SUMMARY OF IMPLEMENTED ACTIVITIES

LIFE19 CCA/HU/001320 – LIFE-CLIMCOOP

Introduction

The LIFE-CLIMCOOP project (LIFE19 CCA/HU/001320) aimed to demonstrate how a municipality and a major industrial player can collaborate to adapt to climate change through joint strategic planning and practical measures. Based in Kazincbarcika, Hungary, and in partnership with BorsodChem Zrt., the project was coordinated by the University of Miskolc. The project focused on water management, green infrastructure, community involvement and smart technologies. The project aimed to provide a scalable and replicable model for integrated climate resilience in urban-industrial areas across Central and Eastern Europe.

Action Summaries

A1 – Preparatory actions necessary before the creation of the Prototype which provides multi-purpose utilisation of wastewater

This action formed the basis for the greywater reuse system. It produced a feasibility study, an environmental impact assessment (EIA) and a joint utilisation plan (JUP). During the pandemic period, which posed several obstacles to the process, various laboratory tests were conducted to determine the necessary technological steps. Environmental safety was supported by a range of analyses – including biological tests – confirming that the prototype is both environmentally and technically sound.

A2 – Outline of the current situation

A comprehensive baseline assessment was carried out, including an evaluation of the condition of green spaces and sub-catchments. Monitoring wells were established, geomorphological maps were created and water level data was collected to inform subsequent planning (e.g. for NWRM). These datasets underpinned several follow-up actions by providing real-world information on the landscape and hydrology.

C1 – Elaborating the common climate adaptation strategy of Kazincbarcika (KB) and BorsodChem Ltd. (BC)

This action resulted in the development of the first Hungarian joint Climate Adaptation Strategy (CAS) between a city and an industrial organisation. It included four international study trips, a Climate Vulnerability Assessment (CVA) and extensive stakeholder engagement. The CAS identified priority risks (e.g. heat, flooding and water scarcity) and set out shared measures to promote long-term resilience. A practical guide and a best practice inventory were also published.

C2 – Establishing Collaboration Mechanisms between Kazincbarcika City and the BorsodChem Zrt. Industrial Park

Three long-term cooperation tools were created:

- Climate Platform: For joint decision-making and regular strategy reviews.
- Climate Fund: To co-finance local small-scale adaptation projects (e.g., rainwater tanks, awareness campaigns).
- Future Research Group: Connecting local actors with research and policy networks.

C3 – Small-scale urban adaptation measures

This action realized tangible green adaptation interventions.

- 1,540 native trees were planted.
- An ecological site was created with a birdwatching tower and educational paths.
- A green roof was installed at the BorsodChem bus station.
- An irrigation and green infrastructure development plan was finalised and integrated into local policy. These measures improved urban resilience and biodiversity, and increased public visibility of climate action.

C4 – SMART

Smart solutions were developed to support adaptation, including:

- A GIS-based urban tree inventory (publicly accessible).
- A Water Dashboard showing weather and water data.
- A KolorApp upgrade offering real-time environmental information and citizen engagement tools.
- Two log dams were built to mitigate flash floods, though they did not meet expectations fully.
- This action combined technology with raising awareness and managing risk.

C5 – Climate change adaptation mainstreaming in the BorsodChem internal rules and KB local government regulation

Climate adaptation was formally integrated into the operations of both partners.

- BorsodChem revised its EHS policy to reflect climate goals.
- Kazincbarcika updated urban policies to support CAS measures.
- A joint Heat Wave Action Plan was developed and adopted, including the installation of humidity gates and drinking taps for public use.
- These changes ensured lasting institutional impact.

C6 – Prototype of a joint greywater treatment and reuse system of BC and KB

A pilot prototype was designed and installed at the BorsodChem site, capable of treating various qualities of purified wastewater and stormwater through a multi-stage process. The treated water meets the required standards for both industrial use and irrigation. Tests confirmed that the treated water can be safely applied in industrial processes as well as for irrigation purposes. This solution offers a scalable alternative for industrial regions facing water scarcity.

C7 – Upscale and transfer results in the Sajó River Basin through the 'Water stewardship approach'

The project's impact was expanded beyond Kazincbarcika. A water risk map was created for the Sajó Basin and stakeholder consultations were held in Hungary and Slovakia. Municipalities, companies and regional stakeholders received training and tools, such as manuals and stakeholder mapping, to enable them to replicate the LIFE-CLIMCOOP model. A "White Book" summarised the results and recommendations for broader adoption.

D – Monitoring

Project results were continuously monitored. Water quality and quantity data were collected at multiple sites, the performance of the prototype was tracked, and the impact of raising awareness was evaluated. This monitoring ensured transparency and provided a knowledge base for future projects.

E1 – Demonstration of the results of the project

The project organised 43 events, published articles in Green Newspaper Sustainability Newsletter of BorsodChem, Lépések and professional magazines, and participated in major expos such as Planet Budapest. Conferences, guide workshops and technical presentations broadened outreach to public, municipal and business stakeholders.

E2 – Education and knowledge

Educational packages were created for:

- Industrial workers (2,960 trained),
- Municipal staff,
- Primary school students (157 students),
- University students through the Greywater Innovation Challenge.
- Workshops promoted the replication of the project's joint adaptation approach in other Hungarian cities and regions.

Conclusion

LIFE-CLIMCOOP successfully demonstrated how a city and a company can jointly develop and implement climate adaptation strategies. Despite facing obstacles related to the pandemic, the economy and administration, the project achieved its goals through strong cooperation, innovation and stakeholder involvement. The project sets a new standard for joint resilience-building in industrial regions and provides tools and models that can be replicated.

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