Iniciativa-pro-udrzitelne-produkty_cs

ACTION PLAN 2023–2025

The Action Plan *sets out priority topics and tools for the next three years* that can contribute to the 7 strategic and 27 specific goals of the Circular Prague 2030 Strategy.

At the same time, it proposes *a system for the implementation of the Strategy (management, monitoring and evaluation)* and presents a list/stack of projects for the following years. It is expected that this stack will be added to and updated annually in the framework of the Implementation Reports.

Structure of the Circular Prague 2030 Strategy



Structure of Action Plan 2023-25

The Action Plan is structured into **7 chapters, which correspond to the 7 strategic objectives of the Circular Prague 2030 Strategy.**

At the level of the strategic objectives, the Action Plan sets out the roles and **responsibilities** and provides **indicators to measure trends**, whether and how progress is being made
to meet the strategic objectives.

The Action Plan also contains the specific objectives according to the Circular Prague 2030 Strategy, which are fulfilled by specific projects (see the chart showing the Circular Prague 2030 Strategy structure). The data for each project is filled in the project card template (see project card structure on page 12).

As part of the preparation of the Action Plan **2023-25, the number of projects was increased to 59, i.e. by 22 new project cards compared to the list in the Circular Prague strategy** . This is a cross-cutting and relatively new topic, which often requires an initial set-up of cooperation and communication between partners in identifying the needs and possible solutions, which is reflected in the level of readiness of projects, which are divided into two groups in the project stack:

The projects included in the Action Plan and detailed in Annex I, List of Project Cards, are divided into two categories:

CATEGORY 1: ongoing projects or projects ready for implementation.

CATEGORY 2: projects as concepts for further development.

The conclusion of each chapter includes a description of the current state, recommendations and tools to be prioritised during the reporting period. The projects are based on the standard measures of the Circular Prague 2030 Strategy and the readiness to implement them in the coming years.

A Strategic Objective is proposed for each of the 7 areas (chapters), which is further divided into Specific Objectives and implemented through the proposed measures.

Measures are evaluated based on three categories that may affect the resulting feasibility and potential impact of each measure:

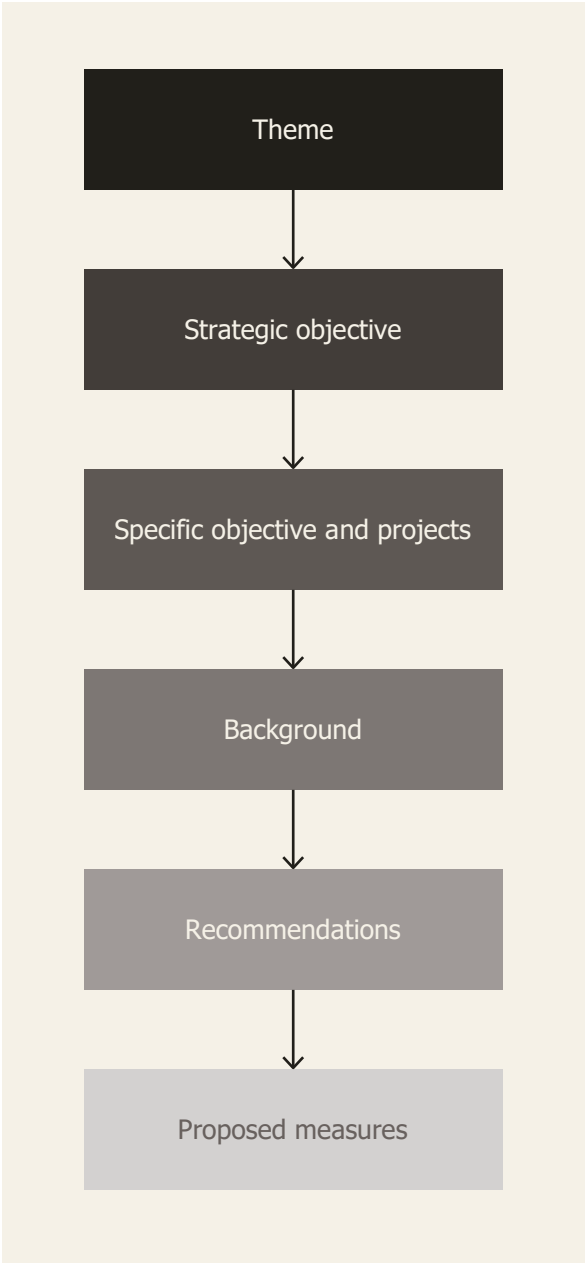
CIRCULAR IMPACT:

- What is the environmental, social and economic impact of this measure? To what extent does it support circularity in Prague?
- Technical feasibility: Is there adequate technology to implement the measures? Is there expert staff and knowledge available?
- Economic viability: How costly will it be to implement measures on a large scale? Are there examples of functional projects with the same intent?

These three categories are rated on a scale of 1 to 3 for each measure:

Low ●○○
Medium ●●○
High ●●●

Project Cards present specific project plans that Prague, or its organisations, are preparing. They form the basis of the action plan for the implementation of the Strategy. Projects included in the Action Plan must still go through established approval processes at the Prague City Hall or within individual organisations. Thus, being included in the action plan does not automatically mean that the project is approved for implementation.



Structure of a Project Card

Each project has its own project card. The project card is divided into 5 basic sections.

1. Basic Characteristics

- Project name
- Strategic objective
- Project description
- Project goal

2. Implementation Team

- Preparation and implementation (responsibility)
- Project partners

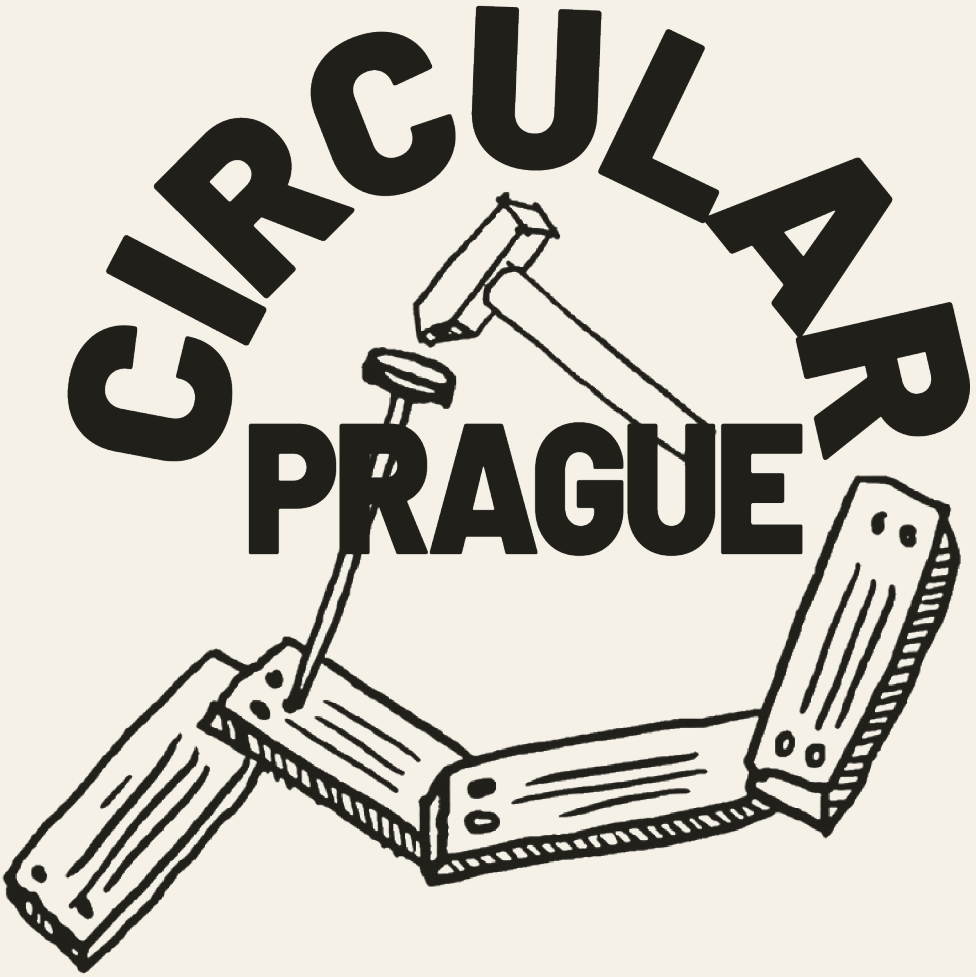
3. Schedule: the start and end of the project

4. Funding

- Estimated project budget
- Source of funding

5. Indicators: outputs/impacts

(CO_2, material savings, etc.)



CONSTRUCTION

STRATEGIC GOAL (SC) 1

To reduce consumption of primary raw materials

and streamline material flows in the construction industry

INDICATOR

Trends in the consumption of primary raw materials and in the recycling of building materials

RESPONSIBILITY

EPD PCH

COLLABORATING

INV PCH, PDS, IPR Prague, city districts

SPECIFIC OBJECTIVES

SO1/I: The city as a bank of materials, record keeping and maximum recycling of building materials.

SO1/II: Reduction of construction waste by implementing demolition practices that allow for the reuse of materials.

SO1/III: New construction and renovation in line with the requirements for resource circularity and sustainable use of materials.

SO1/IV: Sustainable operation, prioritising renovation over new construction.

Indicator at the level of specific objectives: number of projects meeting each specific objective and their cumulative impact.

SPECIFIC OBJECTIVES AND PROJECTS

SO1/I: The city as a bank of materials, record keeping and maximum recycling of building materials

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SO1/II: Reduction of construction waste by implementing demolition practices that allow for the reuse of materials.

- SO1/1 Online database of planned demolitions

SO1/III: New construction and renovation in line with the requirements for resource circularity and sustainable use of materials

- SO1/2 Prague Manual for Sustainable Neighbourhoods
- SO1/3 Pilot circular building of the primary school in Prague Lipenice
- SO1/4 Use of reclaimed asphalt from repairs of asphalt roads
- SO1/5 Application of circular principles in public buildings and amenities
- SO1/6 Re-use centre for building materials
- SO1/7 Collection of expanded polystyrene (EPS)
- SO1/8 Good practice in city districts: Principles for cooperation with investors in Prague 12
- SO1/9 Support for the implementation of pre-demolition audits

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SO1/IV: Sustainable operation, prioritising renovation over new construction.

Project level indicator: see project cards (set output and outcome indicators/impact measurement).

Assessment of the situation in the given area (context):

Strategies for achieving greenhouse gas savings and transition to a circular economy in the construction sector include increasing the reuse and recycling of materials, increasing the life cycle requirements of buildings and choosing materials with a low carbon footprint such as wood. It is reported that well thought out and properly executed renovations of old buildings can reduce CO_2 emissions by up to 60% by 2050[3].

The construction sector is key to Prague's transition to a circular economy and to reducing material flows in the city. The long-term goal is to realise the vision of the city as a materials bank, where the city keeps track of the materials used, promotes their reuse and purposefully reduces the consumption of materials with a high carbon footprint. An important prerequisite is the digitalisation of the construction industry, including the use of material passports or BIM (Building Information Modelling) methods and the assessment of new construction to prioritise materials that can be recycled, reused and are less energy intensive.

Currently, Prague produces 1.3 million tonnes of construction and demolition waste annually, with 41.7% (i.e. 550,000 tonnes) being reused within the territory of Prague. Objective of the Waste Management Plan of the City of Prague is to reach 70% by 2024. Promotion of reuse of construction and demolition waste within the territory of the City of Prague is therefore one of the first steps to focus on over the next four years.

Not only the city, but also the private sector and municipal organisations play an important role in introducing new measures in the construction sector (controlled demolition and new construction): Pražská developerská společnost (Prague Development Company – PDS), Institut plánování a rozvoje hlavního města Prahy (Institute of Planning and Development of the City of Prague – IPR Prague), Technická správa komunikací (Technical Road Administration – TSK) and others; city districts and households. Companies already incorporate circular principles into buildings, whether it is controlled deconstruction (Skanska - Mercury project) or plans for low-emission wooden buildings.

[3] Heritage Counts, Carbon in the built Environment: (2020): https://historicengland.org.uk/content/heritage-counts/pub/2019/hc2019-re-use-recycle-to-reduce-carbon/

The role of the city is to create a motivating environment for the introduction of new practices and sharing of experience across the city, in new housing construction and reconstruction, construction of civic amenities, demolition, transport structures, improvement of public spaces or implementation of citywide projects (Czech Philharmonic). Changes in building practices cannot take place without sufficient public support, so it is important to educate and motivate the public to share materials or circular design for houses.

The main barriers identified for the implementation of circular practices are primarily capacity barriers – both in terms of expertise and methodology, and in terms of system infrastructure readiness. If the construction sector in Prague is to change, there is a need to provide both the support tools for piloting new solutions in the form of methodologies and circular tenders for construction, and to create the physical infrastructure to reduce the volume of construction waste. Examples of such tools include educational training for decision makers on construction and development, creating a platform for sharing experience for both public and private investors, or creating a physical re-use centre for building materials.

RECOMMENDATIONS FOR 2023-2025

1. **To incorporate sustainability requirements into** the tenders for new construction so that sustainability solutions are already considered in architectural competitions and public tenders for the preparation and implementation of developments.
2. **To promote comprehensive approaches** for sustainability **in new construction** (optimally in line with adopted sustainable building codes) – i.e., sustainable power industry and energy efficient building design, sustainable water management, adaptation measures, recycling of building materials, bio-waste management and "smart" sorting of municipal waste, sustainable mobility, and possibly others.
3. **To utilise the potential of digitalisation** for efficient management of building materials, in accordance with the Action Plan of the Circular Czech Republic 2040 Strategy, which states: *"The increasing digitisation of the construction process will be a key driver for the adoption of circular opportunities, through the use of modelling and the progressive automation of the construction process. Approaches such as BIM (Building Information Modelling) can help to simplify and support the construction of buildings with better energy performance. To improve the quality of recycling in the construction industry, the availability of information on materials used in buildings ("material passports", "logbooks") should be addressed as well as selective demolition and deconstruction of buildings to ensure a sufficient source of recyclable construction and demolition waste.*[4]*"*
4. **To utilise the potential of temporarily unused land** (re-use centres, community gardens, etc.)
5. **To utilise the potential of unused buildings** (new life for old buildings)
6. **To utilise the potential of modular buildings** (e.g., in the area of civic and public amenities, when there is a temporary need to increase capacity)
7. **To motivate city districts towards new approaches and sustainable construction** (education and consultation, sharing of good practice)
8. **To promote cooperation between the city and the private sector** in identifying needs and promoting circular principles in the construction industry (creation of a platform for communication with the private sector as part of the Circular Prague platform)
9. **To involve Prague universities and NGOs** in pilot projects (based on the Innovation Platform for Urban Innovation)

[4] Draft Action Plan of the Circular Czech Republic 2040 Strategy, p. 10.

PRIORITY TOOLS FOR PROMOTING CIRCULAR MEASURES IN THE CONSTRUCTION SECTOR FOR THE NEXT 3 YEARS:

1. Development of methodologies to support circular and sustainable construction
2. Promotion training in circular construction and sharing experience
3. Creation of system infrastructure for the management of building materials in physical and digital form
   (material sharing platforms, re-use infrastructure)
4. Support for pilot circular solutions in the construction sector for urban projects (housing, civic and public amenities) and in the private sector
5. Circular public procurement

WATER

STRATEGIC GOAL (SC) 2

Reduce stormwater runoff through sewers, increase the recycling and reuse of water and nutrients, including energy use

INDICATOR

trends in the amount of rainwater runoff through sewers and the amount of recycled and reused water (including energy recovery

RESPONSIBILITY

EPD PCH

COLLABORATING

PVS and PVK, INV PCH, PDS, IPR Prague, city districts

SPECIFIC OBJECTIVES

SO2/I: Water saving and leak detection

SO2/II: Promoting the use of rainwater, grey water and wastewater and other resources within the territory

SO2/III: Heat recovery from wastewater and water energy

SO2/IV: Sludge utilisation taking into account the principles of CE

SO2/V: Ensuring a comprehensive approach to water management

Indicator: number of projects for each specific objective and their cumulative impact

SPECIFIC OBJECTIVES AND PROJECTS

SO2/I: Water saving and leak detection

- SO2/1 Extension of smart metering for drinking water leak detection

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SO2/II: Promoting the use of rainwater, grey water and wastewater and other resources within the territory

- SO2/2 Horizon 2020 project "Wider uptake"
- SO2/3 Piloting circular water management in construction and renovation

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SO2/III: Heat recovery from wastewater and water energy

- SO2/4 Energy centre for the use of low-potential heat from the CWTP

SO2/IV: Sludge utilisation taking into account the principles of CE

- SO2/5 Biogas from the CWTP
- SO2/6 Expansion of biogas production capacity at the CWTP
- SO2/7 Recycling and recovery of phosphorus from wastewater

SO2/V: Ensuring a comprehensive approach to water management

- SO2/8 Preparation of a water audit – pilot project at the city district

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Project level indicator: see project cards (set output and outcome indicators/impact measurement)

Status assessment (context):

In September 2018, the implementation of the New Water Line of the CWTP was completed and its trial operation started. The modernisation of the existing water line and the complete sludge management is currently being prepared. Upon completion, which is expected in 2030, the CWTP will meet the required parameters for wastewater treatment and sewage sludge management.

At the same time, there is a demand for water recycling (of rainwater, grey water and treated wastewater) and therefore a reduction in the consumption of drinking water and the amount of treated and discharged wastewater. The provision of drinking water and wastewater treatment is energy-intensive, and therefore decentralised approaches to grey water management should be promoted and the use of surplus treated grey water in the area should be piloted, both in existing built-up areas and in newly planned housing units. A number of projects have already been implemented on the territory of the City of Prague that respect the requirements for rainwater management, and there are also basic general methodologies for sustainable water management (see PDS methodologies). Despite this, sustainable water management is not yet a common practice and is not routinely included in the specification of new construction. At the same time, it is desirable to support the interconnection of investors (public and private) with the research sector and to pilot the best available technologies and practices (BAT) based on foreign experience.

There is also apparent potential in newly urbanised locations in the introduction of water management systems where the wastewater generated is fully utilised so that all water is recycled and solid organic waste is composted or used in a biogas plant. A suitable basis not only for the implementation of such measures are water audits, which can be prepared in the coming years on a pilot basis for defined areas of existing or planned development and to verify the methodology and availability of the necessary data.

The infrastructure projects of the Pražská vodohospodářská společnost (PVS) are focused on the use of energy and nutrients from wastewater.

Nature-inspired blue-green infrastructure measures for managing rainwater, or even grey water, by capturing and reusing it directly at the site of runoff are on the borderline between adaptation, mitigation and circular measures. These measures not only help to reduce drinking water consumption but also have a positive impact on the microclimate. For example, they reduce the impact of urban heat islands by cooling their vicinity, reducing energy consumption for indoor air conditioning, etc. In the context of promoting urban greenery, they reduce CO_2 emissions or enhance CO_2 capture by urban greenery, thus also promoting biodiversity. Nature-inspired blue-green infrastructure measures are addressed in the City of Prague Climate Change Adaptation Strategy and its action plan[5].

Individual requirements aiming towards a circular economy in the field of water management are also defined in the document Investor's Instructions for Urban Housing Construction in the City of Prague, which is binding for all organisations of the City of Prague. The requirements for technical facilities list not only the preferential treatment of rainwater, accumulation on site, but also the use of grey wastewater for flushing, or its treatment within the block or quarter and percolation.

As far as water savings and leak detection are concerned, water losses in the water supply network of the City of Prague have been low in recent years. In 2020, they were about 12.9%, compared to 46% in 1996. However, it is important to introduce energy-saving measures at the level of individual buildings or households or to consider the possibility of sprinkling and cleaning roads with non-potable water, but there are legislative obstacles still.

[5] Climate Change – City of Prague Climate Change Adaptation Strategy (adaptacepraha.cz)

RECOMMENDATIONS FOR 2023-2025

1. To incorporate sustainable water management, including grey water use, into the manual of sustainable neighbourhoods (prepared by IPR Prague, PDS)
2. To implement measures for the sustainable management of grey water and rainwater, including the calculation of surplus water and its management within the framework of new urban housing construction or larger reconstruction of urban buildings (cooperation between PDS and the PCDs with experts from the CTU and other institutions, including the private sector).
3. Utilisation of waste heat from utility and waste water in new urban housing construction or larger reconstruction of urban buildings (cooperation between PDS and the PCDs with experts from the CTU and other institutions, including the private sector)
4. To pilot sustainable grey water management measures, including the calculation of grey water surpluses and their management within existing urban built-up areas. Can be funded from the OPE.
5. To pilot test methodologies for the preparation of water audits for selected areas within the City of Prague with the support and use of the PCDs
6. To pilot sustainable water management measures in urban greenery maintenance or road cleaning and sprinkling
7. Strategic PVS projects (biogas from the CWTP, energy centre)
8. To utilise digitalisation and space technologies for Smart metering and for the implementation of real-time drainage control (RTC)

PRIORITY TOOLS FOR PROMOTING CIRCULAR MEASURES FOR THE NEXT 3 YEARS:

Based on the current situation, the following tools can be recommended:

1. Collaborative platforms of sustainable water management experts and investors (public and private sector) in preparation of new construction or renovations (grey water recycling).
2. Setting up a functional cooperation with projects created as part of the Prague Adaptation Strategy.
3. Circular public procurement requiring circular water management (replication of proven solutions) in construction or renovation.
4. Support for applied research (living labs and testing of new technologies) and involvement in international projects.

AGRICULTURE AND FOOD

STRATEGIC GOAL (SC) 3
To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

INDICATOR
Trends in food waste and local production of healthy food

RESPONSIBILITY
EPD PCH

COLLABORATING
IPR Prague, Pii z.ú., schools and PCDs

SPECIFIC OBJECTIVES

SO3/I: Increase in demand for organic produce from the city (food establishments, canteens), support for urban and peri-urban organic farming

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SO3/II: Support of urban agriculture and subsistence farming (community gardens, garden surplus management, rooftop farms, urban farms...)

SO3/III: Circular management of bio/food waste by returning nutrients to the soil

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SO3/IV: Reduction of food waste by implementing waste prevention and distributing surpluses

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SO3/V: Support for innovation in food production (vertical farms, hydroponics, aquaponics, more environmentally friendly processing; provision of space, logistics)

Indicator: number of projects for each specific objective and their cumulative impact

SPECIFIC OBJECTIVES AND PROJECTS

SO3/I: To increase demand for organic production from the city (food establishments, canteens), support for urban and peri-urban organic farming

- SO3/1 Online marketplace for school canteens

SO3/II: Support for urban agriculture and subsistence farming (community gardens, garden surplus management, rooftop farms, urban farms)

- SO3/2 Preparation of policy instructions to support urban and peri-urban agriculture
- SO3/3 General urban agriculture plan
- SO3/4 Pilot production farm
- SO3/5 Pilot: storage facilities for urban farmers

SO3/III: Circular management of bio-waste and returning nutrients to the soil

- SO3/6 Use of biochar in the blue-green infrastructure of the city

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SO3/IV: Reduction of food waste by implementing waste prevention and distributing surpluses

- SO3/7 Food waste analysis
- SO3/8 Online platform for sharing ready-made meals

SO3/V: Support for innovation in food production (vertical farms, hydroponics, aquaponics, more environmentally friendly processing, provision of space, logistics)

Project level indicator: see project cards (set output and outcome indicators/impact measurement

Status assessment (context):

The introduction of circular principles in the field of agriculture and food is mainly based on the support for local healthy food production and the prevention of food waste. Circular measures in food production and consumption can contribute to global greenhouse gas savings of up to 49% by 2050, the equivalent to 5.6 billion tonnes of CO_2[6]. Support of local bio-production also contributes to healthier ecosystems and richer biodiversity[7]. For these reasons, circular city strategies also focus on the development of food policies in close cooperation with the private sector (HoReCa sector, farmers, retail chains...).

According to data from the EPD PCH, there are over 20,000 hectares of cultivated agricultural land in Prague, most of it privately owned and still mostly farmed in a conventional way. In 2020, 450 hectares of urban land was successfully leased with the requirement to farm in an organic farming regime, i.e., without the use of chemicals. At the same time, the demand of Prague residents for local organic produce is increasing, see the interest in health food shops, farmers' markets, or community gardens and allotments, which have been on the rise in recent years. Changes in consumption behaviour, including food waste prevention, are taking place at the household level and in the private sector. However, the data needed to evaluate these trends and the systematic involvement of the city and city organisations, such as schools and social and health facilities, in these activities are still lacking. There is a lack of incentives and coordination from the city, and there is no system linking the supply of agricultural products from farmers with the demand from canteens and food establishments.

[6] Ellen MacArthur Foundation (2021): https://ellenmacarthurfoundation.org/articles/five-benefits-of-a-circular-economy-for-food

[7] Ibid

RECOMMENDATIONS FOR 2023-2025

1. **To anchor and strengthen the agenda at PCH**, including the necessary coordination and cooperation within PCH and the city (EPD, Property Department, PCDs and others)
2. **To prepare the basis for the city's food policy:**
    - To map potential savings in food management, i.e., food waste prevention, encouraging the sharing of unused food
    - To promote healthy eating habits, education, training and outreach in this area, including in cooperation with the private sector and using foreign experience
3. **To support urban and peri-urban agriculture:** to prepare instructions for the development of urban and peri-urban agriculture, involving the public administration, private companies, universities and NGOs, setting objectives and possible support tools (e.g., through conceptual seminars)
4. **To support urban and peri-urban agriculture** both in the way of infrastructure (storage space, land lease, equipment sharing, etc.) and professionally (methodology, community coordinators)
5. **To support innovation in food production and distribution**, including the processing and use of food waste (a suitable area for start-ups such as Re-káva, Re-krabička, ForestBit)
6. **To pilot test the use and community preparation of biochar** with subsequent use for greenery maintenance (TSK)

PRIORITY TOOLS FOR PROMOTING CIRCULAR MEASURES FOR THE NEXT 3 YEARS:

1. Preparation of food policy and tools for support of urban and peri-urban agriculture (ideation workshops)
2. Setting up coordination and cooperation within PCH and the city (EPD, Property Department, PCDs and others) in implementing food policy and supporting urban and peri-urban agriculture
3. Programmes to support innovation and start-ups in food production and distribution
4. Setting up cooperation with the private sector (private farmers, NGOs)
5. Education and outreach programmes

CIRCULAR PRAGUE

WASTE

STRATEGIC GOAL (SC) 4
To prevent waste; sort, recycle and reuse as much waste as possible. To reduce the production of mixed municipal waste (MSW) by 50% by 2030

INDICATOR
trends in the amount of material sorted and reused
and in the quantity of MSW

RESPONSIBILITY
EPD PCH

COLLABORATING
PSAS, PCDs, NGOs

SPECIFIC OBJECTIVES

SO4/I: To minimise the production and increase the recovery rate of the city's bulky waste to 50% by 2030

SO4/II: Sorting and treatment of biodegradable municipal waste with 60% efficiency by 2026.

SO4/III: To increase in the sorting rate of municipal waste to 60% in 2025 and 65% by 2030 and ensuring as much real recycling as possible.

SO4/IV: Continuous and systematic communication and outreach among residents, businesses and at the level of national legislation.

Indicator: number of projects for each specific objective and their cumulative impact.

SPECIFIC OBJECTIVES AND PROJECTS

SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030.

SO4/I: To minimise the production and increase the recovery rate of the city's bulky waste by 50% by 2030

- SO4/1 Circular map of Prague
- SO4/2 Expanding the network of re-use points
- SO4/3 Re-use in schools
- SO4/4 Mobile re-use centre

SO4/II: To sort and treat 60% of biodegradable municipal waste effective from 2026

- SO4/5 Collection and further management of bio-waste
- SO4/6 Biogas plant
- SO4/7 Collection of kitchen and canteen waste from school canteens
- SO4/8 Composting plants and composters in PCDs

SO4/III: To increase the sorting rate of municipal waste to 65% by 2030 and ensure the highest possible recycling rate.

- SO4/9 Prague Circular House
- SO4/10 Circular HUB
- SO4/11 Re-use days in PCDs
- SO4/12 Multi-commodity collection
- SO4/13 Door to door waste collection system
- SO4/14 Sorting line
- SO4/15 Slag management
- SO4/16 Smart technology for more efficient waste collection
- SO4/17 Separate collection of textiles
- SO4/18 Utilisation of Prague recyclate – paper, plastic, glass
- SO4/19 PSAS cullet yard

SO4/IV: To carry out continuous and systematic communication and outreach among the residents, businesses and at the level of national legislation

- SO4/20 Circular fashion HUB
- SO4/21 Circular school
- SO4/9 Prague Circular House
- SO4/10 Circular HUB

Project level indicator: see project cards (set output and outcome indicators/impact measurement).

Status assessment (context):

The City of Prague produces 722,000 tonnes of municipal waste (MW) annually, of which approximately 58%, i.e., 261,300 tonnes, is mixed municipal waste (MSW) **Over the last 20 years, the volume of MSW in Prague has increased by almost 90%.** The strategic objective is to reduce the production of mixed municipal waste (MSW) by 50% by 2030 compared to 2020, a requirement resulting from European legislation (EC Regulation). Trends in recent years have also shown an increasing amount of mixed municipal waste in Prague, which can be optimally reduced by changing consumption habits and thus preventing waste generation, or by more efficient sorting of MSW, thus reducing the total volume of MSW.

More efficient sorting of MSW

Current waste policies are focused on more efficient sorting of MSW, resulting in binding targets for municipalities, in particular the obligation to sort 65% of MSW by 2030. The most significant component of MSW in this respect is bio-waste, which accounts for around 25% of MSW (including kitchen and canteen waste).

Prague's municipal waste contains more than 100,000 tonnes of bio-waste per year, which is not used efficiently. **The introduction of a functional, widespread sorting of bio-waste** and its subsequent processing is a priority for the coming years and must be accompanied by **a targeted communication and outreach campaign and cooperation between the city, PSAS, city districts and city organisations**. Prague has already taken several important steps in this area, which it will now build on. Through its company Pražské služby, a.s., the city acquired a biogas plant and adjacent development land in Chrást in the summer of 2022 for the processing of bio-waste from households, and kitchen and canteen waste from canteens and restaurants. The intention is to build and operate a total of 2 such plants on the site to cover the entire consumption of Prague. In addition to the **new biogas plant**, there is space for composting or processing of bio-waste into biochar and the subsequent use of bioCNG, compost or biochar within the city (fuel for the vehicle fleet of Pražské služby, greenery maintenance, urban and peri-urban agriculture).

Another new opportunity is the launch of a **multi-commodity sorting line and the introduction of multi-commodity collection** (plastics + metals + beverage cartons in one collection container). The line will achieve the sorting and recycling rate of around 50% of all plastic packaging compared to 4% today. Roughly half of the sorted plastics will be recycled and used further (e.g., the recyclates will be used to make street furniture or other uses will be sought), the other half, the refuse, will be used for energy and converted into heat for households in Prague. The introduction of multi-commodity collection can act as a suitable complementary factor to the separate collection of bio-waste, thus keeping the same number of containers for separated waste in the public space. In the coming years, it will also be necessary to evaluate the current **system of textile collection in Prague** with regard to its subsequent use. This system should be operational by 2025 by law.

The current problem of the City of Prague is the insufficient capacity for processing of sorted paper. Therefore, there is a possibility for the city to support or initiate the construction of **new processing capacities for sorted paper** with the possibility of its reuse within Prague.

Waste prevention

In terms of changing consumption behaviour, **outreach and education, promoting a culture of sharing** (consumer products – clothing, furniture, sports equipment, etc.) and extending the life cycle **by supporting repair shops and re-use centres** are and will be important. Many activities in this area are already based on civic initiatives or start-ups. These include Opravárna, Z pokoje do pokoje, Ponk Community Workshop, Bullmex, Hobbylab, Makerspace, HYB4 Circular Workshop and others. Prague has supported the establishment of **the Circular HUB at the Hybernská Campus**, which will focus on the topics of circular economy, sustainability in the city and reuse of materials.
Both the professional and general public will be able to meet over the topics in the form of debates or interactive upcycling workshops. The limiting factor for the expansion of these activities, which are in high demand in Prague, is the available space. This is also why Prague still does not have a physical **re-use centre**. Currently, the construction of one in the Holešovice Market is being discussed.

The availability of places where citizens can take the waste that can still be used is important. These are waste collection yards. Bulky waste often consists of furniture. Up to 40% of the furniture in collection yards can still be repaired and reused. However, collection yards today are not equipped to give the materials that citizens bring in a chance to be repaired, resold and, de facto, given a second life. Prague has already started pilot projects to convert collection yards into **RE-USE points** (started in 3 collection yards) and it is desirable to continue with others (Circular Scan identified the potential to expand to up to 20 re-use points).

In the field of waste prevention, it is desirable to continue the implementation of community events in city districts (**reuse days**), the expansion of reuse points in collection yards and outreach activities in the field of waste management. **The Circular Map of Prague** will also offer citizens online support in the form of a signpost that, after entering the necessary parameters, will "advise" the user on how to dispose of the object in the most efficient way, ideally outside the waste regime.

RECOMMENDATIONS FOR 2023-2025

1. **Introduction of a nationwide collection of bio-waste** accompanied by a communication and outreach campaign, including piloting and evaluation of the effectiveness of different collection methods/collection containers in different types of buildings (e.g., "door to door").
2. **Ensuring the necessary infrastructure capacities** for the processing of bio-waste and its functional use within the city/metropolitan region (biogas plant, composting plants, pyrolysis units...)
3. **Introduction and assessment of the benefits of multicommodity collection**
4. **Community events to promote sharing** with the involvement of the city districts, schools and other city organisations.
5. **Creation of an accessible network of re-use services** within the City of Prague, including a re-use centre
6. **Support for civic initiatives in the field of re-use**, sharing, in particular by providing suitable land/space for such activities
7. **Support for research and innovation for waste prevention** and further use of the sorted material.

PRIORITY TOOLS FOR PROMOTING CIRCULAR MEASURES FOR THE NEXT 3 YEARS:

1. Information and awareness campaign in cooperation with PSAS, as., NGOs and others
2. Support for NGO activities and projects
3. Collaboration on education, outreach and pilot testing with PCDs
4. Involvement in programmes and platforms to support innovation, start-ups (in the areas of sharing, digitisation, smart metering and others)

PUBLIC PROCUREMENT

STRATEGIC GOAL (SC) 5

To increase the demand for circular solutions by incorporating these practices into the city's own projects, guidelines, public procurement

INDICATOR

trends in the city's demand for circular solutions and the savings generated in raw materials, materials and energy

RESPONSIBILITY

EPD PCH

COLLABORATING

PPD PCH, HRD PCH, INV PCH, Property Management Department of PCH, Services Department of PCH, Department of Education and Youth of PCH, PDS, IPR Prague, PCDs

SPECIFIC OBJECTIVES

SO5/I: Consideration of circular economy principles in public procurement

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SO5/II: Consideration of the principles of circular economy in the operation of the city and its organisations

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SO5/III: CE principles and conservation of primary resource as a starting point for city projects

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Indicator: number of projects for each specific objective and their cumulative impact.

SPECIFIC OBJECTIVES AND PROJECTS

SO5: To increase the demand for circular solutions by incorporating these practices into the city's own projects, guidelines, public procurement

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SO5/I: Consideration of circular economy principles in public procurement

- SO5/1 Methodology for the strategy for responsible public procurement
- SO5/2 Training module on circular procurement for city employees

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SO5/II: Consideration of the principles of circular economy in the operation of the city and its organisations

- SO5/3 Sustainable city organisations and their operation

SO5/III: Principles of circular economy and conservation of primary resource as a starting point for city projects

- SO5/4 Catalogue of good practices and support for pilot implementation of circular public procurement

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Project level indicator: see project cards (set output and outcome indicators/impact measurement).

Status assessment (context):

The City of Prague is an important contracting authority and investor. If the city demands circular solutions, it also significantly promotes the development of circular practices in the private sector this way. Well-developed technical specifications are a prerequisite for circular procurement, in cooperation between the public sector, private companies and academia (e.g., in the construction industry). Prague and its organisations already have some experience with responsible public procurement, including the incorporation of circular principles (e.g., TSK, Prague 12). However, there is still a lack of a system motivating the widespread use of circular procurement, its recording and sharing of experience within PCH, PCDs, and municipal companies and organisations.

RECOMMENDATIONS FOR 2023-2025

1. **Creation of the Methodology of the Strategy** for Responsible Public Procurement at PCH.
2. **To train employees of PCH, city districts and city organisations** in responsible procurement and circular procurement options.
3. **To set up a system of continuous education, registration and evaluation of the benefits** of circular public procurement within PCH and city organisations and companies.
4. **To train employees of PCH, city districts and city organisations** in sustainable operation with regard to the circular economy
5. **Sharing of experience and record keeping with PCDs**
6. **Support for pilot tenders** respecting circular criteria with legal and professional expertise.

PRIORITY TOOLS FOR PROMOTING CIRCULAR MEASURES FOR THE NEXT 3 YEARS:

1. **Education and outreach**
2. **Substantive and procedural methodologies for responsible procurement and sustainable operation**
3. **Cooperation and sharing of good practice across the city**
4. **Pilot projects**

SUPPORT FOR ENTREPRENEURSHIP, INNOVATION AND OUTREACH

STRATEGIC GOAL (SC) 6

To support innovation towards a circular economy in the business and civic sectors

INDICATOR

Trends in the number of innovations towards a circular economy and their impact

RESPONSIBILITY

EPD PCH

COLLABORATING

Project Support Department of PCH, Pii, OICT, IPR Prague, PCDs, NGOs

SPECIFIC OBJECTIVES

SO6/I: Support for the sharing economy, civic initiatives and business entities in CE

SO6/II: Support pilot projects and innovation, involvement of science and research

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SO6/III: Communication, education and outreach for CE

Indicator: number of projects for each specific objective and their cumulative impact.

PROJECTS

SO6/I: Support for the sharing economy, business and civic initiatives in CE

- SO6/1 Circular Prague platform

SO6/II: Support pilot projects and innovation, involvement of science and research

- SO6/2 Subsidies for innovation in circular economy

SO6/III: Communication, education and outreach for CE

- SO6/3 The concept of EEO and circular economy
- SO6/4 Circular economy communication strategy and campaign

Project level indicator: see project cards (set output and outcome indicators/impact measurement).

Status assessment (context):

A number of business and non-profit activities aimed at waste reduction, prevention, consumption and reuse are being spontaneously established in Prague. The research activities of the universities and research institutes in Prague also focus on innovations that can be used in the circular economy. In general, however, there is a lack of awareness of all these activities, a lack of a tool to promote them, to connect them, and to allow for greater interaction and opportunities for cooperation.
Therefore, it is desirable to focus on better coordination and finding synergies between programmes and projects already running (e.g., the EEO programme and projects supported by this programme, or partial communication campaigns and educational activities implemented by city districts or private entities) and to support and implement projects aimed at better comprehensive awareness of circular activities in the city. Such a tool is provided by the Circular Map of Prague (see project card SO4/1) or the proposed communication campaign prepared by the EPD PCH in cooperation with PSAS, a.s. and other parties (see project card SO6/4).

The other way is to support public-private cooperation in different segments of the circular economy (see project card SO6/1 Circular Prague platform), support pilot/demonstration projects and create an environment for sharing experience and replicating examples of good practice. From the city's point of view, this involves promoting cooperation with the private sector, especially in the areas of construction industry, food and lifestyle (re-use activities, sharing of products and services, sustainable fashion, etc.). The city districts are an important party in the transition to the circular economy, as they can participate in pilot projects or international cooperation in all thematic areas of the Circular Prague 2030 Strategy.

RECOMMENDATIONS

1. **Setting up cooperation, exchange of experience and needs of the city** with the private sector (companies, NGOs, academia) – Circular Prague platform
2. **To support mentoring and training programmes** for small and medium-sized businesses in the area of CE needs.
3. **Circular economy as a theme for subsidy programme** of the City of Prague for supporting innovation and start-ups.
4. **Circular public procurement**
5. **Implementation and evaluation of targeted communication strategies** and thematic campaigns
6. **Support for education, outreach and pilot projects** in the PCDs
7. **Coordination with the EEO programme** and Circular School projects

PRIORITY TOOLS FOR PROMOTING CIRCULAR MEASURES FOR THE NEXT 3 YEARS:

1. **Pilot projects and their evaluation involving PCDs, research organisations, companies and NGOs**
2. **International projects and transfer of good practices (e.g., "Living labs")**
3. **Grant programmes for NGOs, academia, innovative companies**

MANAGEMENT AND IMPLEMENTATION

STRATEGIC GOAL (SC) 7
To manage, coordinate and assess the implementation of the Circular Prague 2030 Strategy

INDICATOR
Evaluable progress in the implementation of the CE Strategy Action Plan and its impact with respect to reducing the city's carbon footprint

RESPONSIBILITY
EPD PCH

COLLABORATING
Project Support Department of PCH, Pii, OICT, IPR Prague, PCDs, NGOs

SPECIFIC OBJECTIVES

SO7/I: Setting up project management for the implementation and preparation of action plans

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SO7/II: Setting indicators for the circular economy (CE)

SO7/III: Communication of the objectives of the Strategy for the Transition to a Circular Economy and their implementation

---

Indicator: number of projects for each specific objective and their cumulative impact.

PROJECTS

SO7: The city manages, coordinates and evaluates the implementation of the Circular Prague Strategy (using set indicators and action plans)

SO7/I: Setting up project management for the implementation and preparation of action plans

- SO7/1 Support for implementation by setting up project management
- SO7/2 Involvement in international projects

SO7/II: Setting up indicators for CE

- SO7/3 Preparation of an indicator set and data collection for the circular economy

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SO7/III: Communication of the objectives of the Circular Prague 2030 Strategy and their implementation

- SO7/4 Networking and workshops for PCDs
- SO7/5 Web presentation and outreach events on the Circular Prague 2030 Strategy

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Project level indicator: see project cards (set output and outcome indicators/impact measurement).

Status assessment (context):

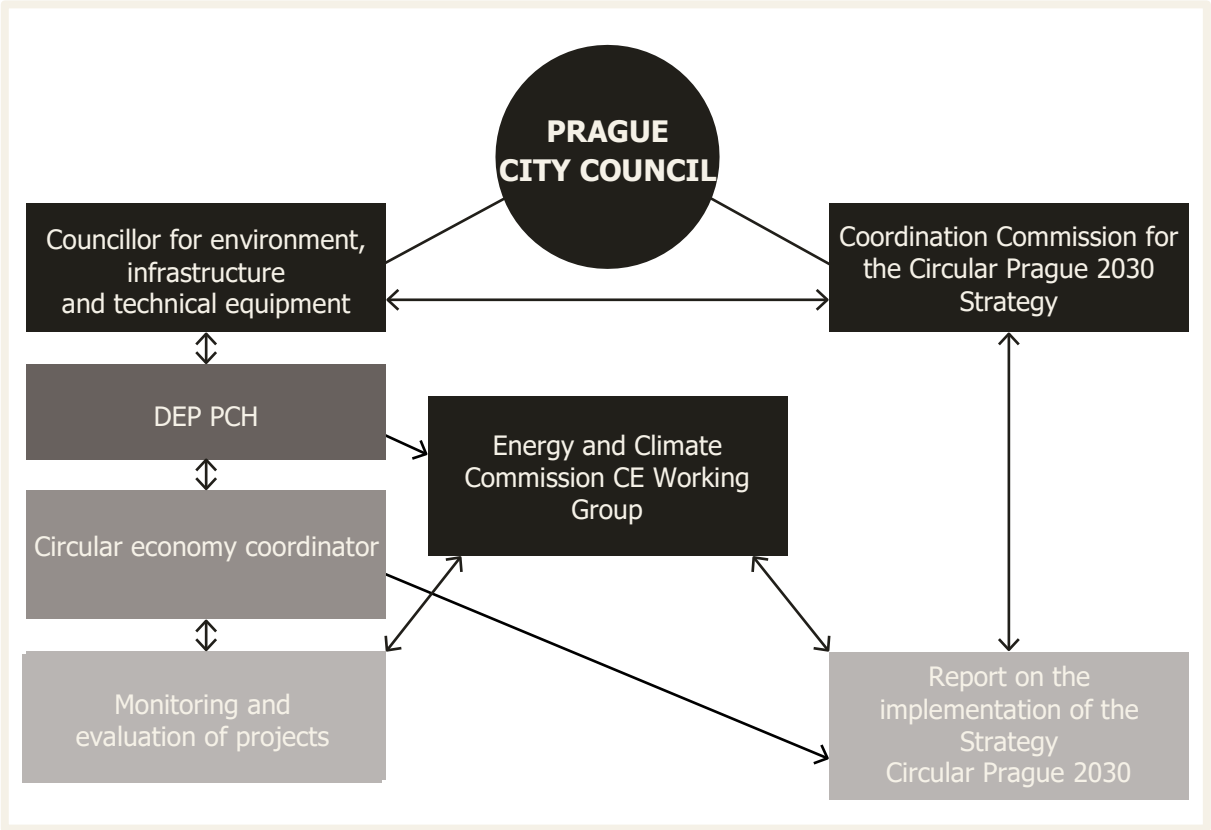
- **Management and Implementation in the City**

The overarching goal of the Circular Prague 2030 Strategy and its Action Plan is the implementation of projects that will help reduce CO2 emissions in the city and at the same time
contribute to meeting the objectives of the Climate Plan. Setting up strategic management, coordinating and supporting the implementation of individual project cards and evaluating whether projects are having the intended impact are a prerequisite.

The position of **a circular economy coordinator** has been created in the EPD PCH to be responsible for the implementation of the Strategy and overall advancement of the circular economy agenda, as well as setting up functional cooperation with the various actors across the city (functional setup of cooperation with the various departments within PCH, city districts and city organisations) in order to achieve this. From the city's point of view, it is necessary to anchor the agenda and create a structure that will facilitate implementation. For implementation, we therefore recommend building on the current decision-making structure, which consists of the Energy and Climate Commission and its associated working group. **The Circular Economy Working Group** should serve as an advisory body providing expertise to the city. The position of coordinator is seen as a first step, but in the future, it will be necessary to strengthen the staff capacity for this agenda, or to create a department dedicated primarily to the circular economy.

It is also essential to strengthen coordination within PCH across relevant departments and with key implementation actors who are the carriers of individual projects (PSAS, PVS, IPR Prague, PDS and others). For this purpose, the city council issued a resolution proposing a Coordination **Commission for the Strategy of the City of Prague for Transition to a Circular Economy**, which will include representatives of the Prague City Council, relevant departments of PCH and city organisations and companies. The Coordination Commission will oversee the implementation of the objectives of the Strategy, the implementation of the measures and projects of the Strategy's Action Plan and its update in three-year intervals. The Commission meets at least twice a year, and the responsibility for summoning the Coordination Commission for the Strategy of the City of Prague for Transition to a Circular Economy lies with the EPD and the member of the Prague City Council responsible for the environment, infrastructure and technical equipment.

Implementation scheme of the Circular Prague 2030 Strategy:



Monitoring and evaluation of the strategy implementation is carried out at the level of strategic goals and specific objectives and at the level of individual projects. Responsibility for preparation lies with the EPD. The monitoring report on the implementation of the strategy is prepared annually as the **Report on the Implementation of the Circular Prague Strategy AP for 2023-2025.** The frequency of monitoring of individual indicators has been proposed – at the level of projects and specific objectives once a year as a basis for the monitoring report (Implementation Report), in case of trend monitoring, the data is updated every three years when updating or creating a new action plan.

Strategic objective – monitoring and evaluation of trends for strategic objectives There are indicators specified for strategic objectives that show trends in the area in terms of material and energy intensity and the transition to a circular economy. These indicators will be finalised based on the availability of data within the proposed project – Circular Economy Indicator Set (see the List of Project Cards).

Specific objective – monitoring and cumulative evaluation of projects meeting specific objectives

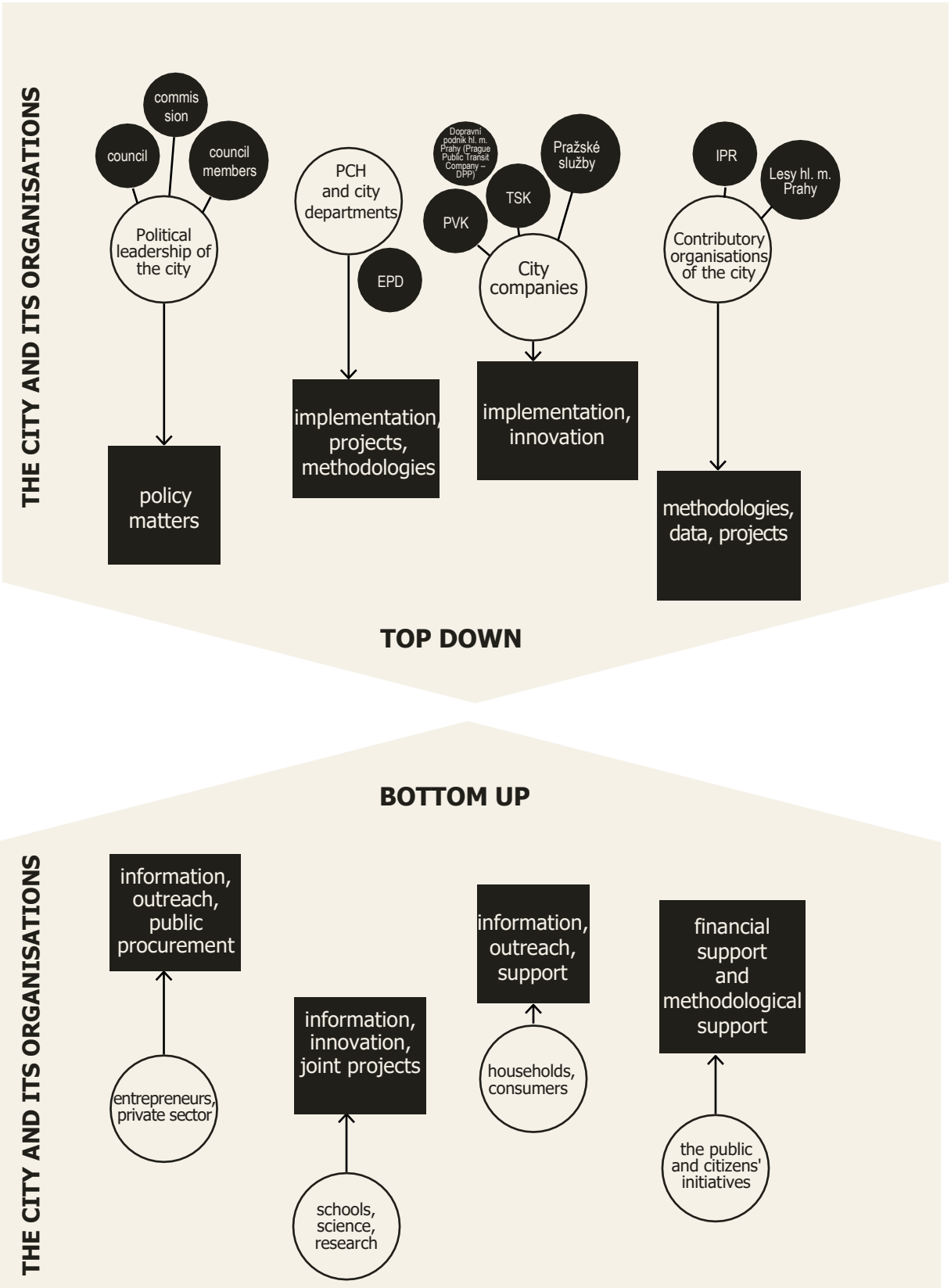
Specific objectives are assessed on the basis of the number and cumulative impact of the projects implemented.
It is desirable to evaluate whether the implemented projects contribute to meeting of the specific objectives and to initiate new projects.

Projects – output and impact indicators included in each project card

Every project implemented must have output and impact indicators (i.e., what will be the output of the project and what is the expected impact).

Cooperation with stakeholders and encouraging collaboration across the city is essential for the transition to a circular economy. Both **top-down and bottom-up approaches** must be supported.

See Map of Stakeholders in the Circular Economy in the City:



- **Cooperation with Prague City Districts**

City districts are the key stakeholders for the implementation of the Circular Prague 2030 Strategy. As part of the preparation of the Action Plan, Prague city districts were contacted in order to build on the cooperation in the preparation of Circular Prague 2030 and to identify the state of readiness for the implementation of circular projects and the stance to the CE area and the understanding of it more generally. The feedback makes it clear that the concept of circular economy is not yet fully understood by all city districts, there is a lack of connection to the existing agenda of PCDs, identification of opportunities and an adequate budget for the implementation of projects with circular principles. The topic of CE is often perceived narrowly as a waste management issue (most often in connection with bio-waste collection), or adaptation measures for water retention, etc.

On the other hand, some of the city districts are already implementing or planning circular projects. Mostly in the area of bio-waste management, promotion of education and awareness of residents and waste prevention through support for swaps, re-use days and other public events.

City districts make up the City of Prague and without their active involvement, circular projects, which are often cross-cutting and based on communication with city residents across the city, cannot be successfully implemented.
The PCH will continue to support and provide methodological and, where possible, financial support for projects such as Re-use days in PCDs, support for composting and community gardens, swaps and communication of sustainable lifestyles in general. A number of these activities are eligible for funding from the calls of the OPE.

Based on the survey among PCDs, it can be concluded that they generally have a strong demand for methodological support in the field of CE and how to fit the topic of CE in the individual areas of responsibility of the authorities. The proposed activities such as networking of municipalities and sharing of experience or providing training by PCH in various areas and tools for the circular economy of the city come as a response to this need.

RECOMMENDATIONS FOR THE IMPLEMENTATION OF THE ACTION PLAN FOR THE CIRCULAR PRAGUE 2030 STRATEGY

1. **“Learning by doing”** – support for living lab projects, incubators of new practice, experimenting and measuring impact, successfully replicating in the city and PCDs.
2. **To learn abroad**, to participate in projects abroad, to share experience within the city circular ecosystem.
3. **To support local circular/innovation ecosystems and Circular Prague-type platforms** in different areas (construction, bioeconomy and food, new packaging materials, new business models, etc.)
4. **To support education, training and support programmes for employees** of the city and city companies, as well as the private sector. Circular economy requires new knowledge and skills.
5. **To utilise digitalisation for the circular economy** and support collaboration with academia and the private sector in this area. Involvement of start-ups.

PRIORITY TOOLS FOR PROMOTING CIRCULAR MEASURES FOR THE NEXT 3 YEARS:

1. Set up functional coordination within PCH
2. Set up functional coordination with PCDs, city organisations, Prague companies and the private and public sector
3. Set up indicators and data collection to monitor trends and impacts of implemented measures
4. Circular Prague 2030 Strategy website
5. Education and communication of circular economy topics, the objectives of the Strategy and successful projects across the city, e.g., through an annual conference

OPPORTUNITIES AND CHALLENGES

1.International Cooperation

Circular economy is currently one of the most important and dynamically evolving topics in the field of sustainability at the level of states, cities, private as well as the public sector. As part of the implementation of the Green Deal[8], the European Union has committed to supporting measures that deliver on policies related to the low-emission transition and resource efficiency. One of the pillars of sustainable urban policy is international cooperation in the field of climate and circularity policy. Several European initiatives that are directly based on cooperation between cities and regions have already been created in this area.

Prague has already confirmed its commitment to support and accelerate the transition to a circular economy at the international level. It has been a signatory to the **Circular Cities Declaration** since 2020. Other signatories include Paris, Copenhagen, Helsinki and Oslo. Within the framework of international activities, it is also possible to utilise Prague's membership in the Eurocities organisation and its working groups more.

Prague's active approach to involvement in international cooperation on CE topics provides the city with many opportunities, benefits, as well as challenges. Prague not only benefits from active international cooperation in the form of valuable information based on shared practices and consultations, but there is also a unique opportunity for Prague to get financial support for its own circular projects in addition to support and know-how.

Prague should actively monitor calls for international cooperation. There are many opportunities to engage in international cooperation and interesting project calls relevant to Prague come out regularly. Therefore, it is desirable to set priorities in the field of international cooperation and to have the necessary capacities allocated for this purpose (if necessary, in the form of external cooperation as well) so that projects for selected calls are prepared well in advance and in cooperation with relevant Prague stakeholders and international partners. One of the prerequisites for success in international projects is ensuring good communication and cooperation throughout the city – i.e., involving city companies and organisations, city districts, universities and others.

In the past, Prague already established cooperation with the Circle Economy organisation via its Circle Cities Programme to develop the Circular Scan (2019). Currently (autumn 2022) Prague is involved in the EIB's **C3 Circular City Advisory (CCA) Programme** aimed at providing consultancy support to cities in developing and setting up the implementation of CE projects. The city selected the construction sector as a priority topic for this programme. Prague is currently applying to join the Net Zero pilot cities[9] project.

- **Opportunities for International Cooperation**

I. Initiatives for cities mainly work on the basis of sharing know-how. They involve sharing information on how cities can start and develop strategic policies, set their goals and implement specific projects in areas related to circular economy. Some of these initiatives also call for the involvement of cities in pilot projects, etc.

- **ICLEI Circular Cities:** Prague has already established cooperation with ICLEI as an observer, but is not yet a member. In the future, it is possible to consider paid membership, which provides a number of benefits.
- **The Circular Cities Centre:** C3 (EIB, European Commission, partner: Circle Economy) - Prague is currently enrolled in the C3 Circular City Advisory (CCA) Programme.
- **Net Zero Cities**

[8] European Commission: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_cs

[9] Net Zero Cities: https://netzerocities.eu/call-for-pilot-cities/

II. Other initiatives target specific city projects through calls for proposals that are published at irregular intervals. Prague should proactively monitor such offers and, if their focus is in line with the objectives of Circular Prague 2030, take part in them.

EU programmes are one such opportunity in this respect. The Horizon programme is especially valuable for the City of Prague due to the combination of expert focus of the projects, which are intended to bring innovation in a given area, over several years. This provides an ideal opportunity to establish partnerships not only with other European cities, but also with research organisations, NGOs, etc.
Meanwhile, in the field of adult education and exchange of experience, it is the Erasmus+ programme. For other programmes to follow, see the list below.

- **Horizon Europe (2021-2027)**
- **Erasmus+**
- **The Circular Cities and Regions Initiative (CCRI)**
- **New European Bauhaus**
- **Interreg Europe**
- **Urbact**

III. There are also equally interesting regional initiatives abroad, which Prague can see not only as partners for sharing good practice, but also as inspiration for its own development in the topic, a useful source of examples of good practice and direct contacts.

Some examples to be mentioned

- **OECD: Circular Cities and Regions**
- **Ellen MacArthur Foundation: Cities Programme**
- **Urbact**
- **Circular Regions** (Norway)

2.Financing Options for the Implementation of the Action Plan for CE 2023-2025

Resolution of the Prague City Council XY of XYY contains information on the possibilities of financing the implementation of circular economy projects, ideally as multi-source. It is a combination of subsidies and the City's own financial resources. The advantage of multi-source financing lies in a higher level of securing finance and at the same time in easing the pressure on the city budget. However, the possibilities of the city's involvement in subsidy programmes are conditional on sufficient human resource capacity within PCH structure to monitor subsidy opportunities and prepare subsidy applications. For the period of 2023-2025, which this Action Plan is prepared for, the following set of subsidy programmes is under consideration:

1) **Operational Programme Environment**
2) **National Environment Programme**
3) **National Recovery Plan**
4) **Horizon programme**
5) **Life programme**
6) **New European Bauhaus**
7) **Research projects - TA CR (Environment for Life, Beta+ programme)**

ACTION PLAN

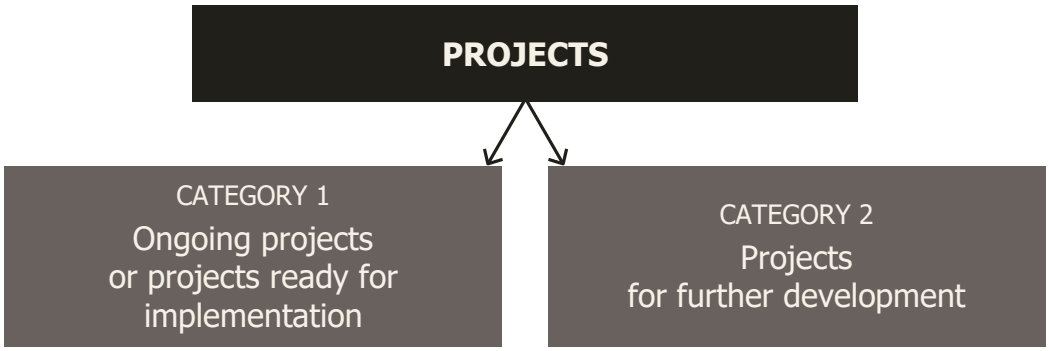
Circular

Prague 2030-2025 Strategy

Appendix I
List of Project Cards

CIRKULÁRNÍ PRAHA

PRAHA
PRAGUE
PRAGA
PRAG



January 2023 / List of Project Cards

Order	Number	Name of the project card	Category
1. CONSTRUCTION			
1	SO1/1	Online database of planned demolitions	2
2	SO1/2	Prague Manual for Sustainable Neighbourhoods	1
3	SO1/3	Pilot circular building of the primary school in Prague Lipenice	1
4	SO1/4	Use of reclaimed asphalt from repairs of asphalt roads	1
5	SO1/5	Application of circular principles in public buildings and amenities	1
6	SO1/6	Reuse centre for building materials	2
7	SO1/7	Collection of expanded polystyrene (EPS)	2
8	SO1/8	Good practice in city districts: Principles for cooperation with investors in Prague 12	1
9	SO1/9	Support for the implementation of pre-demolition audits	2

Order	Number	Name of the project card	Category
2. WATER			
10	SO2/1	Extension of smart metering for drinking water leak detection	1
11	SO2/2	Horizon 2020 project "Wider uptake"	1
12	SO2/3	Piloting circular water management in construction and renovation	2
13	SO2/4	Energy centre for the use of low-potential heat from the CWTP	1
14	SO2/5	Biogas from the CWTP	1
15	SO2/6	Expansion of biogas production capacity at the CWTP	1
16	SO2/7	Recycling and recovery of phosphorus from wastewater	2
17	SO2/8	Preparation of a water audit – pilot project in PCDs	2

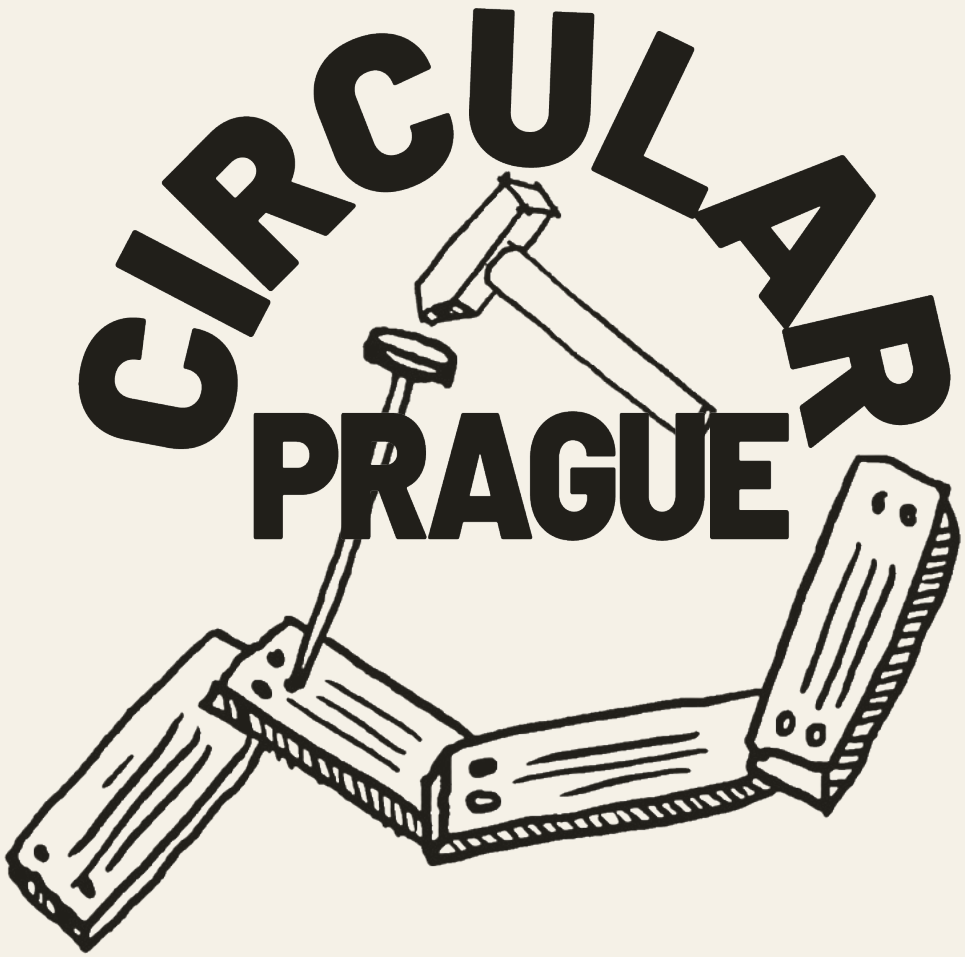
Order	Number	Name of the project card	Category
3. AGRICULTURE AND FOOD			
18	SO3/1	Online marketplace for school canteens	2
19	SO3/2	Preparation of policy instructions to support urban and peri-urban agriculture	1
20	SO3/3	General urban agriculture plan	2
21	SO3/4	Pilot production farm	1
22	SO3/5	Pilot: storage facilities for urban farmers	2
23	SO3/6	Use of biochar in the blue-green infrastructure of the city	2
24	SO3/7	Food waste analysis	1
25	SO3/8	Online platform for sharing ready-made meals	1

Order	Number	Name of the project card	Category
4. WASTE			
26	SO4/1	Circular map of Prague	1
27	SO4/2	Expanding the network of Re-use points	1
28	SO4/3	Re-use in schools	1
29	SO4/4	Mobile re-use centre	2
30	SO4/5	Collection and further management of bio-waste	1
31	SO4/6	Biogas station	1
32	SO4/7	Collection of kitchen and canteen waste from school canteens	1
33	SO4/8	Composting plants and composters in PCDs	1
34	SO4/9	Prague Circular House	2
35	SO4/10	Circular HUB	2
36	SO4/11	Re-use days in PCDs	1
37	SO4/12	Multi-commodity collection	1
38	SO4/13	Door to door waste collection system	1
39	SO4/14	Sorting line	1
40	SO4/15	Slag management	1
41	SO4/16	Smart technology for more efficient waste collection	1
42	SO4/17	Separate collection of textiles	2
43	SO4/18	Utilisation of Prague recyclate – paper, plastic, glass	2
44	SO4/19	PSAS cullet yard	1
45	SO4/20	Circular fashion HUB	1
46	SO4/21	Circular school	1

Order	Number	Name of the project card	Category
5. PUBLIC PROCUREMENT			
47	SO5/1	Methodology for the strategy for responsible public procurement	1
48	SO5/2	Training module on circular procurement for city employees	1
49	SO5/3	Catalogue of good practices and support for pilot implementation of circular public procurement	1

Order	Number	Name of the project card	Category
6. SUPPORT FOR ENTREPRENEURSHIP, INNOVATION, AND OUTREACH			
50	SO6/1	Circular Prague platform	2
51	SO6/2	Subsidies for innovation in circular economy	2
52	SO6/3	The concept of EEO and circular economy	1
53	SO6/4	CE communication strategy and campaign	1

Order	Number	Name of the project card	Category
7. MANAGEMENT AND IMPLEMENTATION			
54	SO7/1	Support for implementation by setting up project management	1
55	SO7/2	Involvement in international projects	1
56	SO7/3	Preparation of an indicator set and data collection for the circular economy	1
57	SO7/4	Networking and workshops for PCDs	1
58	SO7/5	Web presentation and outreach events on the Circular Prague 2030 Strategy	1
59	SO7/6	Sustainable city organisations and their operation	1
60	SO7/7	Support for the implementation of the Circular Prague 2030 Strategy by setting up project management	1



CONSTRUCTION

Project Card SO1/1

Project Name
Online map of planned demolitions

Strategic Objective
SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description
Prague's aim is to reduce the amount of construction waste, which currently makes up the majority of the city's waste, and at the same time to reduce the consumption of primary raw materials in the construction industry. It is therefore important to use what is already available to the maximum extent possible and in accordance with the current legislation. Many materials and construction products that could be reused under certain conditions are contained in existing buildings that are intended for demolition. A pre-demolition audit and subsequent deconstruction would make it possible to use these resources. The necessary overview of the demolitions planned (and underway) in Prague is still missing, so neither the planners nor the inhabitants of Prague have the knowledge of the possibilities of building materials and elements that could be collected and reused. On the other hand, construction companies that carry out demolition must pay for the removal and disposal of construction waste.

An online demolition map would provide timely and comprehensive information on the amount and type of materials and building elements in buildings. Such information could be identified through a pre-demolition audit. Building owners could be motivated to carry them out with incentives and preferential rates for the removal and disposal of construction waste.

An example of good practice can be seen in Oslo, where the city council maintains an online database of planned and ongoing demolitions in the city, including public and private projects on which the city has issued opinions through demolition permits. This online database, which takes the physical form of a map, allows architects and building designers to consider these sites as material banks and include reclaimed materials in plans for new construction or renovation projects.

During the implementation of the first Action Plan, communication between the project partners will be set up and the steps for the creation of the map will be further specified (including the involvement of external partners such as building authorities). It is suggested to integrate the map into the existing portals of the city, e.g., the geoportal of Prague (IPR), ideally.

Project Goal
To create an online map of planned demolitions in Prague. The map will provide timely information on planned demolitions, the quantity and type of building materials and elements. These can then be reused; the volume of construction waste is reduced as is the use of primary raw materials. Building owners will pay less for the collection and disposal of construction waste, and the citizens of Prague can save money when purchasing building materials and elements if they use existing ones.

Preparation
EPD

Implementation
EPD

Project Partners
CTU, OICT, IPR, city districts, building authorities

Implementation Schedule (quarter)
- Start 2023
- End

Estimated Budget and Source of Funding
- To be specified
- PCH

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of projects implemented using circular principles/year. Number of constructions utilising recycled materials (number/year)
- Savings in building materials (t/year)
- CO_2 savings (t/year)

Project Card SO1/2

Project Name
Prague Manual for Sustainable Neighbourhoods

Strategic Objective
SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description
The project consists in the creation and application of the Sustainable Neighbourhoods Manual (hereinafter referred to as the Manual) in the planning of new construction in Prague. The Manual serves as a set of rules for sustainable construction. The Manual will also include recommendations for the use of circular principles in the design and implementation of new construction in planned neighbourhoods. The Manual will have four main functions:

1. to identify and specify aspects, factors and terminology of complex sustainability of buildable areas (urban units) for the needs of stakeholders involved in planning, construction or operational management of neighbourhoods;
2. to describe examples of specific measures for the implementation of sustainable development aspects neighbourhoods, including their benefits, negative aspects, economic requirements and the method of their implementation in locations with different character;
3. to set out the requirements for stakeholders involved in planning new urban units (authors of land-use studies, acquirers, etc.) so that the future construction or transformation and functioning of these units meet the complex aspects of sustainable development;
4. to propose a methodology for assessing the sustainability of urban units based on the identified indicators and aspects.

Project Goal
To develop and apply the Sustainable Neighbourhoods Manual as a tool for the city to increase the sustainability of urban units so that they are climate neutral, conserve resources and materials, do not pollute the environment, and contribute to the Sustainable Development Goals (SDGs) over their entire life cycle.

Preparation
IPR Prague, City Development Section

Implementation
-

Project Partners
PDS; University Centre for Energy Efficient Buildings of CTU; Spatial Development Department of City of Prague

Implementation Schedule (quarter)
- 1Q/2023
- 4Q/2025

Estimated Budget and Source of Funding
- CZK 7,767,878
- TA CR (79%), IPR Prague (19%), PDS (2%)

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of spatial and urban studies acquired by bodies of the City of Prague that meet the minimum sustainability threshold set by the Manual/2 years
- Number of buildings constructed in neighbourhoods that meet the requirements of sustainable urbanism in accordance with the Manual/year

Project Card SO1/3

Project Name

Pilot circular building of the primary school in Prague Lipenice

Strategic Objective

SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description

Piloting possible circular approaches in the construction of public amenities at the new primary school building in Prague Lipence, the investor of which is the Prague Lipence City District.

Design creation– architects: Vllnna architects.

The new school building is designed as a wooden building, but it also opens up the possibility of piloting other possible circular solutions. These principles will be further discussed and integrated into the project documentation in collaboration with sustainable building experts.

Circular principles that can be included in the project:

1. Materials – recycled concrete, recycled interior materials, natural materials
2. Use of grey water and rainwater
3. Energy – photovoltaics for the new building and existing buildings
4. Green spaces around the building, green roof
5. Social aspect – healthy/comfortable environment in the building (quality air conditioning, lighting, finishing materials)
6. Digitization – digital twin, LCA, LCC, BIM model, end-of-life data on the use of building materials.

Project Goal

To pilot the application of circular principles in construction of civic amenities in Prague.

Preparation

contracting authority Lipence city district, project documentation by 2024

Implementation

contracting authority Lipence city district construction by 2026

Project Partners

EPD PCH, INV PCH

Implementation Schedule (quarter)

- 2022-2024 preparation of project documentation
- 2025-2026 construction

Estimated Budget and Source of Funding

- Project documentation approx. CZK 8 million , implementation CZK 80 million .
- Lipence city district, subsidies

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of circular principles applied
- Operational savings
- Water savings

Project Card SO1/4

Project Name
Use of reclaimed asphalt from asphalt roads in Prague

Strategic Objective
SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description
The project will contribute to an increase in recycling and management of reclaimed asphalt and material surpluses. As the first step,
in cooperation with the CTU (Faculty of Civil Engineering), TSK has prepared a technical regulation: "The use of reclaimed asphalt in asphalt mixtures in road structures managed by the City of Prague". The aim of the regulation is to streamline the management of reclaimed asphalt resulting from grinding of asphalt roads during repairs. Another goal is to apply the principles of circular economy, to increase the amount of reclaimed asphalt added to asphalt mixtures, well beyond what is allowed by the current outdated technical regulations. TSK will thus significantly support the reduction of consumption of non-renewable resources, i.e., asphalt binder and aggregates. Thanks to the newly introduced principles for the management of reclaimed asphalt, the amount of landfilled material will be reduced, reducing the costs associated with landfilling.

In the second step of the process – after the implementation of the above-mentioned regulation and its initial trial in practice, TSK will focus on the transport mechanism of recycled material, where the aim is to minimise the total transport paths and therefore emissions. When preparing construction (reconstruction, repair and maintenance), TSK will focus on finding a suitable location for the storage of reclaimed asphalt and will give priority to its use at the nearest possible location while always maintaining the appropriate quality parameters. The aim is to ensure that reclaimed asphalt and surplus materials in general are managed in such a way that their use in the immediate vicinity is maximised and surplus materials are transported over minimum distances.

Project Goal
To implement the use of reclaimed asphalt from asphalt road surfaces for reconstruction, repair and maintenance of roads under the direction of TSK Praha a.s. (or provision of methodologies, documents and infrastructure to other bodies of the city by TSK). This will decrease the consumption of primary resources and reduce the amount of waste that is landfilled.

Preparation
TSK – Investment Section

Implementation
-

Project Partners
CTU Prague (Faculty of Civil Engineering)

Implementation Schedule (quarter)
- Pilot projects being implemented in 2023, followed by implementation and management of reclaimed asphalt, possibly involving other bodies of the City of Prague

Estimated Budget and Source of Funding
- The administrative costs will be covered by the TSK budget or by appropriate subsidies. In case of costs of project implementation, there are expected aggregate savings on the total costs of individual projects, thanks to the consistent use of reclaimed asphalt from existing pavements.

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of projects implemented using circular principles/year
- Savings in building materials (t/year)
- CO_2 savings (t/year)

Project Card SO1/5

Project Name

Application of circular principles in public buildings and amenities

Strategic Objective

SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description

EPD PCH will initiate the development of a supplementary methodological guide based on expert consultations with the public and private sector. This supplementary methodological guide will set out the qualitative parameters of tendering procedures for reconstruction or new construction.

The methodological guide will include a list of possible circular requirements, with provision that their applicability needs to be assessed for each individual case. The foundation will be the existing methods and indicators that can be applied (piloted) ("Life cycle cost", "Life cycle assessment", material passports), EN and ISO standards for building structures, Level(s): The European Framework for Sustainable Buildings, the Removable Building Design (RBD) protocol/tool, the use of materials with EPD (Environmental Product Declaration), ISO standards for "Design for disassembly and adaptability" (ISO 20887) and others. Consideration will also be given to the functional use of buildings over time, low-cost and environmentally friendly/zero-waste operation, and the promotion of municipal waste separation and recycling.

Pražská developerská společnost has prepared a Manual for the Procurement of Public Building Projects, including basic circular principles that should be taken into account in the preparation, design and construction of new residential buildings, administration buildings and buildings for public amenities. The aim of the project is to promote the practical use of this manual so that circular requirements can be incorporated into procurement documentation and to provide the necessary technical support to contracting authorities. Pražská developerská společnost will consult the methodological guide with the EPD PCH, and after its creation, test its application in its newly prepared buildings and investment projects.

Project Goal

To promote the application of circular principles in new construction or renovation of public buildings and amenities

Preparation

DEP PCH

Implementation

PDS (as part of PDS investment projects)

Project Partners

Pii, z.ú. – platform for urban innovation

Implementation Schedule (quarter)

- Start 2023
- continuously

Estimated Budget and Source of Funding

- to be specified

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of projects implemented using circular principles/year
- Savings in building materials (t/year)
- CO_2 savings (t/year)

Project Card SO1/6

Project Name

Re-use centre for building materials

Strategic Objective

SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description

Prague's aim is to reduce the amount of construction waste, which currently makes up the majority of Prague's waste, and at the same time to reduce the consumption of primary raw materials in the construction industry. It is therefore important to use existing materials in buildings to the maximum extent possible and in accordance with current legislation. Building materials and elements that can still serve the residents of Prague could be placed in the area of a re-use centre for building materials accessible for transport. The proposal is to create a physical place (re-use centre) for temporary storage and sale of secondary material, ideally in combination with a digital platform that will enable the registration of available materials, linking of supply and demand as well as the sale itself.

Given the rising cost of building materials, the use of secondary materials will soon be a cost-effective alternative, too. In addition, re-use centres can be a suitable environment for social economy entities, or an opportunity to involve people with difficult access to the labour market.

The pilot operation of a re-use centre for building materials could be implemented in the premises of Pražské služby, a.s. In the future, the network of re-use centres would be expanded to ensure that the centres are well accessible by transport.

The first step will be to discuss the use of existing land with the project partner. In the event that no suitable land is identified, proceed to discuss the possibility of acquiring suitable land, either in cooperation with Pražské služby or other entities, including city districts.

An example of good practice is Rotor Deconstruction Brussels, which is a re-use centre for building materials supported by the city. In addition to consulting on deconstruction, and assisting with material sales, it also connects stakeholders and experts in construction and demolition.

Project Goal

To create a re-use centre for temporary storage and sale of secondary materials, which will serve individuals and businesses in Prague.

Preparation

DEP PCH

Implementation

DEP PCH

Project Partners

Pražské služby, a.s.

Implementation Schedule (quarter)

- Start 2023

Estimated Budget and Source of Funding

- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Quantity of building materials and elements handed in t/year
- Quantity of building materials and elements taken away t/year
- Savings in building materials (t/year)
- CO_2 savings (t/year)

Project Card SO1/7

Project Name
Collection of expanded polystyrene (EPS)

Strategic Objective
SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description
If polystyrene foam waste, whether shaped packaging or clean construction cuttings, is sorted separately and reaches the processor unpolluted, it is well suited for the production of new products. The production capacity of EPS in the Czech Republic is 60 thousand tonnes per year, with a maximum of 4-5 thousand tonnes of waste per year. Therefore, there is interest in taking the material for recycling and processors buy it back. If the waste ends up in a yellow bin with other plastics, it often becomes contaminated (also due to compacting during collection) and is only usable for downcycling and mixing into lightweight concrete or as blown insulation.

The City of Prague could support collection of EPS waste in the best possible quality in several ways:

1. By expanding the existing separate collection of EPS
   in the collection yards. By supporting efficient management of EPS waste through pre-treatment by compacting and shredding it.

2. To support separate collection for Prague residents – EPS takes up space in yellow containers (where it gets contaminated and its value decreases) or in containers for MSW. Collection is thus unnecessarily burdened with large-volume packaging. It is possible to use the model that is in pilot operation in Kralupy nad Vltavou, where bin bag EPS containers are placed around housing estates. The ideal opportunity for the placement of such containers is, e.g., in cases of the approval of new residential buildings (larger quantities of EPS packaging at random intervals). It will be important to cooperate with PCDs in the area of communication with and outreach to the inhabitants of Prague. Consider directly banning sorting of polystyrene into yellow containers.

3. Support for separate collection from buildings – an opportunity to obtain large quantities of EPS material. The city would provide a free container
   Owners will save money on collection and management of construction waste and the city will get EPS directly from the waste generator. The foundation would be close cooperation with PCDs (spreading of information about the separate collection of EPS to residents of PCDs) and building authorities. As part of the construction process, building owners would be informed of the possibility of providing a container and collecting EPS cuttings/waste.

Project Goal
To reduce the amount of construction waste and at the same time support the reprocessing/recycling of EPS.

Preparation
DEP PCH

Implementation
DEP PCH

Project Partners
Pražské služby a. s., Prague city districts, Sdružení EPS ČR, building authorities in the PCDs

Implementation Schedule (quarter)
- Start 2023

Estimated Budget and Source of Funding
- PCH and subsidies (OPE)

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Quantity of uncontaminated EPS sorted (t/year)
  for the separate collection of uncontaminated EPS on-site to construction contractors if they are interested.

Project Card SO1/8

Project Name

Good practice in city districts: Principles for cooperation with investors in Prague 12

Strategic Objective

SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description

Setting up cooperation with investors on the part of the city is part of the Methodology for Investor Participation in the Development of the City of Prague (approved by the city on 22/ 01/ 2022). Some city districts of Prague already set up their own internal documents and policies in this area and apply them in practice. Prague 12 is an example of this, as it, as part of the implementation of the Principles for Cooperation with Investors for the Development of Public Infrastructure of the Prague 12 City District, sets the way of negotiating with developers in terms of individual projects – both the ongoing monitoring of projects and their connection with blue-green infrastructure, circular economy and adaptation to climate change. At the same time, Prague 12 is preparing Manuals for Developers in the areas of Waste Management, Planting and Communication, which correspond with the above-mentioned Principles for Cooperation and are directly related to them.

Networking of city districts and regular communication about projects they are preparing or implementing in the field of sustainability and circular economy is thus an important prerequisite for the exchange of good practice within the city.

Project Objective

To share and promote good practice of the districts in setting the way of negotiating with developers in order to promote sustainable and circular measures and solutions in construction.

Preparation

DEP PCH

Implementation

-

Project Partners

Prague 12 City District

Implementation Schedule (quarter)

- Start 2022
- Completion of the preparation of the methodologies during 2023

Estimated Budget and Source of Funding

- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of examples of good practice in the city/PCDs
- Number of measures implemented on the basis of cooperation with the city/PCDs

Project Card SO1/9

Project Name

Support for the implementation of pre-demolition audits

Strategic Objective

SO1 To reduce consumption of primary raw materials and streamline material flows in the construction industry

Project Description

The project is based on current and upcoming legislative changes related to circular strategies in the construction industry. On the basis of the new Waste Act (No. 541/2020) and the Methodological Guidance of the Waste Department of the Ministry of the Environment of the Czech Republic for the management of construction and demolition waste, waste should be sorted during demolition on the basis of a preliminary critical analysis. A critical assessment should always be made as to whether the use of building materials and products is effective in terms of environmental, economic, social, and other perspectives. The so-called pre-demolition audits are a suitable method. PCH/EPD will initiate a pilot verification of these procedures in cooperation with city organisations, PCDs and private companies and with the expert support of the CTU UCEEB, including the provision of professional seminars for building authorities the City of Prague.

Project Objective

To reduce construction waste by piloting demolition practices that allow the reuse of materials

Preparation

DEP PCH

Implementation

-

Project Partners

CTU UCEEB, city districts

Implementation Schedule (quarter)

- Start 2023
- End 2024

Estimated Budget and Source of Funding

- PCH
- CZK 400,000

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of pre-demolition audits/year
- Savings in building materials (t/year)
- CO_2 savings (t/year)

WATER

Project Card SO2/1

Project Name
Extension of smart metering for drinking water leak detection

Strategic Objective
SO2 To reduce stormwater runoff through sewers, increase water recycling and reuse, including energy use

Project Description
The City of Prague already has experience with the use of technology based on the principle of analysis of radar data of the Synthetic Aperture Radar satellite of the Japanese Space Agency JAXA and with the subsequent evaluation of data using the Astera technology. In the pilot testing, the area from Nové Město to Pankrác was scanned; this represents about 500 km of the water supply system. The system identified 45 areas with potential drinking water leaks. Subsequent surveys using standard technology found 26 hidden water leaks.

In the next two years, 2x1000 km of the water supply system were inspected. The system identified 207 and 248 potential places. Subsequent surveys confirmed 50 and 36 concealed leaks.

At the assumed estimated leakage rate of 15 l/min, given the 112 hidden leaks that have been found since the start of the project, this represents a volume of 73,800m_3/month of water leaked without any utility.

In the near future, it is planned to inspect another 1000 km of the water supply network to further reduce potential and hidden drinking water leaks.

Water losses in the Prague water supply system were over 30 percent in 2000 and over 43 percent in 1996. Prague's water supply system is more than three and a half thousand kilometres long, with nearly a kilometre more in water supply connections.

Further information at:
https://www.pvk.cz/aktuality/satelit-odhalil-pres-dve-ste-potencialnich-uniku-pitne-vody-patraci-potvrdili-padesat-lokalit/.

Project Goal
The aim of the project is to use smart technologies to reduce potential and hidden drinking water leaks.

Preparation
PVK

Implementation
-

Project Partners
PCH, PCDs

Implementation Schedule (quarter)
- 2023
- 2025

Estimated Budget and Source of Funding
- PCH, own funds, EU funds for research and innovation

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of identified areas with potential drinking water leaks
- Number of hidden drinking water leaks found
- Quantified savings of drinking water

Project Card SO2/2

Project Name

Horizon 2020 project "Wider uptake"

Strategic Objective

SO2 To reduce stormwater runoff through sewers, increase water recycling and reuse, including energy use

Project Description

The Horizon 2020 project "Wider Uptake" aims to assess the safe use of recycled water for irrigation of urban green spaces, and industrial or agricultural use. The project involves monitoring of the content of pollutants including drug residues and hormonal preparations in plant biomass even after passing through the soil filter with vegetation using different sources of irrigation water – raw water from the Vltava River, pre-treated wastewater at the discharge from the CWTP and water at the discharge treated by membrane filtration and UV radiation. One of the outputs should be the adjustment of the regulatory environment in the Czech Republic to enable the reuse of wastewater and the creation of a suitable business model and its verification on a selected example of water recycling application. For example, where drinking water is still used for irrigation, i.e., Stromovka Park, the Zoo and the Botanical Garden. After the end of the project in 2024, follow-up projects are expected to be carried out focusing on setting up the regulatory and technical environment and on demonstration projects with the possibility of involving the city or selected industrial companies.

Project Goal

The objective of the project is to assess the possibility of safe use of recycled water for irrigation of urban green space,
in industry or agriculture.

Preparation

Department of Water Technology and Environmental Engineering, University of Chemistry and Technology

Implementation

-

Project Partners

PVS, a.s., CTU, PVK

Implementation Schedule (quarter)

- 2020
- 2024

Estimated Budget and Source of Funding

- EUR 2,135,225, EU Funds, Executive Agency for Small and Medium-sized Enterprises (EASME)
- Continuation to be specified

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Economic assessment of water recycling from the CWTP, including distribution to the nearest potential points of use

Project Card SO2/3

Project Name
Piloting circular water management in construction and renovation

Strategic Objective
SO2 To reduce stormwater runoff through sewers, increase water recycling and reuse, including energy use

Project Description
The aim is to create a space for pilot testing of new circular water management practices and practices already in abroad in the context of upcoming urban construction or larger reconstruction projects. This includes, for example, the use of surplus treated grey water in the area, both in existing built-up areas and in newly planned residential units. There is also apparent potential in newly urbanised locations in the introduction of water management systems where the wastewater generated is fully utilised so that all water is recycled and solid organic waste is composted or used in a biogas plant. Another option is to pilot wastewater heat recovery. Inspiration for practical application in new construction can be drawn from the methodological guidance of the EPD PCH (Methodological Procedure for Putting into Practice the Standards of Rainwater Management in the Territory of the City of Prague), which was created in 2021.

Project Goal
To promote innovative water management solutions that will lead to a reduction in stormwater runoff through sewers, increase water recycling and reuse, including energy.

Preparation
EPD PCH, CTU

Implementation
PDS (as part of PDS investment projects)

Project Partners
DEP PCH

Implementation Schedule (quarter)
- Start 2023
- continuously

Estimated Budget and Source of Funding
- Depends on the scope of application of the circular measures
- PDS, PCH

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of pilot implementations and their evaluation/year
- Number of city stakeholders trained

Project Card SO2/4

Project Name
Energy centre for the use of low-potential heat from the CWTP

Strategic Objective
SO2 To reduce stormwater runoff through sewers, increase water recycling and reuse, including energy use

Project Description
Prague wastewater treated at the New Water Line (NWL) and the Existing Water Line (EWL) discharged into the receiving water body has a significant thermal potential. On average, each of the water lines discharges 1.5 m^3/s of treated wastewater at a temperature of 15-21 °C, for the total of approximately 3.0 m_3/s. The estimated installed capacity of 2x 90 MWt should enable heating of the areas Juliska – Veleslavín and Bubny – Zátory. As part of the Energocentrum investment project for the use of low-potential heat from the CWTP, the Energocentrum itself will be prepared and implemented, very likely located on the left bank of the Troja navigation channel, and the heat output from the Energocentrum will be conveyed to the heat distribution systems prepared and implemented by Pražská teplárenská a.s. The Energocentrum is designed as part of the overall reconstruction and modernisation of the CWTP and it is a realistic assumption that it will be built in 2027-2029.

The project to construct the Energocentrum will primarily be anchored in the emerging concept of the heating industry of the City of Prague and the Strategy and General Plan for the Heating Industry in the Territory of the City of Prague until 2036, which addresses the security of heat supply for the city. For this reason, the Energocentrum is primarily the responsibility of the Department of Energy and falls under the competence of the mayor of Prague.

Project Goal
Utilisation of low-potential heat from treated Prague wastewater to reduce natural gas consumption for heating and domestic hot water in Prague households.

Preparation
PVS a.s. - Strategic Investments Division

Implementation
-

Project Partners
PVK a.s., Pražská plynárenská a.s., Kolektory Praha a.s.

Implementation Schedule (quarter)
- Start 1Q 2022
- End 4Q 2028

Estimated Budget and Source of Funding
- CZK 5 billion excl. VAT
- Subsidies, financing through private equity, or PCH budget

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Thermal equivalent of approx. 1.6 million GJ per year
- Compensation of approx. 41 million. Nm^3 of natural gas
- Savings of 239 t CO_2 per year

Project Card SO2/5

Project Name
Biogas from the CWTP

Strategic Objective
SO2 To reduce stormwater runoff through sewers, increase water recycling and reuse, including energy use

Project Description
The pilot project deals with the verification of the technology for the treatment of biogas obtained in the sludge management of the CWTP during the processing of Prague sewage sludge by anaerobic stabilisation into BioCNG, including the injection of the produced BioCNG into the medium pressure gas pipeline network.

Project Goal
To verify the transformation of biogas into BioCNG and its injection into the Prague medium pressure gas network, reducing the need for natural gas in the territory of the City of Prague.

Preparation
PVS a.s. – Strategic Investments Division

Implementation
-

Project Partners
PVK a.s.

Implementation Schedule (quarter)
- Start 3Q 2019
- End 4Q 2024

Estimated Budget and Source of Funding
- CZK 66,365,000 excl. VAT
- PCH

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- 1.28 million Nm^3 of BioCNG per year
- Savings of 7,427 t CO_2 per year

Project Card SO2/6

Project Name
Expansion of biogas production capacity at the CWTP

Strategic Objective
SO2 To reduce stormwater runoff through sewers, increase water recycling and reuse, including energy use

Project Description
Completion of the plant for treatment of biogas from sewage sludge obtained at the New Water Line and the Existing Water Line and processed at the Sludge Management of the CWTP by anaerobic stabilisation with biogas production is a follow-up to the pilot project for sludge gas utilisation implemented in 2022-2023. Together with the equipment installed as part of the pilot project, it will convert about 15 million Nm^3 of biogas to about 9.6 million m^3 of biomethane per year. All the biomethane produced will be injected through the extraction pipeline built as part of the pilot project to the target capacity into the medium pressure pipeline system. The project is part of the overall reconstruction and modernisation of the CWTP on Císařský Island.

Project Goal
To expand the biogas to BioCNG conversion plant to the full volume of sludge gas from the CWTP Sludge Management available for this project

Preparation
PVS a.s. - Strategic Investments Division

Implementation
-

Project Partners
PVK a.s.

Implementation Schedule (quarter)
- Start 2Q 2019
- End 4Q 2028

Estimated Budget and Source of Funding
- CZK 150 million excl. VAT
- PCH, subsidies

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- 9.6 million Nm_3 of BioCNG per year
- Savings of 55,702 t CO_2 per year

Project Card SO2/7

Project Name
Recycling and recovery of phosphorus from wastewater

Strategic Objective
SO2 To reduce stormwater runoff through sewers, increase water recycling and reuse, including energy use

Project Description
Municipal wastewater contains phosphorus. Its removal is a closely monitored process, as excessive phosphorus in the water entering the environment leads to eutrophication. At present, phosphorus removal at municipal wastewater treatment plants is generally carried out by enhanced biological phosphorus removal or by using coagulants and chemical precipitation.

On the other hand, phosphorus is a valuable, irreplaceable resource and its mined mineral reserves are being depleted globally. It is impossible to fertilise without phosphorous, without fertiliser it is impossible to produce food for both humans and animals. Recycling of phosphorus contained in municipal wastewater lends itself to this purpose.

This is a sophisticated technological process where all possibilities for the impact and further use of phosphorus must be considered. The main problem with phosphorus recycling in general is the presence of heavy metals and micropollutants, especially pharmaceuticals and daily care products, in sewage sludge.

The phosphorus captured in the stabilised sewage sludge from the Central Wastewater Treatment Plant (hereinafter referred to as CWTP) is basically already utilised at present as this sludge is mainly used in agriculture. The future, however, lies in complete independent separation of phosphorus from the stabilised sludge, which is not possible with the current technological processes at the CWTP.

The future concept of modernisation and reconstruction of the sludge management of the WWTP envisages the treatment of the WWTP sludge by anaerobic thermophilic stabilisation using biogas with subsequent dewatering directly on Císařský Island and treatment of the dewatered sludge outside Císařský Island. The final treatment site for the dewatered sludge has not yet been determined and possible solutions will be assessed in 2023. One of the possible options is the Malešice incineration plant managed and operated by PSAS a.s.

PVS a.s. is preparing the overall concept of sludge treatment from the CWTP for the City of Prague, including the design of future phosphorus separation at the target processor of stabilised dewatered sludge. This envisages cooperation with PSAS a.s.

Project Goal
Preparation of a project for recycling phosphorus from municipal wastewater in Prague. Phosphorus gained from the sewage sludge, which would be transferred by the operator of the CWTP, Pražské vodovody a kanalizace, for further processing and phosphorus recovery, e.g., to PSAS a.s.

Preparation
PVS a.s. - Strategic Investments Division

Implementation
The City of Prague represented by PVS

Project Partners
PVK, PSAS a.s.

Implementation Schedule (quarter)
- Start 2023
- End 2028

Estimated Budget and Source of Funding
- Study and preparatory work – up to CZK 5 mill. excl. VAT
- budget of the City of Prague, subsidies

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of projects implemented – sewage sludge from Ústřední čistírna odpadních vod (Central Wastewater Treatment Plant) Prague
- Phosphorus yield - approximately 580 t/year

Project Card SO2/8

Project Name
Preparation of a water audit – pilot project in PCDs

Strategic Objective
SO2 To reduce stormwater runoff through sewers, increase water recycling and reuse, including energy use

Project Description
Water audits are one of the basic pillars of integrated water management of municipalities and the basis for decentralised greywater management solutions. It consists in a comprehensive analysis of water management. It includes water resources, water demand and use, and subsequent wastewater treatment, or percolation and regulated discharge of rainwater. The audit establishes the objectives, principles, priorities, recommended or binding parameters and design procedures for conceptual and development measures for sustainable water management and management of related energy. The water audit also predicts the consumption and variability of water demand in the foreseeable future for adaptation to climate change according to the expected development of the area. Due to the comprehensiveness of water audits, the outputs are usable not only in water management issues and for spatial planning purposes, but also for other state administration bodies, e.g., water authorities, crisis management departments or regional sanitary stations during emergencies.

It is advisable to prepare a pilot water audit for the defined areas of the existing or upcoming built-up areas in the coming years in cooperation with PCH/EPD, PCDs and the Faculty of Civil Engineering of the CTU and to verify the methodology and availability of the necessary data. According to preliminary inquiries in city districts, there is interest in cooperating in this pilot project.

Project Objective
The aim of the project is to verify the methodology and the availability of the necessary data for the preparation of water audits for defined areas of existing or planned built-up areas.

Preparation
EPD PCH, Faculty of Civil Engineering of CTU

Implementation
-

Project Partners
PCDs, PDS

Implementation Schedule (quarter)
- 2023
- 2025

Estimated Budget and Source of Funding
- PCH, EU funds for research and innovation
- CZK 2 million

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of pilot implementations
- Quantification of potential impacts by type of measure/object

AGRICULTURE AND FOOD

Project Card SO3/1

Project Name
Online marketplace for school canteens

Strategic Objective
SO3 To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

Project Description
An online platform where the supply of agricultural products and the demand of school canteens will meet is a way to increase the consumption of organic products in the city (food establishments, canteens) and thus support urban and peri-urban organic farming. There is clearly demand among school canteens for healthy, local products (especially in smaller school canteens in kindergartens) and some are already trying to establish connection with specific food producers.
The online platform, supported by the city and linked to it by services such as the demands of school canteens for the supply of products (guaranteed delivery in smaller packages, cleanliness, etc.), will allow canteen operators to plan menus containing local produce. The online platform will also include a discussion board for possible sharing of experience and gathering suggestions for the gradual improvement of the whole system of ordering and delivery of local agricultural products. The basis of the system will be those schools that are already interested in local (organic) products and may gradually be joined by other entities from the ranks school canteens and agricultural suppliers.

Project Goal
To support the consumption of healthy food from urban and peri-urban agriculture in Prague schools.

Preparation
EPD PCH - conceptual plan, possible output of the Circular Prague Platform

Implementation
-

Project Partners
ED PCH, Pii z.ú.

Implementation Schedule (quarter)
- Start of preparation 2023

Estimated Budget and Source of Funding
- Project concept for development

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of entities linked in the online marketplace (schools/producers)
- Number of products purchased through the online marketplace (t/year)

Project Card SO3/2

Project Name
Preparation of a city policy to support urban agriculture

Strategic Objective
SO3 To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

Project Description
Prague has not yet determined whether and in what places, on what land, and under what conditions it wants to support or enable the development of urban and peri-urban agriculture. There is no analytical or strategic document that would describe this topic in Prague and set goals and support for the use of suitable land for agricultural production. The city has an approved methodology for concluding lease contracts on city land, but only with an emphasis on ecological farming methods and lacking the necessary coordination within PCH and with PCDs. Establishing the basic requirements and principles for the development of urban and peri-urban agriculture can then be reflected in rules for private farmers, in policies towards allotments, community gardens, or in the revitalisation of inner courtyards, the development of new urban units, etc. For upcoming projects, this can then be either directly required, or provide concessions because of how they contribute to the city's urban agriculture policy. Examples include individual projects under the the Povltava promenade spatial study approved by the Prague City Council (restoration of the vineyards under the Na Bulovce Hospital with the restoration of the orchard in an ecological mode and the construction of the necessary facilities –– circular/modular buildings – with possible use, for example, for the children's group of the Na Bulovce Hospital).

The city's brief should be prepared in cooperation with the private and civil sector (companies, NGOs) and academia as a basis for a new urban policy and related projects. The actual implementation will take place via public procurement (creation of the analysis and outputs: defining the terms of reference, organising workshops and discussing the project outputs with urban stakeholders).

Project Goal
To prepare the basis for a new urban policy to support local food production and the development of urban agriculture.

Preparation
DEP PCH

Implementation
-

Project Partners
IPR, Pii z.ú.

Implementation Schedule (quarter)
- 2023

Estimated Budget and Source of Funding
- CZK 600,000
- PCH/EPD

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Creation of a strategic document that identifies practical and achievable objectives on this issue.
- Implementation of at least 1 working meeting of the main stakeholders on this topic. Declaration of the city's intentions toward non-profit and private entities in the agricultural sector.
- Proposing at least 5 specific projects and measure
- Increase in the number of collaborations/partnerships between the city and other entities on the topic.

Project Card SO3/3

Project Name

General urban agriculture plan

Strategic Objective

SO3 To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

Project Description

The demand for spaces with a potential for agricultural production in Prague is growing. At the same time, there is a lack of information on the development in this area and the current needs. The historically developed general plans of community gardens or allotments are outdated, and new areas are being created (e.g., production rooftop farms, private land, or PCD land newly connected to the city's supply). Urban agriculture also includes orchards on both city and private land. In order for the city to effectively support the development of urban agriculture and to support the demand for urban agriculture products, it needs to know the current state, needs and trends, which can be ensured by regularly updating of data in two-year cycles – the preparation of a general urban agriculture plan.

Project Goal

To regularly acquire up-to-date data on the development and needs of urban agriculture (area, production, means of distribution) in two-year cycles

Preparation

DEP PCH

Implementation

-

Project Partners

IPR, OICT, Pii z.ú.

Implementation Schedule (quarter)

- Start of preparation 2023
- Project concept

Estimated Budget and Source of Funding

- To be specified
- PCH, TA CR, OPE

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Area of land allocated for agricultural production (ha)
- Quantity of agricultural products intended for consumption in Prague (t/year)
- Number and area of community gardens (ha)

Project Card SO3/4

Project Name
Pilot urban farm

Strategic Objective
SO3 To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

Project Description
The urban production farm is a proven concept in many European cities. It is also represented in Prague by the MetroFarm project, which has been being developed with the support of the City of Prague since 2019. The estimated annual food production of the entire MetroFarm project in 2022 was approximately 8 tonnes. This included 3 tonnes of fruit and vegetables from the main community field on Císařský Island and 1.5 tonnes from individual beds on Císařský Island, 20,000 eggs, 500 litres of goat's milk, 130 kg of honey. The new field in Jinonice produced around 2.5 tonnes of food. Based on the results, the concept can be further extended.
Production farms can have different concepts and function as examples of organic or regenerative agriculture, or develop new approaches such as hydroponics or aquaponics. In addition to food production, an essential part of urban farms is also environmental education and outreach, support for new approaches and innovations in food production and processing, and inclusion of disadvantaged groups in the labour market. The network of such farms in the UK (https://www.farmgarden.org.uk) is a good example.

Project Goal
The aim of the project is to support the development of urban agriculture and subsistence farming, including its educational and social integration function and the creation of new employment opportunities.

Preparation
PCH/EPD

Implementation
-

Project Partners
PCDs, NGOs

Implementation Schedule (quarter)
- Start 2023

Estimated Budget and Source of Funding
- membership fees, PCH, PCDs, OPE
- sale of own produce

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of farms
- Farmed area (ha)
- Quantity of agricultural products produced for consumption in Prague (t/year)
- Number of new jobs

Project Card SO3/5

Project Name
Pilot: storage facilities for urban farmers

Strategic Objective
SO3 To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

Project Description
The lack of storage space has been identified as an obstacle to the development of the production function of urban and peri-urban agriculture with a focus on seasonal fruit and vegetable products. If the City of Prague provides suitable space that can be used or converted to storage space, it will create a significant incentive for urban and peri-urban farmers. A combination of storage and post-processing areas for fruit or vegetables is also possible. The prerequisite is to have the Property Department examine the available city real estate or land that can perform the above functions and then prepare a project proposal, including a suitable business model, in cooperation with the EPD PCH and representatives of farmers. It can be prepared under the Circular Prague platform.

Project Goal
To investigate the possibility of the city establishing storage areas for seasonal fruit and vegetable products and prepare a proposal for the implementation of this project.

Preparation
EPD PCH, Department of Property Management of PCH

Implementation
-

Project Partners
PCDs, PRI PCH

Implementation Schedule (quarter)
- Beginning 2023 – project concept

Estimated Budget and Source of Funding
- PCH, OPE

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Quantity of seasonal products stored/year

Project Card SO3/6

Project Name

Use of biochar in the blue-green infrastructure of the city

Strategic Objective

SO3 To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

Project Description

TSK actively promotes the standards of blue-green infrastructure and Prague's tree avenues. Elements of blue-green infrastructure using structural substrate are used to manage rainwater and provide suitable conditions for tree growth in public spaces, especially in the Nordic countries. The purpose of structural substrate is not only to retain and gradually release rainwater, but also to provide a porous environment in the root zone of trees to allow soil gas exchange and a high permeability to water so that there is no risk of over-saturation. Structural substrates contain the so-called biochar produced by thermal decomposition of biomass by pyrolysis due to its specific properties.

The benefit of using biochar in structural substrates, or as a soil additive in general, is the capture (sequestration) of CO_2.

More steps to further specify the project and assess its feasibility and impact will be taken in 2023 in cooperation with the project partners.

Project Goal

To reduce the consumption of primary raw materials and improve the efficiency of material flows by producing biochar through pyrolysis using bio-waste.

Preparation

TSK, EPD PCH

Implementation

-

Project Partners

Lesy hl. m. Prahy, IPR Prague, ČZU, Pii, z.ú.

Implementation Schedule (quarter)

- Start 1Q 2023

Estimated Budget and Source of Funding

- CZK 100 million
- TSK, possible subsidies

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- t/year of bio-waste destined for processing
- t/year of biochar produced by pyrolysis of bio-waste

Project Card SO3/7

Project Name

Food waste analysis

Strategic Objective

SO3 To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

Project Description

Prague does not yet have an overview of where and how food is wasted. The project, prepared by Zachraň jídlo in cooperation with Mendel University and Inesan, will focus on food flows in organisations established by the city (schools, social and health care facilities, etc.). The results will be used to put forward recommendations for the city, including specific measures that should support the prevention and reduction of food waste in canteens operated by the city, PCDs or organisations established by them, and only then address recycling. Once the city has more accurate data on food surpluses and food waste flows, it can set short- and long-term goals and evaluate success in reducing waste.

Project Goal

To obtain the data needed to set targets and specific measures to reduce food waste in canteens operated by the city, PCDs and the organisations established by them (schools, social and health facilities).

Preparation

Zachraň jídlo, Mendel

Implementation

-

Project Partners

Pii z.ú., EPD PCH

Implementation Schedule (quarter)

- Start 2023

Estimated Budget and Source of Funding

- TACR Prostředí pro život (Environment for Life)

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Food waste savings (t/year)

Project Card SO3/8

Project Name

Platform for sharing ready-made meals

Strategic Objective

SO3 To reduce food waste, increase local production and consumption of healthy food from urban and peri-urban agriculture

Project Description

In December 2022, a form for sharing ready-made meals was launched. During the seven months of the Zachraň oběd (Save Lunch) project's operation, more than ten thousand portions of ready-made meals have been delivered to people in need in reception centres and emergency shelters. An online tool for food donation on the Airtable platform connects canteens/food establishments and catering companies with charities. The project was launched by the Zachraň jídlo organisation and professional volunteers from Česko.Digital. The form for sharing ready meals is available on mobile phones and on the website and can be used after prior agreement (after the canteen has established cooperation with a specific charity and after transport from the canteen to the charity has been arranged). In 2023, new functionalities will be added for better use in food donation. Zachraň jídlo is working on a draft amendment to the law to allow legal donations from contributory organisations.

Project Goal

Prevention of food waste by promoting and increasing the use of food sharing platforms by the city, municipalities and city companies

Preparation

EPD PCH and Zachraň jídlo

Implementation

-

Project Partners

Česko.Digital

Implementation Schedule (quarter)

- 2022

Estimated Budget and Source of Funding

-

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of donated meals/year
- Involvement of the city, PCDs and city companies – number of donated meals/year
- Food waste savings (t/year)

CIRCULAR PRAGUE

WASTE

Project Card SO4/1

Project Name
Circular map of Prague

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
The project consists of creation of an online portal that will provide the citizens of Prague with all available information on possible ways of disposing of primarily bulky waste, but also other older, but still functional items that the owner wants to dispose of. This portal will serve as an online signpost. After entering the necessary parameters, it "advises" the user on how to dispose of the object in the most efficient way, ideally outside the waste regime. The portal is therefore seen primarily as a measure to reduce the production of municipal waste. It is linked to partner repair, donation and collection services that can sign up to the platform and it is anticipated that new services will be added. An integral part of the portal is the display of the location of individual services on the map of Prague – the so-called Circular Map, where the user can find available services and activities operating on the principles of re-use or repair in individual parts of Prague.

The first steps to prepare the portal have already been taken. The anticipated launch date is estimated for the end of 2023.

Project Goal
To reduce the amount of bulky waste production in the territory of the City of Prague by increasing awareness of the possibilities and services available for its reuse.

Preparation
DEP PCH

Implementation
-

Project Partners
OICT PCH, The supplier of the technology will be selected on the basis of a tender procedure in accordance with Act No. 134/2016 Coll., on Public Procurement.

Implementation Schedule (quarter)
- Start 2023

Estimated Budget and Source of Funding
- to be specified – implementation of the platform, SLA, extended support and provision of a PCH content manager

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total amount of bulky/municipal waste (t/year)
- Number of active portal users
- Portal traffic
- Usage rate of services offered by the portal

Project Card SO4/2

Project Name
Expanding the network of re-use points

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
The term "re-use point" refers to a place in a collection yard where citizens of Prague can drop off items that they no longer need but someone else could still use. It is a manned porta cabin or container with an attendant, and items are offered for free.

This represents offerings of pre-sorted items that would otherwise end up in the collection yard as waste. After accepting the item at the re-use point, the operator uploads the item to the "nevyhazujto.cz" application. Priority for pick-up is given to non-profit companies; after a 7-day period, the item will be displayed for everyone. At present, there are 5 re-use points in Prague, and the network is going to be expanded to other collection yards with the aspiration to create 2-3 re-use points/year, thus evenly covering the territory of the City of Prague and ensuring the availability of re-use points in all collection yards by 2030.

Re-use point statistics for the period 10/2021-10/2022:

3,882 items were handed in, of which 2,729 were handed over to new owners (70%), representing 20.5 tonnes of material that did not become waste.

Project Goal
To reduce the amount of bulky waste handled by the City of Prague annually as efficiently as possible and to build a network of re-use points in all collection yards of the City of Prague by 2030.

Changing consumption habits of Prague residents.

Preparation
DEP PCH

Implementation
Collection yard operators

Project Partners
non-profit organisations, NevyhazujTo.cz

Implementation Schedule (quarter)
- Start 4Q 2021
- End 4Q 2030

Estimated Budget and Source of Funding
- CZK 1,400,000/1 re-use point/year
- PCH, OPE – 4th call – Sustainable Waste Management

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total amount of bulky waste (t/year)
- Number of items handed in (pcs)
- Amount of material collected at re-use points (t/year)

Project Card SO4/3

Project Name
Re-use in schools

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
The principle of repairing and putting functional items back into circulation is an important pillar of the circular economy. The implementation of re-use training courses on furniture repair for interested members of the public is part of the re-use pilot in schools. A fully equipped workshop of a vocational school, where the courses will take place on regular dates, will be used. The frequency of courses is expected to be once a month starting in October 2022, with a total of 9 courses per school year. Professional supervision will be provided by secondary school teachers. There is also the possibility to involve students as assistants to help the course run smoothly and to help the participants. In practice, participants from the public will be able to bring a piece of furniture, which everyone will repair or improve under the supervision of an instructor.

The project is also in line with the regional concept of environmental education and outreach of the City of Prague for the period 2016-2025.

Project Goal
Preventing waste by focusing together with teaching the basic methods of furniture renovation and passing on repair skills, increasing craftsmanship usable in teaching in Prague schools.

Preparation
DEP PCH

Implementation
secondary vocational schools of the City Prague

Project Partners
PCDs of the City of Prague

Implementation Schedule (quarter)
- Start 1Q 2023
- Based on the evaluation of the success of the pilot project

Estimated Budget and Source of Funding
- CZK 326,000/9 courses
- PCH

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total amount of bulky waste (t/year)
- Number of visitors
- Number of pieces of furniture repaired
- Number of visitors to the workshops

Project Card SO4/4

Project Name
Mobile re-use centre

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
In connection with the fact that the City of Prague and its PCDs do not have premises suitable for the operation of a re-use centre in a permanent location in the long term, there is a proposed concept of a mobile version of the re-use centre. A mobile re-use centre can have several forms. It can be a truck or a bulk container that is, however, announced in advance as disposal space for items that are in good condition and could be returned to circulation by the residents of Prague. The mobile reuse centre would have its own staff to inform citizens about what can be donated and in what condition. The staff would be responsible for preparing items for transport so that they are not unnecessarily damaged. In the event that nice, undamaged, unupholstered furniture is found as part of the exchange of items, there is a possibility of cooperation with Nábytková banka Praha. On the other hand, slightly damaged, solid wood furniture could be taken back by Zpokojedopokoje, a company that deals with furniture renovation and its return to circulation.

The location of the mobile re-use centre could be linked to other outreach events focused on waste prevention, etc. The mobile re-use centre could also be included in the regular planned events of the Re-use days in PCDs, which will be implemented by PCH in cooperation with PCDs in 2023.
The schedule of the route and the location of the mobile reuse centre would be designed in cooperation with the participating PCDs, which would also cooperate in promoting the event so that the inhabitants of Prague would know about them in advance. The PCDs would be provided with methodological and financial support (for the operation of the re-use centre) for the operation and delivery of the bulk container, including its removal. Items that have not been taken by citizens of Prague for a long period of time would be taken to the appropriate re-use point at the nearest collection yard and also duly registered in the application nevyhazujto.cz.

Another possibility to temporarily implement a re-use centre is to focus on unused Prague/PCD premises. In cooperation with the PCDs, suitable premises that are not currently rented or used could be identified and a "temporary re-use centre" could be set up for a period of several months.

Project Goal
To pursue the objectives of the EU proposed in the "EU Strategy for Sustainable and Circular Textiles", to increase education on sustainable textile management and reuse, to promote waste prevention, to change the consumption habits of the society.

Preparation
EPD PCH, Pražské služby a.s.

Implementation
-

Project Partners
PCDs, Nábytková banka Praha, Zpokojedopokoje

Implementation Schedule (quarter)
- to be specified

Estimated Budget and Source of Funding
- PCH, OPE

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Amount of bulky waste collected (t/year)
- Quantity of waste collected (pcs/year)
- Number of donors
- Number of outreach events and workshops on-site
- Number of visitors to outreach events and workshops

Project Name

Collection and further management of bio-waste

Strategic Objective

SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description

The subject of the project is to continue the coordinated development and support of the collection of bio-waste of plant origin from the residents of the City of Prague based on Contract No. INO/54/11/010585/2016 concluded between the City of Prague and the Pražské odpady 2016–2025 consortium. At the same time, the collection of biological components of plant origin (the so-called dry components) must be expanded and suitably supplemented by the collection of kitchen residues from the kitchens of Prague households (the so-called wet components), which represent a significant share of mixed municipal waste. The brown collection container for the collection of plant bio-waste has been provided for free since January 2022 to any building owner, provided they request it via the online registration form. In the context of further intensification of the collection of the organic component, it is necessary to enable the citizens of the City of Prague to also sort leftovers of food and scraps from food preparation from the kitchens of Prague households. For this reason, a pilot project has already been carried out in 2020-2021 to ascertain the interest of citizens in the collection of kitchen scraps from households and the appropriate form of collection in different types of built-up areas, with the aim of effectively setting up the operational and technical conditions for the full-scale collection, either by separate sorting of the dry and wet components or in the form of joint collection in one collection container.

The availability of sufficient and suitable processing capacities of facilities for the use of the collected commodity, ideally with a higher added value (e.g. biogas plant capacity within a favourable driving distance), will be essential for the decision on which form of collection and further management of collected biological waste to choose.

Project Objective

Gradual reduction in production of mixed municipal waste and increasing the proportion of sorted usable components in a way that allows their further use and subsequent application to the soil (certified compost or digestate from a biogas plant).

Preparation

EPD PCH, Pražské služby a.s. – Plant 11 – waste collection and recycling

Implementation

-

Project Partners

City districts of the City of Prague SO4/5

Implementation Schedule (quarter)

- Start 1Q 2022

Estimated Budget and Source of Funding

- CZK 120 million/year 2022
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Total amount of sorted bio-waste of plant origin in Prague in t/year)
- Total amount of sorted bio-waste of animal origin in Prague in t/year)
- Year-on-year comparison of specific production of mixed municipal waste in t/year

Project Card SO4/6

Project Name
Biogas station

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
The municipal biogas plant (BGP) represents the end technology for the use of biodegradable waste (BDW) unsuitable for composting, with an expected annual capacity of 30 thousand tonnes, collected by the company Pražské služby, a.s. from residents and other entities in the territory of the City of Prague.

The main output of the BGP operation is biomethane (over 4 million m3 per year), which should be largely injected into a high-pressure pipeline and then used in the form of bioCNG as fuel for the PSAS collection vehicle fleet or for public transport vehicles.

As part of this project, PCH purchased the premises of an agricultural biogas plant in the village of Chrást, and is now in the process of converting the BGP into a municipal one (so that it can process bio-waste from households).

Project Goal
To provide recycling capacity for converting bio-waste into high value-added resources.

Preparation
Pražské služby a.s. - Plant 11 - Waste collection and recycling, Strategy and Project Management Department

Implementation
-

Project Partners
EPD PCH

Implementation Schedule (quarter)
- The conversion of the current BGP is scheduled for completion in 2Q 2026

Estimated Budget and Source of Funding
- approx. CZK 900 million depending on the selected technology
- Subsidies, financing through private equity or joint venture of PCH/PSAS/other entities

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total amount of MSW processed by the BGP (t/year)
- Total amount of biomethane produced (Nm^3/year)
- Total amount of digestate or centrate produced (t/year)
- Fossil fuel saved (l/year)
- Number of outreach events and workshops on-site
- Number of visitors to outreach events and workshops

Project Card SO4/7

Project Name
Collection of kitchen and canteen waste from school canteens

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
The subject of the project is collection and further management of kitchen leftovers from canteens of schools established by the City of Prague. In the first wave of this project, a total of 28 schools have been provided with 120 and 30 litre collection containers free of charge, with a collection frequency of at least twice a week. From 2023 onwards, it is planned to extend the project to other schools established by the City of Prague or Prague city districts. The number of schools that can participate in the project is 600. The project will also include the possibility of involving other legal entities (food establishments and restaurants) in the system of kitchen and canteen waste collection organised by the city. All kitchen and canteen waste is transported to a biogas plant where it is used to produce fuel and agricultural fertiliser. Kitchen and canteen waste (catalogue number 20 01 08) is waste that is listed among the recoverable components of municipal waste that can be included in the calculation of the sorting rate defined in Act No. 541/2020 Coll., on waste.
For this reason, intensification of collection and further management of kitchen and canteen waste, including ensuring the availability of sufficient capacities of facilities for further management of kitchen and canteen waste with higher added value, is one of the main challenges for the future effective setting of the municipal system in the next period.

Project Objective
Gradual reduction of the production of mixed municipal waste and increase of the share of sorted recoverable components of municipal waste to increase the sorting rate for municipalities in the Czech Republic as specified in Act No. 541/2020 Coll., on waste.

Preparation
EPD PCH, Pražské služby a.s. – Plant 11 – waste collection and recycling

Implementation
-

Project Partners
PCDs of the City of Prague

Implementation Schedule (quarter)
- Start 2021
- End – on an ongoing basis

Estimated Budget and Source of Funding
- CZK 22 million/year 2022
- PCH

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total amount of sorted bio-waste of animal origin (i.e., residues from canteens and kitchens in t/year)
- Year-on-year comparison of specific production of mixed municipal waste in t/year)
- Number of establishments involved

Project Card SO4/8

Project Name
Composting plants and composters in PCDs

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
Treating bio-waste at the source is a priority in the hierarchy of bio-waste management. The aim of the project is to motivate and prioritise activities and operations in the following order: home composting, community composting within communities, community composting plants established by city districts or in cooperation with the City of Prague. To support the establishment of another composting plant in the territory of the City of Prague, owned by the City of Prague, with a capacity of up to 20 thousand tonnes for processing of bio-waste of plant origin from the maintenance of the urban green spaces of Prague and the system of collection of plant bio-waste organised by the City of Prague.

Depending on their character, the projects of PCDs can be supported professionally and methodically by specialists of the City of Prague, by non-profit organisations, e.g., Kokoza and Ekodomov.

Economically, the City of Prague has already supported some projects with a citywide scope from its budget or from EU funds. Support for composting in local conditions of city districts is also addressed by the city district authority in its independent competence or with an application for a subsidy or contribution from the City of Prague budget. Support for individuals or communities can be provided by applying for an environmental grant (e.g., building community gardens with community composting). A possible source of funding for the implementation of a citywide composting facility is the City of Prague budget or a combination with EU funds.

Project Objective
To encourage circular management of bio-waste, composting at the point of generation and to return nutrients back to the soil.

Preparation
PCDs, EPD PCH

Implementation
-

Project Partners
non-profit sector

Implementation Schedule (quarter)
- Start continuously
- End depends on the results

Estimated Budget and Source of Funding
- average estimate for a community composting facility: CZK 8.5 million excl. VAT for the construction of a composting facility;
- average estimate for a central composting facility: CZK 120 million excl. VAT for the construction of a composting facility;
- average estimate for community composting: investment and operational costs in the order of tens of thousands of CZK/year;
- average estimate for composting facility operation: hundreds of thousands to millions of CZK/year

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Amount of compost produced in decentralised facilities in PCDs (t/year)
- Quantity of agricultural products intended for consumption in Prague (t/year)

Project Card SO4/9

Project Name
Prague Circular House

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
Reuse centres are one of the basic tools of circular economy for waste prevention. Their form and method of operation may vary.
In essence, they are a multifunctional space used to present the principles of circular economy in an attractive way. The whole space, including the building itself, should be designed in the spirit of sustainability and the interiors should be a pleasant place to spend spare time. Therefore, including a café with refreshments is being considered. It is also planned to lease part of the space to private entities for the presentation of their corporate sustainability policy. There should also be on-site repair/sewing workshops to repair/improve items, and last but not least, a conference room to educate the public on circular economy. The funds raised by the individual activities should primarily cover the operation of such a reuse centre first.

There is the Art reuse (gallery and art material) operating in Prague 3 and there is also a project in the Pražačka area (reuse + café) being prepared. The Prague 2 city district is also considering renting space in Žitná Street for reuse activities and we believe that more PCDs will join, as the city's circular coordinator will be in close contact with the representatives of PCDs and will guide them to create projects supporting the principles of circular economy.

Project Objective
To reduce, with maximum efficiency, the amount of municipal waste managed by the City of Prague every year. To educate and inform the residents of Prague about the possibilities of reusing already used but still functional goods, to "bust" myths about the quality of second-hand goods and to promote a responsible approach to individual consumption.

Preparation
EPD PCH, PCDs of the City of Prague

Implementation
-

Project Partners
INV MHMP, Department of Property Management of PCH, Pražské služby, a.s.

Implementation Schedule (quarter)
- To be specified

Estimated Budget and Source of Funding
- To be specified
- PCH, OPE subsidies

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total municipal waste (t/year)
- Quantity of goods offered/taken away (t/year)
- Number of visitors

Project Card SO4/10

Project Name
Circular Hub

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
Reuse centres are one of the basic tools of circular economy for waste prevention. Their form and method of operation may vary.
Negotiations are currently underway on the use of Hall 39 in the Holešovice Market Hall, which could be used to establish a Circular Hub with the active contribution of the city, Výstaviště Praha a.s., the Prague 7 city district and other partners. The City of Prague is striving to establish a Prague-wide Circular House in this area. However, this would require reconstruction of the entire building in the near future and the timeline of the subsequent steps leading to the creation of this unique project cannot be precisely predicted at this time.
The currently proposed solutions envisage a sustainability hub where, in addition to offering used but fully functional goods, the visitors would be educated through workshops and lectures. It would offer a chance to repair clothing and other activities promoting a sustainable and circular life style and the handling of everyday products.

Project Goal
To reduce, with maximum efficiency, the amount of municipal waste managed by the City of Prague every year. To educate and inform the residents of Prague about the possibilities of reusing already used but still functional goods, to "bust" myths about the quality of second-hand goods and to promote a responsible approach to individual consumption.

Preparation
EPD PCH Hall 39: PCH, PCDs, Výstaviště Praha, a.s., Prague Market Hall, CIRAA

Implementation
-

Project Partners
Pražské služby, a.s., INV PCH, Department of Property Management of PCH

Implementation Schedule (quarter)
- To be specified

Estimated Budget and Source of Funding
- To be specified
- PCH, OPE subsidies

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total municipal waste (t/year)
- Quantity of goods offered/taken away (t/year)
- Number of visitors

Project Card SO4/11

Project Name
Re-use days in PCDs

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
As part of waste prevention, it seems to be very effective to organise community happenings – waste prevention events, provisionally called "Iron Sundays". This name is historically rooted in society as an opportunity to bring objects out into the open, where they will be taken away and disposed of. It is a community event where the citizens of Prague have the opportunity to bring their household surplus and take what they need themselves in return. The exchange of items is connected to simultaneous education on consumption habits. The event involves organisations that will then take care of items that are not picked up by citizens at the location of the event. Furniture, textiles, tableware, books, houseplants and other household items have great potential for reuse. The frequency of the events in 2023 is proposed at 6 events in different PCDs.

Statistics of 1 reuse day in 2022:

1343 kg of textiles – 89% of which was distributed on site, the rest was taken to Potex;

682 kg of household items – 93% of which were distributed on site, the rest was left for the next reuse Saturday;

731 books – 62% of which were distributed on site and the rest was taken to Knihobot;

66 pieces of furniture – 58 pieces of which were distributed on site, the rest was left for the next reuse Saturday.

Project Objective
The aim of the project is to create a schedule of re-use events in the territory of the City of Prague, which will introduce a sustainable lifestyle and transformation of consumption habits of society in addition to the actual waste prevention. By organising events in different PCDs, the aim is to show the functionality of the project to the representatives of the respective PCDs, ideally so that they take the concept as their own and organise other such events on their own without the involvement of PCH.

Preparation
PCH, PCDs, partner organisations involved, SWAP Prague

Implementation
-

Project Partners
PCDs, partner organisations involved

Implementation Schedule (quarter)
- Start 1Q 2023
- End 4Q 2023

Estimated Budget and Source of Funding
- CZK 120,000/1 event
- PCH

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total amount of bulky waste (t/year)
- Quantity of goods brought to the event/disposed of
- Number of visitors

Project Card SO4/12

Project Name
Multi-commodity collection

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
The subject of the project is to develop and optimise a collection network of usable components of municipal waste, in particular, paper, plastics, glass, beverage cartons and metal packaging, and to gradually increase the number of home stations depending on the financial possibilities of the city as a means to increase the comfort of sorting for the citizens of the municipality. The introduction of the so-called multi-commodity collection of sorted components into one collection container, i.e., the joint collection of plastics, beverage cartons and metal packaging, is perceived primarily as a measure to increase the cleanliness and quality of the collected commodities and to increase the cleanliness of the surroundings of collection containers located in public spaces. In the case of a fully-fledged introduction of multi-commodity collection within public sites, it will be possible to reduce the space required and improve the public spaces. The intention of multi-commodity collection of usable components of waste is in line with the upcoming project of Pražské služby, a.s. for the construction of a plastics sorting line in Chrášt'any, with the technology of efficient sorting of mixed commodities consisting of plastics, beverage cartons and metals.

Multi-commodity collection is being piloted in the Štěrboholy city district and it is the intention of the city to extend this form of collection to all types of built-up areas.

Project Objective
Gradual reduction of generation of mixed municipal waste and increasing the proportion of sorted and utilised recoverable municipal waste, including increasing the efficiency of its collection.

Preparation
EPD PCH, Pražské odpady 2016–2025 consortium

Implementation
-

Project Partners
PCDs of the City of Prague

Implementation Schedule (quarter)
- Start 2Q 2023
- End 1Q 2025

Estimated Budget and Source of Funding
- The project does not foresee any burden on the EPD PCH budget
- PCH

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total amount of sorted recoverable municipal waste in t/year
- Year-on-year comparison of specific production of mixed municipal waste

Project Card SO4/13

Project Name
Door to door waste collection system

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
The City of Prague will offer its citizens the possibility to rent individual collection bins for sorting of usable components of municipal waste. In particular, the plan is to enable joint sorting of three commodities (plastics, beverage cartons and metals) into a single collection container in the form of so-called multi-commodity collection as part of a “door to door” system. These are then transported by a designated collection company to the relevant sorting facility at regular times according to collection plans. In addition to the above-mentioned recoverable components, the door-to-door system will also provide for the collection of biological waste, both plant and eventually animal waste. Thanks to the "door to door" sorting system, it is possible to effectively reduce the amount of mixed waste on one hand and to increase the proportion of sorted recoverable components on the other, which is necessary to meet the objectives defined in waste legislation, in particular in the Waste Act No. 541/2020 Coll. This system also allows a greater degree of involvement of property owners and, by extension, residents in the sorting system. The introduction of the "door to door" system will contribute not only to increasing the comfort of citizens associated with waste sorting, but also to improving the quality of sorted commodities and, last but not least, to improving the cleanliness around public bin stands located in the city streets. This waste sorting system has been piloted in the Prague – Štěrboholy city district, and based on the results of the pilot project, there is a potential for its extension to other parts of the City of Prague.

Project Objective
To have a door-to-door system in place in strategically suitable locations within the City of Prague by 2030, with the potential to expand to the entire territory.

Preparation
EPD PCH, collection companies

Implementation
-

Project Partners
EPD PCH, PCDs, Pražské služby a.s. – Plant 11 – waste collection and recycling

Implementation Schedule (quarter)
- Start 2024
- End 2030

Estimated Budget and Source of Funding
- EPD PCH: cannot be quantified yet
- budget of the City of Prague, OPE

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Reduction of the amount of MSW, increase in sorting and recycling rates
- Increase in the amount of recycled recoverable municipal waste

Project Card SO4/14

Project Name
Sorting line

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
Trial operation of the sorting line at the sorting centre in Chrášť'any was launched in September 2022. The new equipment is capable of sorting out various types of plastics, metal packaging, beverage cartons and undesirable impurities. The capital will thus increase the share of sorted materials sent for recycling and will also utilise the remaining plastic waste. The new facility will allow for high quality sorting of packaging components collected at sorted waste sites in the City of Prague as part of multi-commodity collection. With a capacity of 5t/h and 2-shift operation on weekdays, the sorting line will be able to process up to 18,900 tonnes of waste sorted in the territory of the City of Prague, with a 90% efficiency of separating the individual packaging components, which will make them easier to recycle.

Project Goal
To economically, efficiently and environmentally use the maximum amount of collected packaging materials generated in the territory of the City of Prague.

Preparation
Pražské služby a.s. - Plant 11 - Waste collection and recycling, Strategy and Project Management Department

Implementation
-

Project Partners
M-U-T Maschinen Umwelttechnik Transportanlagen Gesellschaft m.b.H., Austria

Implementation Schedule (quarter)
- Start 3Q 2022
- End 4Q 2022

Estimated Budget and Source of Funding
- Total investment costs CZK 170 million
- Pražské služby a.s.

Indicators — Outputs/Impacts
CO_2 material savings, etc.)

Total amount of plastic packaging sorted (t/year)

- Total amount of metal packaging sorted (t/year)
- Total amount of beverage cartons sorted (t/year)
- Total amount of refuse produced (t/year)
- Total quantity of packaging components at the input of the sorting line (t/year)
- Purity of sorted packaging components (% impurities/item)
- Total amount of sorted material used for recycling (t/year)

Project Card SO4/15

Project Name
Slag management

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
When incinerating waste, ZEVO Malešice produces slag at the rate of about 25% of the original weight of the waste. Currently, this means about 60,000 tonnes of slag per year is landfilled. Thanks to the change in legislation, it will be possible to use slag in the construction industry, after the necessary treatment. In order to enable the use of slag in construction, it is necessary to build capacities for slag ageing treatment and subsequent metal separation. The technical details of the project are being worked out, with the assumption of separating up to 7 kilotons of iron and other metals per year. Slag, treated according to the decree in force, will be used as one of the layers in road construction.

Project Goal
To significantly reduce the amount of material landfilled by the City of Prague To increase the separation of metals from MSW. To improve PSAS cash flow.

Preparation
Pražské služby a.s. - Department of Strategy and Project Management, ZEVO ecologist

Implementation
-

Project Partners
Institute of Chemical Processes of the Czech Academy of Sciences, PCH

Implementation Schedule (quarter)
- 1Q 2021 (preparatory phase already under way)
- Start of construction 1Q 2025
- End 1Q 2026 (estimated)

Estimated Budget and Source of Funding
- CZK 400-600 million
- Pražské služby a.s.

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Total quantity of slag landfilled
- Total amount of metals recovered
- Total annual landfill cost savings
- Total annual revenue from the sale of recovered metals

Project Card SO4/16

Project Name
Efficient collection of sorted waste

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description

Every year, the inhabitants of the City of Prague produce about 450,000 tonnes of municipal waste, with about 58% consisting of mixed municipal waste. There are approximately 3,500 outdoor locations for sorted waste in the streets of the City of Prague. The collection of sorted waste in Prague is carried out on the basis of set collection frequencies, which are continuously adjust depending on the requirements of the city and its districts. The aim is to increase the efficiency of collection so that the vehicles are as loaded as possible, fuel consumption is lower, and at the same time the demand from Prague residents is met.

The following projects are currently under way in the capital:

- Smart waste collection: widespread installation of sensors in drop-bottom waste bins to measure the level of filling of sorted waste (approx. 6,500 bottom-dump bins). With this data, it is possible to obtain information about the filling level of the bins – their overfilling, or conversely, when only partly filled bins are collected, and thus to adjust the frequency of collections.
- Detection of emptying of sorted waste bins by RFID chips: The aim is to test RFID chip technology on collection vehicles that detects the actual dumping of top-dump bins, which currently cannot be detected with absolute certainty.
- QR codes on top-dump bins for sorted waste: Use of QR codes for reporting 100% full sorted waste containers by the users. RFID chips can be used to detect actual collections in case of top-dump bins. Store photo documentation and keep statistics of problem locations.
- Smart collection yard: The use of modern technologies for controlling and recording of waste disposal at collection yards. By interconnecting data outputs from individual collection yards, we will obtain information on the utilisation of individual collection yards, both by citizens with permanent residence in the City of Prague and by entrepreneurs. Implementation at all 19 collection yards. In November 2022, ID readers were installed at 9 collection yards.

Project Goal
To increase the efficiency of municipal waste collection in Prague, to reduce the frequency of collection and to increase the volume of collected fees for waste management in Prague.

Preparation
Other projects: EPD PCH, OICT
Smart collection yards: EPD PCH, INISOFT

Implementation
-

Project Partners
"Pražské odpady 2016–2025" consortium

Implementation Schedule (quarter)
- since 2019

Estimated Budget and Source of Funding
- Smart waste collection, widespread installation of sensors: CZK 16,000,000
- Smart collection yard: CZK 2,000,000
- PCH

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Fuel saved
- Number of collection runs in a given location
- Number of citizens involved in collection yards
- Utilisation rate of individual collection yards

Project Card SO4/17

Project Name
Separate collection of textiles

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description
Due to the new obligation of municipalities to collect textile waste separately starting in 2025, the City of Prague has ordered a Study of Textile Material Flows in the Territory of the City, where the study revealed several topics that will need to be intensively addressed and Prague will create a working group of stakeholders in this area to propose appropriate measures for the implementation of separate collection of textiles in the HMP.

Key topics:
- Collective textile collection system
- Supporting places that contribute to waste prevention in both the online and the offline space
- Increasing the sorting, reuse and recycling of textile products
- Support for the introduction of new technologies and systems
- Education of the public, popularisation of the topic
- Public procurement
- Sources of funding

Project Objective
To pursue the objectives of the EU proposed in the "EU Strategy for Sustainable and Circular Textiles", to increase education on sustainable textile management and reuse, to promote waste prevention, to change the consumption habits of the society.

Preparation
DEP PCH

Implementation
-

Project Partners
PCDs, Pražské služby, a.s.

Implementation Schedule (quarter)
- Start 2023

Estimated Budget and Source of Funding
- PCH, subsidies

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Amount of municipal/textile waste (t/year)

Project Card SO4/18

Project Name

Use of Prague recyclate

Strategic Objective

SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description

Every year, a large number of recyclable components of municipal waste is sorted in Prague. The use of recyclates from Prague's waste for further processing and use in the city is a step towards closing the waste loop at the source. This mainly concerns plastics, paper and glass. The city could achieve a situation where it will purchase products from its own recycled municipal waste in its public procurement by directly cooperating with specific processors of recyclables.

At the beginning, there would be a list of typical products with use in the city (e.g., street furniture, components for traffic signs, office equipment, etc.) created for each recyclable material that is sorted by Prague residents and handed in to the collection service (this is an important area for cooperation with Pražské služby, a.s. as a project partner). A processor for a specific type of recyclable material would then be contacted based on the request by the city. The project will be further developed with direct communication with the project partner: Pražské služby, a.s.

Project Objective

To use recyclate from sortable and recyclable components of municipal waste and to manufacture products for use in the city from it – reducing the consumption of primary materials.

Preparation

DEP PCH

Implementation

-

Project Partners

Pražské služby, a.s., Strategy Department, Plant 11 – waste collection and recycling

Implementation Schedule (quarter)

- To be specified

Estimated Budget and Source of Funding

- PCH, subsidies

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Amount of recyclate recovered (t/year)

Project Card SO4/19

Project Name

PSAS cullet yard

Strategic Objective

SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description

A cullet yard is a warehouse for glass from Prague's sorted glass collection. It would essentially be a paved, bounded area with handling equipment. A cullet yard would simplify the logistics of the collection company (and thus reduce fuel consumption) and improve its business position. The risk of material accumulation would be eliminated, which would enable Pražské služby a.s. to optimise the selection of customers.

Project Goal

To build a so-called cullet yard, to improve the logistics of glass collection, to reduce the dependence of PSAS on glass buyers.

Preparation

Pražské služby a.s., Strategy Department + plant Z11

Implementation

-

Project Partners

PCDs, Pražské služby, a.s.

Implementation Schedule (quarter)

- Start 1Q 2024
- End 2Q 2024

Estimated Budget and Source of Funding

- CZK 5 million
- Pražské služby a.s.

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Fuel saved
- CO_2 savings (t/year)

Project Card SO4/20

Project Name
Circular fashion HUB

Strategic Objective
SO4 To prevent, sort, recycle and reuse as much waste as possible; reduce the production of municipal solid waste (MSW) by 50% by 2030

Project Description

Implementation of a space suitable for the creation of a "Circular Fashion HUB", a place for education and synthesis of circular ideas and principles. The space in Štěrboholská Fashion Arena is suitable with an area of almost 250 m_2.

In addition to an information stand, educated staff and amenities, the place should demonstrate "Slow fashion", its benefits, and its impact on the environment. The proposal includes a premium second-hand store or a demonstration of sustainable wardrobe staples. In addition to this function, there is an opportunity to create a space for SWAPs, i.e., exchange of textiles, which have recently become increasingly popular among the citizens of Prague. It could also host inspirational events and creative workshops focused on sewing, repairing or upcycling.

Current situation: in 2021, the share of textiles in mixed municipal waste in Prague was about 2%, representing more than 5,000 tonnes. The volume of clothes donated in textile collection containers is unknown.
A survey has shown, for example, that one in five Prague households buys a T-shirt once a month, and one in twenty even more often. 2/3 of economically active households discard more than 20 items of clothing per year.

Project Objective
Reduction of textile waste through CE education. Support for local slow fashion designers, demonstration of the change in society's consumption habits.

Preparation
EPD PCH, Fashion Arena Prague Outlets, HUB operator (Leepa)

Implementation
-

Project Partners
Fashion Arena Prague Outlets, Leepa

Implementation Schedule (quarter)
- Start 1/2Q 2023
- End 3Q 2023 (or 2Q 2024)

Estimated Budget and Source of Funding
- CZK 750,000 (one-month pilot operation)
- CZK 8,300,000/1 year
- PCH (25%), Fashion Arena Prague Outlets (25%), Leepa (50%), OPE – 4th Call – Sustainable Waste Management

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Material savings
- Number of visitors
- Number of citizens served
- Number of participants in outreach programmes

Project Card SO4/21

Project Name
Circular school

Strategic Objective
SO3 – To reduce kitchen and canteen waste, increase local production and consumption of healthy food from urban and peri-urban agriculture
SO4 – To prevent, sort, recycle and reuse as much waste as possible; to reduce production of mixed municipal waste (MSW)

Project Description
Piloting of circular approaches to at least 15 primary schools in the field of waste prevention through composting, prevention of kitchen and canteen waste and reuse of consumer products or clothing. The project is being implemented in the City of Prague with the aspiration to further develop and possibly expand this activity with other topics such as circular traffic, water management, etc., based on the success assessment and interest of schools. The output of the pilot project will be:

- analysis of the needs and interests of schools on the topic of circular economy
- final report of the school needs survey (questionnaire survey, physical visits to schools – semi-structured interviews)
- specialised programmes for teaching and non-teaching staff
- preparation and implementation of the programme
- specialised programmes for active student groups
- preparation and implementation of the programme
- consultancy support during school year 2022/2023
- educational videos
- in each area of the project
- examples of good practice

All of these outputs will be implemented in three areas

1. waste prevention through composting
2. prevention of kitchen and canteen waste
3. Reuse activities, there will also be events for the public (parents of children from specific primary schools)

Project Goal
The aim of the Circular School pilot project is to educate teaching and non-teaching staff, pupils and the public in the implementation of selected measures of circular economy within the framework of the Strategy of the City of Prague for Transition to a Circular Economy – Circular Prague 2030, in at least 15 primary schools in the territory of the City of Prague. In line with strategic objectives SO3 Agriculture and Food, and SO4 Waste, of Circular Prague 2030.

Preparation
Pii z.ú.

Implementation
Pii z.ú.

Project Partners
Experts from non-profit organisations (Kokoza, o.p.s., Zachraň jídlo, z.s., Swap Prague, z.s., Ekodomov, z.s., Já na tom dělám, z.s.) have been invited to the project to achieve the desired quality of content. There are no official partners in the pilot year of the Circular School project.

Implementation Schedule (quarter)
- 2022-2023 (with possible continuation in 2024-25)

Estimated Budget and Source of Funding
- EU funds through Operational Programme Science, Research, Education.
- Estimated budget – CZK 2.7 million

Indicators — Outputs/Impacts
(CO_2 material savings, etc.)
- Number of schools involved
- Number of trained teaching and non-teaching staff and pupils
- Number of members of public involved
- Number of activities implemented with the target group

PUBLIC PROCUREMENT

Project Card SO5/1

Project Name

Methodology for the strategy for responsible public procurement

Strategic Objective

SO5 The city is increasing the demand for circular solutions by incorporating these practices into the city's own projects, guidelines, public procurement

Project Description

The methodology of the Responsible Public Procurement Strategy sets out the basic principles to which the City of Prague subscribes as part of responsible public procurement and describes how and in which areas it will apply them. The emerging methodology will include principles for responsible public procurement in the following areas: 1) socially responsible procurement, 2) environmentally responsible procurement and 3) innovation. Areas 1) and 3) will be addressed separately by the Public Procurement Department of PCH, separately from this project objective. Environmentally responsible procurement will also include criteria for 2.1) circular public procurement, relating to measures for closing material and energy cycles, 2.2) waste management or 2.3) extending the life cycle of products.

This methodology should be co-developed with experts in the different areas of responsible procurement. A smaller working group coordinated by the Environmental Protection Department of PCH and in cooperation with the Public Procurement Department of PCH should be established for the needs of area 2) environmentally responsible procurement. The group will include representatives of PPD PCH, EPD PCH and experts from the expert community. For cooperation, we suggest contacting Institut odpovědného veřejného zadávání (Institute for Responsible Public Procurement – IOVZ), which has years of experience with the issue, and some employees of the PPD PCH are active participants (members) of the Platform for Responsible Public Procurement created by the IOVZ. Export support can also be provided by INCIEN.

The methodology for the implementation of the Strategy for Responsible Public Procurement should set out the general principles of responsible procurement and at the same time has the aspiration to be a practical and instructive guide for the employees of Prague City Hall (hereinafter referred to as "PCH"). This purpose should be served by a follow-up good practice guide, which is covered in more detail in PC SO5/3.

Project Goal

Actual gradual introduction of responsible procurement in specific selected areas, creation of methodologies, formulation of tasks for specific departments of Prague City Hall and city organisations.

Preparation

PPD PCH, EPD PCH

Implementation

-

Project Partners

Institute for Responsible Public Procurement (Ministry of Labour and Social Affairs) or other appropriate bodies

Implementation Schedule (quarter)

- To be specified

Estimated Budget and Source of Funding

- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Methodology for the strategy for responsible public procurement
- Number of circular solutions applied in the city's public procurement/year

Project Card SO5/2

Project Name

Training module on circular procurement for city employees

Strategic Objective

SO5 The city is increasing the demand for circular solutions by incorporating these practices into the city's own projects, guidelines, public procurement

Project Description

The preparation and implementation of a training module on responsible procurement with a focus on circular public procurement implemented by PCH departments, i.e., in the procurement of goods and services or the procurement of construction works, is a follow-up step to the developed Methodology of the Strategy for Responsible Public Procurement (SO5/1). As this is a new approach to public procurement, it is necessary to train the appropriate city employees, explain the issue to them, and educate them on the issue further (repeatedly), e.g., by means of e-learning.

Technical support for the module will be provided by HRD PCH. The form and content of the training module will be prepared by PPD PCH and EPD PCH. It is also suggested to invite external teachers from among experts in circular procedures in public procurement (INCIEN, UCEEB CTU, Institute of Responsible Procurement of the Ministry of Labour and Social Affairs, and others). The training course will be divided into a general part (on responsible procurement) and thematic parts according to the type of public procurement where circular principles can be applied effectively. The thematically focused part of the training module will be conducted, e.g., in the form of interactive workshops with possible involvement of representatives of potential suppliers (private sector).

Project Objective

To create a training module and train the responsible PCH employees on the possibilities of circular responsible procurement, to create a communication platform to exchange of experience and for further training.

Preparation

HRD PCH

Implementation

-

Project Partners

PPD PCH, EPD PCH, Ministry of Labour and Social Affairs – Institute for Responsible Public Procurement, INCIEN, or other appropriate entities

Implementation Schedule (quarter)

- To be specified – after the development of the Responsible Procurement Strategy Methodology

Estimated Budget and Source of Funding

- To be specified
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of PCH employees trained/year

Project Card SO5/3

Project Name

Catalogue of good practices and support for pilot implementation of circular public procurement

Strategic Objective

SO5 The city is increasing the demand for circular solutions by incorporating these practices into the city's own projects, guidelines, public procurement

Project Description

Following the creation of the Responsible Procurement Strategy Methodology, a Catalogue of Good Practice will be gradually created with examples of successfully implemented public procurement with the application of responsible procurement. The catalogue will be a living document that will be continuously updated and supplemented with new practices. The catalogue should serve as an inspiration and a tool for PCH employees.

Responsible procurement is also an application of innovative public procurement practices, it is more demanding in terms of preparation and administration, however, the City of Prague acquires deliveries and services and thus fulfils its strategic objectives through public procurement. In order to achieve the objective of responsible procurement and to implement these new approaches to public procurement, these staff members need to be provided with professional support through the development of related Methodologies and by being provided training in this area.

Project Goal

To develop a Catalogue of Good Practice and share it across procuring departments of PCH in cooperation with PCH departments that could carry out circular public procurement.

Preparation

PPD PCH, EPD PCH, INV PCH, Department of Education and Youth of PCH, Services Department of PCH, Department of Property Management of PCH

Implementation

-

Project Partners

Institute for Responsible Public Procurement or other contracting departments of PCH that could apply circular solutions

Implementation Schedule (quarter)

- To be specified

Estimated Budget and Source of Funding

- To be specified
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of circular public procurement contracts implemented per year
- Total budget of circular public procurement contracts per year

SUPPORT FOR ENTREPRENEURSHIP, INNOVATION AND OUTREACH

Project Card SO6/1

Project Name

Circular Prague platform

Strategic Objective

SO6 The city supports innovation towards a circular economy in the business and civic sectors

Project Description

The platform was inspired by similar projects, such as Circular London/Amsterdam/Goteborg, and is a tool for engaging and connecting companies and harnessing their potential for transition of Prague to a circular economy. It will support companies in targeting change, use of circular resources, finding synergies with the city and other companies. The platform establishes a circular ecosystem in the city and a common "brand" for circular activities. It provides inspiration, experience sharing, education and professional support to companies and other organisations that are, in addition to citizens, strong players in the local economy and city life. It has the potential to bring about sustainable ways of operating with high impact and to set up hitherto non-existent ways of implementing circular flows of large volumes (construction industry, services, food, transport). The aim of the platform is to involve dozens of entities from the private, non-profit and academic spheres, to initiate new projects and innovations and to contribute to the fulfilment of the strategic and specific objectives of the Strategy in cooperation with the city and businesses. It is assumed that the platform will grow gradually based on partnerships with core companies in the different thematic areas of the circular economy and the establishment of the necessary communication and support infrastructure. Thematic working groups with representation of different types of companies will work together with the city to find solutions to the identified problems in their areas of operation.

Project Objective

Engaging companies in the circular economy in Prague and creating new projects and initiatives that will bring reduction in waste, efficient use of available resources and materials, as well as new products, services and jobs.

Preparation

EPD PCH

Implementation

-

Project Partners

Pii z.ú., OICT, PCDs

Implementation Schedule (quarter)

- To be specified

Estimated Budget and Source of Funding

- CZK 3 million/year
- PCH, EU funds

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of companies involved
- Number of new projects/partnerships/innovations
- Material savings (t/year)
- Number of new jobs

Project Card SO6/2

Project Name

Subsidies for innovation in circular economy

Strategic Objective

SO6 The city supports innovation towards a circular economy in the business and civic sectors

Project Description

The upcoming grant scheme to support innovation and business development is also an opportunity for projects in circular economy. It is being created as a tool for the implementation of the Regional Innovation Strategy of the City Prague (RIS3) to support the development of the innovation ecosystem in the City of Prague and cooperation between the city, academia and business sector. The supported areas also include innovations linked to the objectives of the Circular Prague 2030 Strategy – envitech, climate action, circular economy.

Project Goal

To support innovation and the business sector with regard to the strategic objectives of the city, to contribute to the development of Prague's innovation ecosystem and the competitiveness and internationalisation, especially of small and medium-sized companies.

Preparation

Project management Department of PCH

Implementation

-

Project Partners

EPD PCH, EFD PCH

Implementation Schedule (quarter)

- Start 2023

Estimated Budget and Source of Funding

- CZK 20 million/year
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of supported projects related to the circular economy
- Results in business activities
- Material/energy savings per year

Project Card SO6/3

Project Name

The concept of EEO and circular economy

Strategic Objective

SO6 The city supports innovation towards a circular economy in the business and civic sectors

Project Description

The City of Prague has approved the Regional Concept of EEO and the Regional Concept of EEO Action Plan for 2022-2025. To fulfil the tasks of the Regional Concept of EEO Action Plan, the Environmental Projects Department of the EPD PCH allocates a financial amount of approximately CZK 14,000,000/year for activities, some of which also directly or indirectly support the transition to a circular economy. Examples include ecoconsultancy services, educational programmes for schools, outreach events for the public, etc. It is desirable to set up cooperation and sharing of information and experience between the implementing parties and administrators of the Action Plan of the Circular Prague Strategy and the Regional Concept of EEO Action Plan, to promote synergies within the territory and to register circular EEO projects also in the Circular Prague AP. It is desirable to also cooperate in setting up the measurement of the effectiveness of these projects and to include their results/impacts among the monitored indicators of the Circular Prague Strategy.

Project Objective

To support cooperation and projects linked to the Action Plan of the Regional Concept of EEO with the objectives of the Circular Prague 2030 Strategy within PCH and PCDs.

Preparation

DEP PCH

Implementation

-

Project Partners

PCDs, Lesy hl. M. Praha

Implementation Schedule (quarter)

- Start 2023

Estimated Budget and Source of Funding

- CZK 14 million
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of projects supported as part of EEO that promote the circular economy
- Quantified savings of material resources (t/year)
- Number of persons trained (persons/year)
- Number of participants in outreach events (persons/year)

Project Card SO6/4

Project Name

Circular economy communication strategy and campaign

Strategic Objective

SO6 The city supports innovation towards a circular economy in the business and civic sectors

Project Description

A basic starting point for motivating residents to behave more responsibly is sufficient information and regular communication on related topics. Thanks to properly set up and long-term communication about sustainability, possibilities for waste prevention and the introduction of new waste collection and sorting systems to the residents of Prague, the city can increase awareness of the issue and thus motivation to change behaviour. The communication strategy project is designed in 3 lines of application:

- creation and support of websites dedicated to the circular economy
- outdoor campaign (billboards, CLV cases, media...)
- setting up and managing social media dedicated to the circular economy (FB, IG, LinkedIn)

Project Goal

Support for a responsible approach, informing the public about the city's activities, gradually reducing the production of mixed municipal waste and increasing the proportion of sorted recoverable components of municipal waste to increase the sorting rate for municipalities in the Czech Republic as specified in Act No. 541/2020 Coll., on waste.

Preparation

DEP PCH

Implementation

-

Project Partners

Media and Marketing Department of PCH, PCDs, PSAS a.s., media and communication agency

Implementation Schedule (quarter)

- Start 1Q 2023
- End 4Q 2025

Estimated Budget and Source of Funding

- CZK 15 million (CZK 5 million /year)
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Total amount of sorted waste in Prague in t/year
- Year-on-year comparison of specific production of mixed municipal waste in t/year
- Website and social media traffic

MANAGEMENT AND IMPLEMENTATION

Project Card SO7/1

Project Name

Support for the implementation of the Circular Prague 2030 Strategy by setting up project management

Strategic Objective

SO7 The city manages, coordinates and evaluates the implementation of the CE Strategy (using set indicators and action plans)

Project Description

The prerequisite for the successful implementation of the Prague
Strategy for Transition to a Circular Economy is to set up project management, and regular evaluation of the implementation of the Action Plan, monitoring of indicators and updating and supplementing the projects in the Action Plan. The executive unit of implementation support is an external contractor service that provides regular monitoring of the implementation of the objectives and impacts of the Circular Prague Strategy for the EPD PCH, prepares documents for the annual Implementation Reports, publicity and communication of the Circular Prague 2030 Strategy. Furthermore, it coordinates the implementation of the proposed project cards, evaluates their implementation and prepares their updating and supplementation, including the preparation of new projects and the identification of funding opportunities. It ensures cooperation with the PCDs and other stakeholders in the city, evaluates the set indicators annually and ensures annual data collection.

Project Goal

To support the implementation of the Circular Prague Strategy by setting up project management and regular evaluation of its action plans.

Preparation

DEP PCH

Implementation

-

Project Partners

Tendered under the Public Procurement Act

Implementation Schedule (quarter)

- Start 2023
- End 2026

Estimated Budget and Source of Funding

- CZK 2,000,000/year
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Annual implementation reports
- Evaluation of indicators
- Updated project stack/number of projects implemented/year

Project Card SO7/2

Project Name

Involvement in international projects

Strategic Objective

SO7 To manage, coordinate and assess the implementation of the Circular Prague 2030 Strategy

Project Description

Prague's active approach to involvement in international cooperation on CE topics provides the city with many opportunities, benefits, as well as challenges. Active international cooperation brings Prague not only benefits from valuable information based on shared practice and consultation, but also a unique opportunity to gain financial support for its own circular projects in addition to support and know-how.

Prague should actively monitor calls for international cooperation. There are many opportunities to engage in international cooperation and interesting project calls relevant to Prague come out regularly. Therefore, it is desirable to set priorities in the field of international cooperation and to have the necessary capacities allocated for this purpose (if necessary, in the form of external cooperation as well) so that projects for selected calls are prepared well in advance and in cooperation with relevant Prague stakeholders and international partners. The partner in case of project application preparation is the Project Management Department (PRI). One of the prerequisites for success in international projects is ensuring good communication and cooperation throughout the city – i.e., involving city companies and organisations, city districts, universities and others.

PCH has a new internal tool called Project Point available, which provides an overview of the current grant calls and can be used to obtain information about opportunities for involvement in / financing of circular city projects based on pre-selected areas. Project Point is managed by the European Funds Department (EFD).

Project Goal

The aim is to engage in relevant international projects in the field of circular economy and at the same time to seek financial support for their implementation.

Preparation

DEP PCH

Implementation

-

Project Partners

Project Management Department of PCH, EFD PCH, PCDs, universities, NGOs – depending on the focus of the project

Implementation Schedule (quarter)

- Continuous implementation

Estimated Budget and Source of Funding

- To be specified on the basis of specific calls and projects
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of international projects in which Prague is actively involved
- Amount of funding raised for circular projects from external (e.g., European) founds

Project Card SO7/3

Project Name

Preparation of an indicator set for the circular economy

Strategic Objective

SO7 To manage, coordinate and assess the implementation of the Circular Prague 2030 Strategy

Project Description

Indicators have been proposed for each of the project cards and proposed projects to measure their results and impact. In order to assess the achievement of the strategy's objectives, a set of indicators needs to be prepared to measure the shift towards circular economy (CE) at the level of the strategic objectives. The preparation will take place in several steps: 1) analysis of the data that is available and monitored by the city in the implementation of other strategies (e.g., Klimasken, Smart City Index, UAP, PUM, etc.) and that is also applicable to the CE Strategy, 2) identification of data that the city does not yet monitor and that is important from a CE perspective (e.g., food waste data), 3) proposal of a process for obtaining the necessary data. A set of indicators for CE will be proposed using the research of the most used indicators for CE at the city level and the analysis of the data of the City of Prague; this set will be monitored and presented as part of action plans and reports on the implementation of the Strategy for the Transition to CE. The preparation of the dataset will be coordinated with other datasets and coordinators of other relevant strategic documents of the city (Strategic Plan, Climate Plan of the City of Prague until 2030, PUM, Adaptation Strategy, Smart Prague), as well as with academic departments and experts specialising in indicators.

Project Goal

To prepare a set of indicators at the level of strategic objectives of the strategy in coordination with other strategic documents of the city, which will be monitored and evaluated as part of action plans and reports on the implementation of the Strategy for the Transition to a Circular Economy.

Preparation

DEP PCH

Implementation

-

Project Partners

Pii, IPR, OICT, PSAS, CE Working Group

Implementation Schedule (quarter)

- Start 2023
- End 2024

Estimated Budget and Source of Funding

- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Indicator set for CE at the level of strategic objectives

Project Card SO7/4

Project Name

Networking and workshops for city districts

Strategic Objective

SO7 To manage, coordinate and assess the implementation of the Circular Prague 2030 Strategy

Project Description

An essential factor for the transition to a circular economy is the creation of a local ecosystem for the circular economy, i.e., a network of collaborating organisations from the public and private sectors that share information, experience and work together on common projects and goals. In addition to PCH, the city districts representing the public sector are also an important part of this ecosystem. A number of the proposed type measures of the strategy take place at the PCD level and the support and cooperation of PCDs with PCH and Prague organisations/companies will be crucial. The essence of the project is to establish regular meetings of representatives of PCH and PCDs on specific topics of the Strategy requiring cooperation and coordination. There is a clear demand from city districts to share information on the circular economy agenda and examples of good practice within Prague and with other cities. EPD PCH will regularly organise meetings for PCDs whose focus will be defined based on the demand from the PCDs (first meeting in early 2023). In addition to up-to-date information, there will also be an educational session on new CE topics/projects and an interactive part for sharing experience and networking. The topics include responsible public procurement with a focus on circular criteria and support for re-use activities at the PCD level.

Project Goal

The aim of the project is to ensure better cooperation and coordination in the implementation of the Strategy and its specific measures between PCH and the city districts.

Preparation

DEP PCH

Implementation

-

Project Partners

PCDs, NGOs

Implementation Schedule (quarter)

- Start 2023

Estimated Budget and Source of Funding

- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of city districts involved
- Number of meetings per year
- Number of workshops and lectures

Project Card SO7/5

Project Name

Web presentation and outreach events on the Circular Prague 2030 Strategy

Strategic Objective

SO7 To manage, coordinate and assess the implementation of the Circular Prague 2030 Strategy

Project Description

For the successful implementation of the Circular Prague Strategy and its Action Plan, it is desirable to maintain awareness among Prague stakeholders regarding the objectives of the strategy and its indicators, annual Implementation Reports to the Prague City Council, projects being prepared and implemented and their evaluations. In addition, information about interesting events, foreign experiences, possibilities of financial support and planned and open grant calls, or links to interesting analytical resources and examples of good practice can be shared here. A website based on the Climate Change Adaptation Strategy website (see https://adaptacepraha.cz/) will serve as the main communication platform for this purpose.

In order to promote the objectives and activities related to the Circular Prague 2030 Strategy, at least one outreach event will be prepared each year, with possible international participation, following the example of the Circular Cities conference (see: https://cirkularnimesta.cz/)

Project Goal

The aim of the project is to support the awareness of Prague stakeholders on the objectives and status of the implementation of the Circular Prague 2030 Strategy and the opportunities to get involved in the implementation of the Action Plan.

Preparation

DEP PCH

Implementation

-

Project Partners

Pii z.ú., IPR Prague, OICT, city districts

Implementation Schedule (quarter)

- Start 2023

Estimated Budget and Source of Funding

- PCH, own funds

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of visitors to the website
- Participation in outreach events prepared by EPD PCH and partners
- Number of new projects linked to the Circular Prague 2030 Strategy

Project Card SO7/6

Project Name

Sustainable city organisations and their operation

Strategic Objective

SO5 To increase the demand for circular solutions by incorporating these practices into the city's own projects, guidelines, public procurement

Project Description

The circular economy and the goals set by the Circular Prague strategy should be reflected in the functioning of the city's organisations. It is important to focus in a practical way on how to operate according to the principles of circular economy, so the basis is the analysis of inputs (purchased goods and services), outputs (waste), consumption, including how and from where input resources are purchased and what is the operation and its costs of a particular organisation. In addition to the areas of production, sorting and reuse of waste, water and energy efficiency, we can mention an important area in operation of authorities such as the purchase and disposal of IT equipment, furniture, office and sanitary supplies. Last but not least, there is the area of catering – food waste prevention, and healthy and local eating. The basic idea is to prepare/commission an analysis of each area and propose steps towards circular functioning of the authority in question, including monitoring of their implementation and the impact of each measure. Subsequently, relevant PCH staff will be trained by the EPD, as well as city organisations and companies to which PCH can provide methodology and technical support for scaling of the solution within the city. In addition to targeted employee training, it is important to support employees' own initiatives in circular operations.

Project Goal

The aim of the project is to propose specific steps for the circular operation of the authority and to ensure better cooperation and coordination in this area between PCH and the city districts.

Preparation

DEP PCH

Implementation

-

Project Partners

Services Department of PCH, PPD PCH, PCDs

Implementation Schedule (quarter)

- Start 2023

Estimated Budget and Source of Funding

- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Number of circular measures within the authority's operations
- Number of circular purchases for goods used at the authority
- Savings in consumption: water, paper, etc.

Project Card SO7/7

Project Name

Support for the implementation of the Circular Prague 2030 Strategy by setting up project management

Strategic Objective

SO7 The city manages, coordinates and evaluates the implementation of the CE Strategy (using set indicators and action plans)

Project Description

The prerequisite for the successful implementation of the Prague Strategy for Transition to a Circular Economy is to set up project management, and regular evaluation of the implementation of the Action Plan, monitoring of indicators and updating and supplementing the projects in the Action Plan. The executive unit of implementation support is an external contractor service that provides regular monitoring of the implementation of the objectives and impacts of the Circular Prague Strategy for the EPD PCH, prepares documents for the annual Implementation Reports, publicity and communication of the Circular Prague 2030 Strategy. Furthermore, it coordinates the implementation of the proposed project cards, evaluates their implementation and prepares their updating and supplementation, including the preparation of new projects and the identification of funding opportunities. It ensures cooperation with the PCDs and other stakeholders in the city, evaluates the set indicators annually and ensures annual data collection.

Project Goal

To support the implementation of the Circular Prague Strategy by setting up project management and regular evaluation of its action plans.

Preparation

DEP PCH

Implementation

-

Project Partners

Tendered under the Public Procurement Act

Implementation Schedule (quarter)

- Start 2023
- End 2026

Estimated Budget and Source of Funding

- CZK 2,000,000/year
- PCH

Indicators — Outputs/Impacts

(CO_2 material savings, etc.)

- Annual implementation reports
- Evaluation of indicators
- Updated project stack/number of projects/year

2023