



Synthesis Report

Covering the project activities from 01/09/2020 to 31/10/2024

LIFE PROJECT NUMBER

LIFE19 CCA/HU/001320 – LIFE-CLIMCOOP

LIFE PROJECT NAME:

Cooperation of cities and local companies for climate change adaptation



TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
PROJECT AREA	3
CONTENTS OF THE DOCUMENT	4
NON-TECHNICAL SUMMARY	4
SUSTAINABILITY	5
REPLICABILITY	6
DISSEMINATION	6
TECHNICAL SUMMARY	7
CONCLUSIONS AND COMMENTS	11

EXECUTIVE SUMMARY

This report shows a synthesis of activities fulfilled within the project frame of LIFE19 CCA/HU/001320 – LIFE-CLIMCOOP – Cooperation of cities and local companies for climate change adaptation.

Within the study, non-technical and technical summaries are presented containing the results and effects of the project implementation.

The overall goal of the above-mentioned LIFE-CLIMCOOP project was to develop, test and demonstrate collective actions between a city government and a multinational company to reduce local climate risks and enhance joint climate change adaptation to the benefit of both parties.

Based on the characteristics of the city of Kazincbarcika and the close cooperation between the local government and the industrial company, BorsodChem Zrt., the focus of the project was on the improvement of their own climate protection position, and above all, on the presentation of them together as a good example in the area of the Sajó river basin in the field of urban climate adaptation and awareness-raising, while placing special emphasis on solutions close to nature, water retention and the creation of a harmonious and liveable urban area.

The long-term objective is that the replication of this methodology in other climate change-vulnerable urban and industrial areas in Central Eastern Europe will be realized.

PROJECT AREA

The main location of the project is the city of Kazincbarcika and its region, the valley of Sajó.

The Municipality of Kazincbarcika is one of the dominant micro-regional centres of the North Hungarian region with 25,000 inhabitants.

The Municipality was born as a modern industrial city in the early 1950s, as a result of the conscious industrialization characteristic of the era. The population and economy of the city grew dynamically in the period before the change of regime.

After the change of regime, the chemical industry played a decisive role in the city thanks to BorsodChem Zrt. The city has undergone a significant transformation in recent decades thanks to domestic and EU development projects, the former image of a "grey industrial city" has been replaced by a conscious urban development strategy focusing on a family-friendly, livable settlement environment with a colourful cultural life.

As a modern city, Kazincbarcika also faces significant challenges due to climate change, and as a cooperating consortium partner of the LIFE project the city's aim has been to develop the necessary adaptation strategy and local action plans.

CONTENTS OF THE DOCUMENT

This document focus on the key ideas of the project such as sustainability, replicability, dissemination.

In addition to placing great emphasis on the importance of climate change adaptation and its tools within the project, we also present the results achieved during the implementation of the project. The document details the methods that can be replicated and consequently implemented by other actors in cooperation between city and company.

In the two main parts of the report, non-technical and technical summaries of the project results are presented.

NON-TECHNICAL SUMMARY

The two main pillars of the project's ideals are sustainability and replicability, which ideas form the basis of the implemented activities.

SUSTAINABILITY

The city of Kazincbarcika faces significant challenges due to climate change, so the city joined to the EU Covenant of Mayors for Climate & Energy in 2018.

The priority of the city's administration is to make climate action not only part of the project but also as an overall goal. Communication of climate change to local people is also very important, and to convince them about the importance of mitigation and adaptation.

Kazincbarcika initiated the *Adopt a Tree!* movement last year, that enjoyed great popularity.

Furthermore, a total of 200 recycling bins were installed in primary schools in Kazincbarcika with the aim to raise children's awareness.

The other notable goal of the city administration is the mitigation of environmental spill-over effects and damage from abandoned industrial sites.

Regarding the project actions and achievement, a Joint Adaptation Strategy has been compiled, that will remain the main strategic document of the adaptation efforts of the city and the company for at least a decade, along with the necessary periodic updates. The strategy will also be integrated into other policies and strategies.

Other main document that has raised from the cooperation of the city and company is the Heatwave Action Plan and the updated HSE documents based on that. These are achievements that will remain at the service of target groups after project completion.

As climate change considerations become the norm when new plans are made, adaptation will be one of the principles that will be applied in them.

REPLICABILITY

By the term, replicability, the project partners mean the repetition of the project results, the takeover of the methods developed by other cities and companies, possible followers.

Not only as partner in the project, but also outside of that, the city of Kazincbarcika is always thinking about how sustainability could be promoted more widely and how the measures in this direction could be taken.

Due to this intention, an important cooperation was established between the University of Miskolc, the Sajó-Bódva Valley and Surroundings Waste Management Local Government Association and Green Valley Non-profit Ltd. The three parties are committed to jointly taking concrete steps to raise awareness and strengthen sustainability in our region. This can include promoting each other, and implementing various innovative ideas in 140 municipalities.

As for the project results, the three main replicable elements of the project are: Joint Climate Adaptation Strategy, Climate Platform, Climate Fund.

As for the replication results, the main replication areas are medium sized cities and their respective industrial parks in Hungary.

During project implementation phase, 5 cities and the relevant industrial companies operating in their surroundings have shown commitment to follow the example of Kazincbarcika and the BorsodChem Zrt.

DISSEMINATION

Regarding dissemination activities, the target group is very diverse. Within the project, we have used all possible channels of communication (Facebook, LinkedIn, Youtube, newsletter, direct mail, media coverage).

The city of Kazincbarcika has taken three large paintings as part of a project activity. The 3 paintings convey the message to passers-by that preserving

our natural values and promoting sustainability is everyone's responsibility. We all need to do something to adapt to climate change within our means.

TECHNICAL SUMMARY

The technical summary focuses on the results achieved in the project and their impact after project life.

One of the most important results of the project is a prototype for treating greywater. This equipment is capable of producing 1 m³/h of water of technological quality and provides data for optimizing the series-connected units.



According to forecasts, both the city and the company will suffer from climate change related to water shortages in the future. The significance of the prototype is that it provides data that will facilitate and accelerate the design and implementation of an industrial-scale facility. It will set an example for the use of greywater for industrial purposes throughout Europe. Other cities with large industrial parks will copy the prototype and start

supplying treated wastewater to their industrial parks. This will reduce the climate vulnerability of cities and industries and prevent potential conflicts between cities and industries using the same water source.

Another main result of the project is an ecological area that has been created by BorsodChem Zrt. and that is an appr. across 38 500 m² area.

Rapid industrialization carried out decades ago has reduced the proportion of green areas. Increased traffic has increased noise and air pollution, making it the most polluted region of Hungary in terms of air quality. The trees planted in this area (1540 samples) provide shade, ensuring a friendlier environment and reducing dust and noise pollution.



The area can even be irrigated with water produced by the water purifier.

The project also included reclamation, as the Kazincbarcika region has a history of industrialization and mining. The reclamation project focuses on the the Salty-lagoon. By maintaining the wetland habitat here, several protected bird species have also created nesting sites, creating a special

bird colony. BorsodChem Zrt. has established a bird observation tower where people can observe protected species in their natural habitat.



Part of the project, two small-scale Natural Water Retention Measures were implemented by the Municipality of Kazincbarcika in the Tardona catchment that will serve to control peak flows in the catchment.

Woody dams can slow water flow velocity in headwaters, facilitate the sediment accumulation improve aquatic biodiversity by retaining flood and providing additional habitat, such as refuges spawning sites.



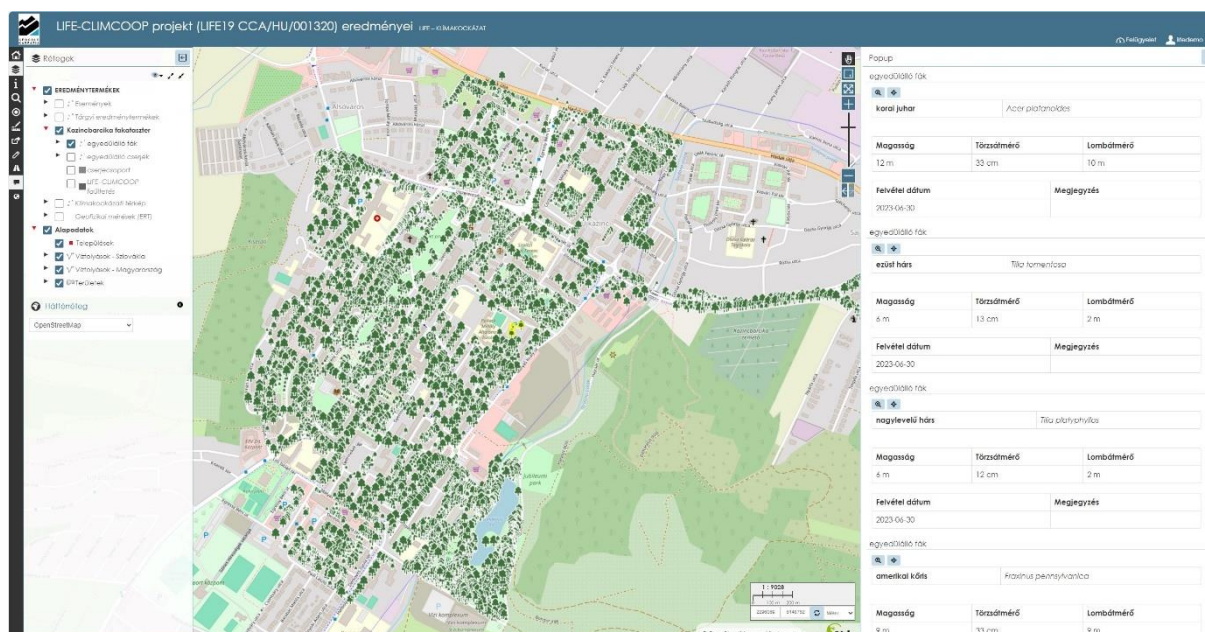
The installation of log dams is a novelty in Hungary, but they are of great importance during flash floods, the number of which is becoming more and more common in the region and nationwide, so hopefully the development of low-budget natural water retention solutions will also be implemented in other city-company cooperations.

Another goal of the project is BorsodChem Zrt. area was the creation of a green-roofed building in a chemical industrial environment. The green-roofed bus shelter, which was created for experimental purposes, shows that it is possible to create such a structure and, with not too much care, it provides a feeling of being close to the environment.

Green roofs also have a beneficial effect on urban biodiversity (e.g. pollinators), so it is also recommended to install them there.

Urban trees and green roofs deliver multiple benefits on the ground. They help to stabilize air quality, slow flow accumulation, improve landscape beautiness, improve local recreational conditions.

An urban tree inventory and map has also been put together which provide information about tree growth, mortality, and health data for planting programs. This will benefit environmentally friendly and ecological planning.



The impact of the functioning Climate Fund that was founded by the city and the company, will be also measurable, because at least 30 IBC tanks are distributed annually to households to collect and use rainwater for irrigation to replace drinking water. This will enhance the importance of household level water savings and adaptation as well as individual adaptation actions.

By conserving water, the project contributes to the preservation of currently existing resources for future generations, as well as the adaptation of the wildlife of wetlands to the expected effects of CC. By recycling purified wastewater, the demand for fresh water can be reduced, and the quantitative status of the groundwater body can be improved.

CONCLUSIONS AND COMMENTS

Climate change is one of the biggest problems of our time. Global temperatures are expected to further increase, sea levels are expected to rise and compared to previous periods, extreme weather events, e.g. storms, heat waves, flash floods, may occur more frequently.

The aim of this report was to present the possibilities of cooperation between cities and companies, as the two largest social actors, within the framework of the Life project. The report has aimed to present technical and non-technical results and their short- and long-term effects, emphasized the possibilities of replication, the importance of sustainability and dissemination.