



ClimAct2Adapt Conference

Acting Together for Climate Resilience

Esztergom, Hungary,
8–9 October 2025
Conference Booklet

CLIMACT2ADAPT CONFERENCE

ACTING TOGETHER FOR CLIMATE RESILIENCE

Conference Booklet

Budapest

2025

Climact2Adapt Conference
Acting Together for Climate Resilience
LIFE LOGOS 4 WATERS project closing conference

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“Water crisis is a global problem, but it requires local intervention. Rivers do not stop at municipal borders. Floods do not wait for permission, and droughts do not care about administrative lines on maps. Therefore, cooperation is not only a good idea, but the only way forward.”

László Sitányi, PhD,
Director of Operations, Blue Planet Climate Protection Foundation

Welcoming Thoughts

The ClimAct2Adapt – Acting Together for Climate Resilience international conference marked the culmination of the EU-funded LIFE LOGOS 4 WATERS project “Cooperation for Climate-Conscious River Basin Management”. Over its four years of implementation, the project has become a cornerstone of Hungary’s efforts to promote climate adaptation through practical, community-based water management and cross-sectoral collaboration.

The LIFE LOGOS 4 WATERS initiative demonstrated how coordinated, catchment-level approaches and the application of nature-based solutions can transform water from a challenge into a shared resource. By integrating adaptive, green-blue measures into municipal planning, it offered tangible examples of how settlements can respond effectively to the growing pressures of droughts, floods and water scarcity. From small-scale natural interventions to cooperative governance models, the project showed that lasting resilience is built through collective action and knowledge exchange.

Building on this spirit, the ClimAct2Adapt conference provided a platform for dialogue among experts, policymakers, researchers, municipal leaders and civil society representatives dedicated to sustainable adaptation. Participants explored the multiple dimensions of resilience – from policy and science to practice and community engagement – and shared lessons from both Hungary and abroad. The discussions underscored the importance of connecting local experience with broader European perspectives, fostering synergies that can inspire future initiatives.

This publication seeks to capture and preserve the intellectual and practical insights that emerged during the conference, which was attended by nearly 120 people from a total of 16 countries. It reflects a shared understanding that the path toward climate resilience depends on cooperation, openness to learning and the willingness to act together. Through the exchange of ideas, case studies and good practices presented here, the volume contributes to an ever-growing body of knowledge that supports adaptive, forward-looking water and climate governance in Hungary and across Europe.

In addition to this publication, recordings of the conference plenary sessions can be viewed at the following links:

- 1st Day: <https://youtube.com/live/9TcotZL0cU4?feature=share>
- 2nd Day: <https://youtube.com/live/6yJqNwe82WI?feature=share>

The Editor

Foreword

Dear Reader,

It is my great pleasure to welcome you to this publication, prepared to mark the ClimAct2Adapt – Acting Together for Climate Resilience international conference, held in Esztergom, Hungary, on 8–9 October 2025. This volume provides a concise, yet insightful overview of the conference's key themes, discussions and presentations, reflecting the collective commitment to advancing climate resilience through shared knowledge and collaboration.

The conference, which served as the closing event of our LIFE LOGOS 4 WATERS project entitled “Cooperation for Climate-Conscious River Basin Management”, also provided an invaluable meeting point for researchers, local government leaders, policymakers and civil society representatives who have been working with dedication in the field of climate adaptation over the past decades.

Its message – “Acting Together for Climate Resilience” – clearly expresses a shared conviction: that the challenges posed by climate change can only be addressed effectively through cooperation, knowledge exchange and collective responsibility.

The LIFE LOGOS 4 WATERS project was conceived and implemented in this spirit. Over the past four years, government institutions, municipalities, professional organisations and civil partners have joined forces to strengthen the adaptive capacity of local communities. The project has pioneered the integration of climate adaptation, catchment-level thinking and nature-based solutions. The interventions implemented in the lowland and hilly pilot areas – such as oxbow lake restorations, log dams, Benjes hedges and retention ponds – stand as tangible examples of how water can become not a source of risk, but a true asset for local communities.

The ClimAct2Adapt conference carried forward the spirit of the LIFE LOGOS 4 WATERS project as an inspiring forum for shared reflection and dialogue. It encouraged participants to learn from one another, to exchange good practices – both from Hungary and abroad – and to



foster new forms of cooperation, recognising that effective adaptation is an inherently complex, multi-actor endeavour.

Meaningful progress can only be achieved when genuine synergies emerge between sectors, institutions and communities. While the manifestations of climate change differ from country to country, its underlying causes are shared and so must be our responses. By learning from and supporting one another, we can build collective resilience.

I would like to extend my sincere thanks to everyone who contributed to the success of the conference and the project, including the organisers, speakers, panellists, moderators, visual note-takers and the editors of this publication. Thanks to their work, the ideas and best practices presented at the conference can continue to resonate – travelling from one municipality to another, from one river basin to the next and from country to country – serving as inspiration for new projects and community initiatives.

Climate change is a reality we must learn to live with. Therefore, we too must change in our attitudes, our habits and the way we make decisions, act and lead our communities. If there is a message, we can all bring home from the ClimAct2Adapt conference, it is that together we can always achieve more than we ever could alone.

I wish all readers an engaging and inspiring journey through the pages of this publication.

*Miklós Dukai
State Secretary for Municipalities
Ministry of Public Administration and Regional Development*

Conference Program

Day 1

8 October 2025

09:30–10:00	Registration
10:00–11:00	Opening Ceremony
11:00–11:40	Plenary Panels
11:40–12:00	<i>Coffee Break</i>
12:00–12:40	Plenary Panels
12:40–14:00	<i>Lunch and Networking</i>
14:00–15:30	Parallel Sessions I
15:30–15:50	<i>Coffee Break</i>
15:50–17:20	Parallel Sessions II
17:20–17:40	<i>Break</i>
17:40–17:45	Words from the Organisers
17:45–18:00	<i>Short Break</i>
18:00	Cultural Program
20:00	<i>Conference Dinner and Networking Event</i>

Day 2

9 October 2025

08:30–09:00	Arrival of Participants
09:00–10:15	Plenary Panels
10:15–10:30	Closing Plenary
10:30–12:30	Exhibition
12:30–17:00	Field Trip to the Szilágyi Stream Catchment Area
17:00	Wrap up

Keynote Presentations

Climate Change – Change of Paradigms – Barbara Wassen, PhD, Ambassador-at-Large for Climate Affairs and Climate Diplomacy, Ministry of Energy

Water Governance for Climate Change Adaptation – Juliette Lassman, Policy Analyst, Water Governance, Blue and Circular Economy, Organisation for Economic Co-Operation and Development

The Impact of Climate Change on Hungary's Water Management – Presentation of the “Water for the Landscape!” (Vizet a tájba!) Program – József Gacsályi, Deputy Director General, General Directorate of Water Management, Hungary

Cohesion Policy for a More Resilient Europe – Noémi Dálnoky, Programme Manager, Directorate-General for Regional and Urban Policy, European Commission

Cooperation for Climate-Conscious River Basin Management – Introduction to the LIFE LOGOS 4 WATERS – Petra Szatzker, Project Manager, Ministry of Public Administration and Regional Development

Parallel Sessions

Living with Climate Extremes – Impacts and Adaptation Strategies

Moderator: Attila Ádám Nagy, Group Leader, Vas County Disaster Management Directorate

- **Planning for Resilience: Insights into Climate Risks and Adaptation Policy Instruments in Europe** – Angelika Tamásová, Expert of the European Environment Agency
- **Urban Climate Modelling at the HungaroMet Hungarian Meteorological Service** – Lilla Duics-Korosecz, Meteorologist, HungaroMet Hungarian Meteorological Service
- **Resilience Building in the Czech Republic** – Iva Brejzova, Head of the Integrated Rescue System and Humanitarian Aid Department, Mol-DG Fire Rescue Service of the Czech Republic
- **Introducing the Recommended Heatwave Vulnerability Assessment Framework for the LIFE COOL ZONE Project** – Gábor Kiss, Geographer and Anett Kocsis, Senior Climate Policy Officer, HungaroMet Hungarian Meteorological Service
- **Managing Extreme Weather Events Caused by Climate Change and Cross-Border Cooperation – Showcasing Practical Solutions and Decision-Support Tools** – Attila Ádám Nagy, Group Leader, Vas County Disaster Management Directorate

Practices for Adaptive Water Management – Nature-Based Solutions in Action

Moderator: David Thomas, Senior Land Advisor, Director of South West Natural Solutions

- **Building Catchment Resilience at the Field Scale – Nature-Based Solutions and Natural Flood Management** – David Thomas, Senior Land Advisor, Director of South West Natural Solutions
- **The Role of Floodplain Restoration in Climate Change Mitigation along the Tisza River in Hungary** – Szilvia Ádám, PhD, Regional Freshwater Programme Officer, WWF Hungary, WWF Central and Eastern Europe
- **Implemented NBS Solutions in the City of Pula** – Karmela Maren, Assistant Head of Department for Urban Planning, Construction and Environmental Protection and Antonija Babić, Head of the Unit for the Development of EU-funded Projects, City of Pula
- **Building Climate Resilience in Hilly Catchments: The Experience of the Szilágyi and Gombás Catchments (Pilot Area of the LIFE LOGOS 4 WATERS Project)** – Krisztián Mészáros, Project Coordinator, Municipality of Püspökszilágy
- **A Nature-Made Solution for Water Retention: Beaver Impact** – Erika Juhász, PhD, Coordinator of the BeaverMap Program, HUN-REN Centre for Ecological Research

Communities and Municipalities Driving Climate-Resilient Futures

Moderator: Noémi Dálnoky, Programme Manager, Directorate-General for Regional and Urban Policy, European Commission

- **Towards Cleaner Air: Key Outcomes of the LIFE IP HungAIRy Project** – Barbara Petra Bezegh, Head of Department, Project Leader, HungaroMet Hungarian Meteorological Service
- **Water Retention Across the Landscape: Experiences and Challenges in the Kalocsa-Sárköz Basin (Pilot Area of LIFE LOGOS 4 WATERS Project)** – Kerpely Klára, Climate Action Expert, WWF Hungary and Fruzsina Markó, Project Coordinator, Municipality of Bátya
- **The Development of the Zugló Green Infrastructure Action Plan – The Process, Results and Citizen Engagement** – Mária Csikai, Senior Project Manager, Zugló, Budapest
- **City Rain Is Worth Its Weight in Gold – Water Retention Possibilities in Urban Areas with Different Characteristics** – Emese Décsi, Professional Leader of LIFE in Runoff Project, 12th District Hegyvidék Local Government, Budapest
- **Connecting Generations via Practices in the Garden and Building Community via Tree Planting Activities** – Ramóna Fajkuszné Kovács, Representative of the Local Government of Bezi

Climate Literacy and Community Engagement for Resilience

Moderator: Dalma Varga, PhD, Project Manager, Ministry of Public Administration and Regional Development

- **Enabling Transformative Innovation for Climate Change Adaptation: Tools and Approaches in the Danube Region** – Anna Mandorli, Researcher, Euro-Mediterranean Center on Climate Change and Vera Tekken, PhD, Senior Advisor, VDI/VDE-IT
- **Mainstreaming Nature-Based Solutions into Policies and Strategies – Lessons from the NBS4LOCAL Partnership** – Ferenc Réder, Strategy Officer, Managing Authority for Environmental and Energy Efficiency Operational Programmes, National Development Centre
- **Colouring Resilience: Communicating Climate Action beyond the Grey** – Olaya Moena Latasa, Science Communicator, WeDo – Project Intelligence Made Easy presenting for the European Project, TRIGGER project
- **From Grey to Green: Municipal Strategies for Urban Climate Resilience** – László Mrekva, Head of the Dean's Office, Ludovika University of Public Service, Faculty of Water Sciences

Municipal Responses and Investment Innovations in Nature-Based Solutions

Moderator: Réka Kovács, NBS4LOCAL Project Manager, Ministry of Public Administration and Regional Development

- **Salla. Give Back to Local Nature! Campaign** – Heli Karjalainen, Communications and Membership Coordinator, Matkalle Sallaan ry Association
- **Small Hungarian Municipality in Climate Alliance – How Communities Can Shape Together a Better Future** – György Laki, Vice President of the Hungarian Climate Alliance, Mayor of Kajárpéc
- **Promoting Nature-Based Solutions via Smart Combination of Funding Instruments** – Mónika Németh, Managing Director, Coordinator of TeAM Hub, BURST
- **Landscape-Scale Water Retention and Transboundary Water Resource Management to Improve the Capacity of Climate Change Adaptation** – Csaba Vaszkó, Project Consultant, Bihari-Kis-Sárrét Catchment Community

Storm-Ready Cities: Interactive Urban Water Management Workshop

Moderator: Dorottya Teveli-Horváth, PhD, Economist, Urbavis

The workshop is based on the interactive workshop methodology developed as part of the LIFE Urban Rain project focused on developing practical approaches to the future of our communities in the field of urban water management.

Main topics of the workshop:

- Learning about the challenges posed by global climate change in the field of urban water management in Central Europe and finding out what trends we can expect in the coming decades.
- Finding out together, step by step, how to prepare a local stormwater management plan, and based on the methodology developed in the project, also providing assistance in finding the most suitable solutions for our communities.
- Another important goal of the workshop is to provide an opportunity for participants to exchange experiences, share ideas and opinions, and brainstorm together.

“European people see the connection between the climate action and their own well-being. Their children’s future is their community’s prosperity. We are stronger together. A municipality investing in green infrastructure serves border region, sharing knowledge network and lessons learned. We multiply the impact of every Euro invested, every Forint invested, every innovation tested, and every solution implemented. What each of us does affects our neighbours. The adaptation measures we implement will shape what kind of continent we pass on to our children.”

Anna Dimitrijevics,
Deputy Head of Unit for Adaptation and Resilience to Climate Change, Directorate-General for Climate Action, European Commission

Plenary Panels

Summaries of Keynote Presentations

Climate Change – Change of Paradigms

Barbara Wassen, PhD

Ambassador-at-Large for Climate Affairs and Climate Diplomacy, Ministry of Energy

The challenges posed by climate change are enormous, but so are the opportunities. Resilience means preparing, absorbing and recovering from the impacts of climate change. Europe and Hungary are warming faster than the global average, and climate change is affecting every area of life.

The world is changing. We are moving from a unipolar world to a multipolar one, where global management should be based on cooperation among power centres. Instead of the free-market system approach, market protection has come to the fore. Globalisation is being replaced by a system driven by security considerations.

We need systematic changes, we need to adapt. We need to find solutions for adaptation, and where there are solution gaps, we must innovate. Those who innovate will face lower damage costs, whether they are communities, industries, or municipalities.

The global call to act against climate change requires working together, like a concept as “mutirão”: a global effort of cooperation among peoples for the progress of humanity. And like “virada”, we can always turn the game around. We must believe that climate change is avoidable, through cooperation, we can change the outcome.

The seven seismic messages:

1. Together we are taking big steps forward – the world has come a long way on climate change since 2015. The Paris Agreement and climate cooperation are working, but we need to move faster.
2. Energy transition is key to achieving the objectives of the Paris Agreement.
3. The EU is staying the course on climate, for our economy, our health and our security.

When it comes to the EU: What you see is what you get (through the wind tunnel).

4. We need to get all our other partners, responsible for 94% of global emissions, on board fast.
5. International cooperation is in everyone’s interest: when our neighbours and partners do well, so do we. We are all in this together. We will continue to work for a world where justice and shared principles guide action – where right, not might, shapes global cooperation.

6. Putting a price on carbon is the surest way to clean, open and fair markets.
7. Resilience to climate change: The costs of inaction are insurmountable; investments in the transition will reap rewards. Meanwhile, we need to build resilience fast to protect our people against the impacts of climate change.

Hungarian context: 2023 was the hottest year since regular meteorological observations began, and 2024 was also record-breaking. This year, there were 14 hot days during the summer, compared to the average of 3, and despite the continental climate, there were 18 tropical nights, which is 4.5 times the average. In August, two-thirds of the country was hit by a severe drought. There were other severe weather events such as Cyclone Boris, which brought more than 400 mm of rainfall to Austria and the Czech Republic in seven days, resulting in significant flooding along the Danube in Hungary.

It is necessary to identify which climate parameter changes generate which effects, and which sectors are most concerned and have a significant role to play in finding solutions. In Hungary, the emission reduction was 43% between 1990 and 2023. The reason for this is that milder winters mean less pollution from heating, and higher fuel prices mean less pollution from transport. The emission trends decoupling in Hungary: GDP is growing, emissions are falling. Hungary submitted its revised National Energy and Climate Plan in 2024, in which it committed to reducing the Gross GHG emission by at least 50% by 2030 compared to 1990 levels, and increasing the share of renewable energy sources to at least 30% of gross final energy consumption.

Water Governance for Climate Change Adaptation

Juliette Lassman

Policy Analyst, Water Governance Programme, Organisation for Economic Co-operation and Development (OECD)

The OECD's global research highlights two important points, among others. On the one hand, climate change is disrupting the water cycle, causing significant economic losses. Increasingly we say: water is climate change adaptation and energy is climate change mitigation. 90% of all natural disasters and climate change impacts are related to water in the form of floods, storms and droughts.

On the other hand, geography matters for climate change adaptation. The effects of climate change manifest themselves in different ways within countries and often vary greatly from region to region. Severe disasters have a long-lasting impact on economic output and employment in OECD regions.

These results convey a very important message: Taking action on climate change mitigation and climate change adaptation at the local level is absolutely necessary. Progress is being made at national level. Subnational planning is also critically important, as in Lisbon, Portugal, for example. Cities and regions are on the frontline of climate change because they are highly vulnerable to its impacts. Therefore, they are responsible for urban and regional planning, the development of nature-based solutions and the creation of green spaces.

The presentation provided insight into the preliminary results of “Accelerating Climate Change Adaptation Measures in Water Management in Hungary” TSI project. Hungary has been exposed to flooding for a long time. The country is the 5th most exposed country in the OECD region, and in contrast to other OECD countries and the EU, in Hungary the population exposure to river flooding increased between 2000 and 2020. In addition, recently, drought has also become an increasingly important factor to consider with significant economic impacts. Drought is the new normal, and Hungary is the 17th most drought-endangered country globally. Based on EU directives, the country is taking action on climate change adaptation and water security, national water and closely related climate change adaptation strategies, as well as national energy and landscape strategies. Hungary has a complex institutional water governance framework in place, led by the Ministry of Energy, with the operational support of the General Directorate of Water Management. An interministerial committee has been set up to address the challenges of climate change and strengthen cooperation between the sectors concerned.

The key governance challenges are in the areas of institutional framework, water management updating, subnational resources and capacities, stakeholder engagement and interoperability.

Based on the OECD's water management principles, recommendations can be made for climate-resilient water management in Hungary.

The first recommendation is to further consolidate the institutional framework for water management and climate change adaptation. This can be done by strengthening existing frames into ministerial corporation mechanisms and boosting the capacities of national government entities involved in water management.

The second recommendation is to use economic and regulatory instruments to manage water demand. This includes reviewing water restriction charges, water tariffs, environmentally harmful subsidies and water permit thresholds to ensure that they meet cost recovery and water demand management objectives.

Third proposal: adoption of a long-term water resource management strategy based on long-term forecasts (e.g. up to 2050). It should define overarching and measurable objectives, i.e. a program of measures to achieve those objectives, each with a clear timeline, responsible authorities, stakeholders and a budget. The strategy should engage some national authorities and stakeholders to define acceptable levels of water risk and develop the program of measures to generate consensus. And the strategy should set up a monitoring framework to ensure accountability and adaptive management of the strategy over time. This strategy could

build on Hungary's leading role in water diplomacy to strengthen its global role in sustainable management and climate change adaptation. It could also help in bringing water scarcity considerations into other sector policies such as agriculture industry and energy, and it could lay the ground work for updating water laws to make water management more climate change resilient in Hungary. Water management requires very good quality data. High-resolution, comparable and usable data are needed, so another key point is to overcome these existing data management gaps.

Fourth, it is recommended that governance at different levels be strengthened in order to promote a place-based approach to water management. This would essentially be achieved by strengthening the capacity of water managers to implement national policies and address local challenges, providing targeted and conditional financial and technical support to local governments, and giving subnational water management councils a clear mandate to serve as a forum for effective stakeholder engagement and oversight of water policy at the subnational level.

The final recommendation is to increase transparency of access to information and stakeholder involvement in water, climate and environmental policy, thereby strengthening public trust, improving accountability and supporting evidence-based decision-making.

The Impact of Climate Change on Hungary's Water Management – Presentation of the “Water for the Landscape!” (Vizet a tájba!) Program

József Gacsályi

Deputy Director General, General Directorate of Water Management, Hungary

Hungary's water management needs to be rethought and developed in line with the challenges posed by climate change. The country's surface water resources are not homogeneous. The water resources of the Tisza valley, which accounts for half of the total area, represent only a quarter of the total annual resources, and experience shows that these resources have also declined significantly in recent years.

The phenomenon of drought in Hungary results from changes in precipitation patterns. With adequate precipitation, the country's water balance could be restored, but the main problem is the precipitation deficit, which has accumulated over the years, leading to prolonged drought and a steady decline in groundwater reserves. The water management system is now out of balance: groundwater levels cannot be replenished by precipitation; persistently low water levels in rivers also lead to the depletion of underground water resources, causing further losses.

We must accept that the regulations established by our predecessors set the framework for our options in the field of water management innovation. Restoring conditions to what they were before the regulations were introduced is not an option, either socially or technically. What is the way forward? Finding a place for the water lost during the regulations through land use change, with social cooperation. Storing floodwater from rivers seems like a good solution, but climate change also has a negative impact on the usability of flood reserves, because the large volumes of water that could be stored are not available long enough to allow for their effective storage and use.

One possibility for water retention lies in the innovative management of inland waters, not only on state-owned land, but also with the involvement of privately owned areas. To achieve this, open communication with society is essential so that, through joint cooperation, there is sufficient space and willingness to retain water locally. Technical developments are also needed, and existing infrastructure must be upgraded to ensure efficient water distribution and drainage.

Irrigation alone does not solve water management problems, but a change in approach to the operation of irrigation and water distribution systems – making use of their potential – will help in these efforts. By operating these systems from the perspective of water resources rather than water demand, 16% of the country becomes accessible in terms of water replenishment. It should also be borne in mind that the country has areas with very different characteristics. One example is the Homokhátság region, where the primary task is not water retention, but rather bringing water to the area so that there is something to retain.

The “Water for the Landscape!” (Vizet a tájba!) Program can be considered a professional guideline program for these tasks. It has a dual purpose: it is directed both outward and inward. On the one hand, it aims to shape public opinion and involve landowners in water retention, and on the other hand, it aims to harmonise the water sector internally for climate change adaptive operation.

Implementation is being carried out under the direction of the Interministerial Committee on Water Management, ensuring cooperation and shared responsibility among the various sectors. Several significant legislative measures have already been taken during the program, laying the foundation for successful implementation. The creation of a legal framework for ecological water replenishment has become the driving force behind water management. Two important new regulations were introduced in the amendment to the Water Management Act on 1 July 2025. One is that water retention-based management has become a state task. This creates the possibility of water replenishment in areas without free water resources. The other is the tolerance obligation: in the case of inland water protection, inland water can be retained for a certain period of time in agricultural areas, as opposed to the previous obligation of immediate intervention.

The water sector is also aligning its developments with the program’s objectives. This requires changes to the operating structure, which in turn requires investment. In 2025, 400 sites have undergone related interventions, including natural ones: bottom sills, log dams and

new water control systems. Based on experience to date, even changes to the operating procedures of existing infrastructure have a noticeable effect on the amount of water retained within the country's borders. A pilot program is also underway to examine the entire flood management process, from site selection to implementation, so that the experience gained here can be extended nationwide.

A further task is to fully harmonise operating procedures and develop the necessary state sector financing for this, in order to bring about a predictable, scheduled change in approach and operating procedures in the water sector.

Cohesion Policy for a More Resilient Europe

Noémi Dálnoky

Programme Manager, Directorate-General for Regional and Urban Policy, European Commission (DG REGIO)

The mission of the Directorate-General for Regional and Urban Policy (DG REGIO) is to support the economic and social development of all regions of the European Union at the subnational levels. We have the Green Deal, but we also have to face new challenges, and there will be even newer challenges in the next period as well, while greening also remains important. The presentation outlines the financial allocation in the EU for the next period (2028–2034).

The main messages are the integration of several policies to boost cohesion. We need to see that water conveys a message to us and creates the bridges. We have other possibilities to create the bridges, such as nature-based solutions, green infrastructure, and agriculture and urban mobility, which are also very important because nothing can be achieved without them.

The 2025 Environmental Implementation Review proposes four priority actions, including improving river continuity, ecological flows and nature-based solutions; regular review of emissions, water abstraction permits and monitoring; reducing pollution (chemicals, nutrients, metals); and taking rainfall-induced flooding into account in flood risk management plans. Hungary integrates measures affecting biodiversity into other measures. In the field of agriculture, Hungary has great potential for cooperation on water management due to drought and water management solutions, in order to create greater added value for agriculture and increase competitiveness. This can be achieved through more equitable systems, such as organic farming, creating more grassland areas, etc. Increased competitiveness and added value can be measured in terms of improved ecosystem services. The audience collected good and bad practices related to various ecosystem services during an interactive exercise. The aim of the exercise was to familiarise participants with ecosystem services and their evaluation, which is an important basis for determining further developments.

Cooperation for Climate-Conscious River Basin Management – Introduction to the LIFE LOGOS 4 WATERS Project

Petra Szatzker

Project Manager, Ministry of Public Administration and Regional Development

Hungary was once considered a “water superpower”, but today the term “runoff country” is more fitting. Climate change is intensifying the challenges: unless we change our water management practices, water shortages and floods will become more frequent and unpredictable, with serious environmental, social and economic consequences.

The LIFE LOGOS 4 WATERS project aims to increase the climate resilience of local governments and promote the spread of nature-based water management solutions. Across two demonstration sites – one in a hilly region and one in a lowland catchment area – more than 30 adaptation measures have been implemented. In the hilly area, the focus was on managing flash floods and prolonged droughts, while in the lowland region, the emphasis was on water retention and raising groundwater levels. In both locations, the active involvement of local governments and stakeholders was crucial, as they participated in the planning and implementation of solutions.

The project places special emphasis on knowledge sharing and raising community awareness. To this end, environmental education programs, national campaigns and tailored educational materials have been developed. Local action is key: municipalities experience the direct impacts of climate change and, thanks to their local knowledge, can respond quickly and effectively.

The project not only showcases nature-based solutions but also equips municipalities with practical tools, knowledge and hands-on experience to better prepare for the challenges of climate change. Nearly 300 municipalities participated in the support programs, with over 40 receiving direct assistance. The active participation of local communities and stakeholders at the demonstration sites ensured the success of the solutions.

As a result, the climate change adaptation capacity has been strengthened, decision-makers' and experts' knowledge has improved, and climate governance cooperation has been enhanced at local, regional and national levels. The key to the project's success was participation and collaboration. Project partners – including municipalities, ministries, professional organisations, universities and environmental NGOs – worked together to introduce nature-based solutions and disseminate knowledge.

The LIFE LOGOS 4 WATERS project demonstrates how nature-based water management and community engagement can create a sustainable, more resilient future. The project has not only delivered short-term results but also built lasting capacities and a culture of cooperation that will support successful water management and climate change adaptation in the long term.

Discussion with the Project Partners of LIFE LOGOS 4 WATERS

Moderator: Petra Szatzker, Project Manager, Ministry of Public Administration and Regional Development

Participants: Csaba Fekete, Mayor of Bátka; Sándor Tordai, Mayor of Püspökszilág; Miklós Dukai, State Secretary for Municipalities, Ministry of Public Administration and Regional Development; Lajos Kovács, President of the Association of Climate Friendly Municipalities; József Gacsályi, Deputy Director General, General Directorate of Water Management, Hungary; Ernő Wagner, President of the Hungarian Chamber of Engineers; Katalin Sipos, Director of WWF Hungary; Zoltán Kling, Vice-Dean for Education of the Faculty of Water Sciences at the Ludovika University of Public Service

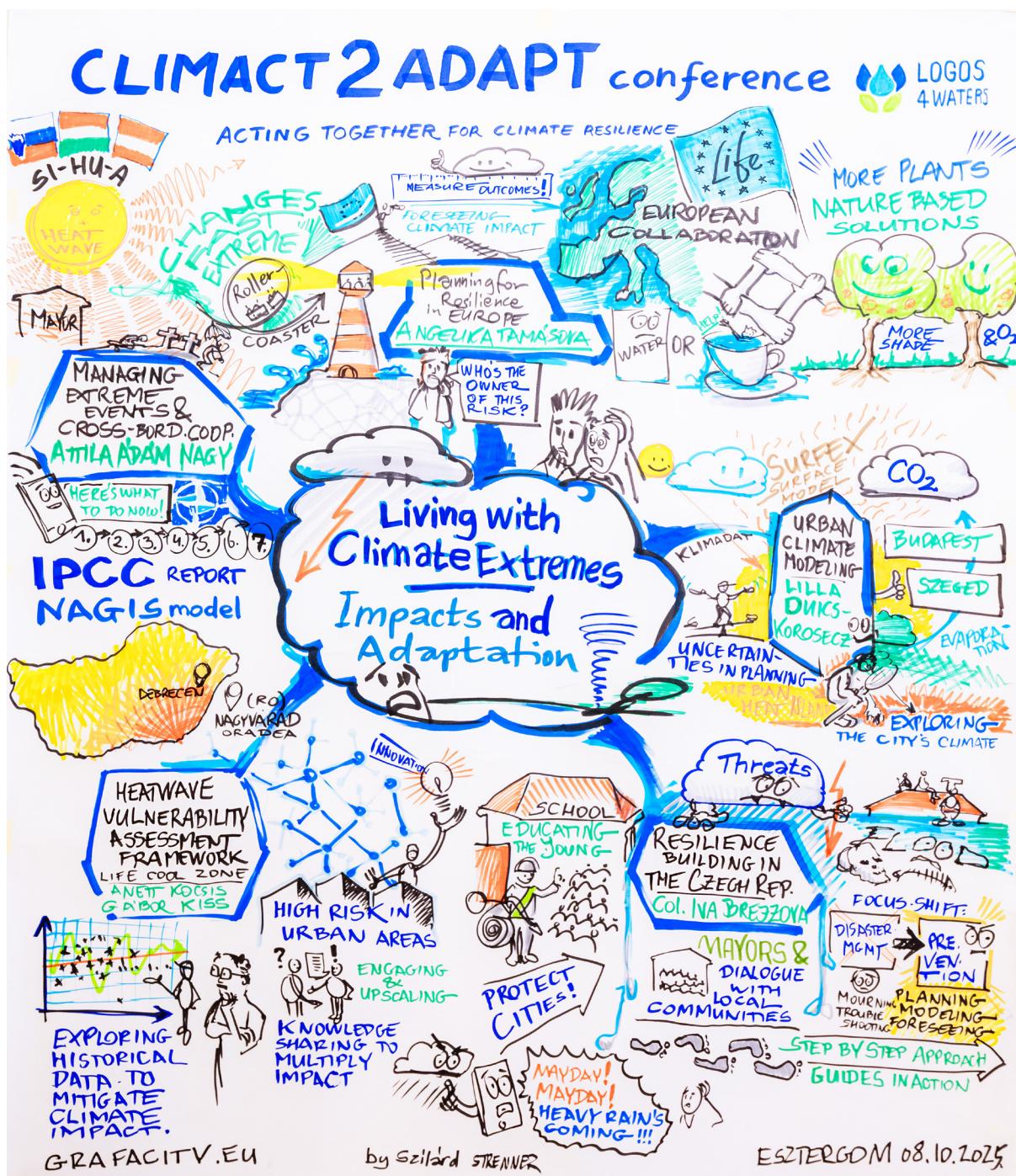
One of the most important events of the conference, and one that was particularly significant from the perspective of the partnership, was this roundtable discussion, where the project partners shared their experiences and insights regarding the implementation of the project and their successful and fruitful cooperation. Such a complex project is always about cooperation. An important consideration in establishing the partnership was to bring together professionals who were committed to nature-based solutions, from design and implementation to maintenance.

The participants in the roundtable discussion also agreed that the active participation and cooperation of various actors (authorities, investors, local governments, civil society organisations, engineers and society) was key to the implementation of the project. The project was successful in many areas. The joint work of the ministry, civil society organisations and local governments sets a pioneering example of how to work effectively with simple solutions. The Multi-stakeholder Catchment Forum (MCF) played a prominent role in providing reliable and direct information to all stakeholders, facilitating effective decision-making. The example set by the partner municipalities and the active participation of children and the local community had a positive impact on the success of the project.

The project emphasises that water retention and flood safety solutions are not taboo topics, but should be the subject of joint discussion and cooperation. It is important that the experiences and solutions gained in the project are sustainable and that future generations are able to operate and maintain them. The success of the project requires perseverance, belief in cooperation, and the active participation of local initiators and municipalities. Looking ahead, the partners agreed that joint work should continue. The GDWM and HCE intend to continue their cooperation and provide technical support for the cost-effective implementation of water retention measures. The project serves as an example for local governments on how to implement water management projects quickly and efficiently; knowledge sharing and lifelong learning are key objectives to ensure that similar projects can be successfully applied for and implemented in the future.

Presentations of the Parallel Sessions

Living with Climate Extremes – Impacts and Adaptation Strategies



Planning for Resilience: Insights into Climate Risks and Adaptation Policy Instruments in Europe

Angelika Tamásová

Expert of the European Environment Agency, e-mail: angelika.aamasova@eea.europa.eu

As climate extremes intensify, strengthening preparedness and resilience across Europe requires greater emphasis on planning and implementing adaptation actions. This presentation draws on insights from the European Environment Agency's flagship publication Europe's Environment 2025, the first European Climate Risk Assessment and the 2025 reporting on national adaptation action under Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action. It explores how emerging climate risks are being addressed through climate laws, strategies and plans in a multi-level governance setting, while also discussing the challenges of assessing implementation and understanding the effectiveness of adaptation actions.

Europe's environment and climate are at a crossroads. While the EU has made significant progress in cutting greenhouse gas emissions and expanding renewable energy, the overall state of the environment remains critical. Biodiversity loss, ecosystem degradation and accelerating climate impacts are putting at risk Europe's long-term sustainability, prosperity and security (EEA 2025a).

Europe is the fastest-warming continent, and climate risks are intensifying. The first European Climate Risk Assessment identifies 36 major risks threatening energy and food security, ecosystems, infrastructure, water resources, financial stability and public health. Many of these risks have already reached critical levels and could become catastrophic without urgent and decisive action (EEA 2024a).

At the policy level, all EEA member countries now have national adaptation policies, with many extending to regional and sectoral levels (EEA 2025b). National climate laws are increasingly giving adaptation stronger legal foundations, marking a shift from soft policies to binding frameworks (Leitner et al. 2024). At the local scale, thousands of municipalities are engaging in adaptation, supported by initiatives such as the Covenant of Mayors or the EU Mission on Adaptation, but implementation is often hampered by governance and capacity challenges (EEA 2024b).

Despite progress in knowledge and governance, societal preparedness remains low. Evidence on implemented actions and their effectiveness is still limited, and evaluation and learning frameworks remain underdeveloped (EEA 2025b). Europe must urgently accelerate the implementation of adaptation actions, strengthen monitoring and evaluation, and ensure that resilience building is inclusive and just, if it is to reduce future costs and safeguard people, ecosystems and economies (EEA 2025a). The ongoing development of the EU's new integrated

framework for Climate Resilience and Risk Management offers hope for a more legislative, target-led and plan-based approach to adaptation in the future (EEA 2025a).

References

EEA (2024a): *European Climate Risk Assessment*. Online: <https://www.eea.europa.eu/en/analysis/publications/european-climate-risk-assessment>

EEA (2024b): *Urban Adaptation in Europe: What Works?* Online: <https://www.eea.europa.eu/en/analysis/publications/urban-adaptation-in-europe-what-works>

EEA (2025a): *Europe's Environment 2025*. Online: <https://www.eea.europa.eu/en/europe-environment-2025>

EEA (2025b): *From Adaptation Planning to Action: Insights into Progress and Challenges across Europe*. Online: <https://www.eea.europa.eu/en/analysis/publications/from-adaptation-planning-to-action>

EEA (2025c): *National Climate Change Adaptation Planning and Strategies*. EU Dataset. Online: <https://reportnet.europa.eu/public/dataflow/1455>

Leitner, Markus – Johnson, Katie – Lexer, Wolfgang – Munck af Rosenschöld, Johan – Dworak, Thomas – Tamásová, Angelika – Nikolova, Aneliya – Vanneuville, Wouter (2024): *Characteristics and Conditions of Adaptation Policy in European Environment Agency Member and Cooperating Countries*. ETC-CA Report 2/2024. Online: <https://www.eionet.europa.eu/etc/etc-ca/products/etc-ca-products/etc-ca-report-2-2024-characteristics-and-conditions-of-adaptation-policy-in-european-environment-agency-member-and-cooperating-countries>

Urban Climate Modelling at the HungaroMet Hungarian Meteorological Service

Lilla Duics-Korosecz

Meteorologist, HungaroMet Hungarian Meteorological Service, e-mail: korosecz.l@met.hu

Cities are highly exposed to the impacts of climate change, which makes it essential to study the expected changes in these areas. At the HungaroMet Hungarian Meteorological Service, urban climate modelling plays a key role. In our work, we refine regional climate information using the SURFEX surface model, enabling us to capture urban characteristics and the urban heat island effect caused by built-up areas with greater accuracy.

The presentation explains in detail the process and importance of future climate modelling and shows why it makes sense to speak of an “urban climate” as a distinct concept. We provide insight into why research of urban climate change is needed, and what kind of changes we can expect in Budapest and Szeged, especially regarding the occurrence of heatwave periods. The KlimAdat database is introduced during the presentation, which is the HungaroMet Hungarian Meteorological Service’s own developed system. The database contains information on Hungary’s future climate, such as temperature variables and climate extreme indices.

Resilience Building in the Czech Republic

Iva Brejzova

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The presentation focuses on strengthening resilience in the Czech Republic, addressing the challenges of climate change adaptation, cross-border risks and community preparedness. The LOCALIENCE project is presented as an example of how municipalities and state authorities can work together to build resilience at the local level.

Climate change in the Czech Republic brings, among other problems, an increase in the intensity and frequency of hydrometeorological extremes, even to the level of disasters. The state, communities, emergency services and volunteers respond to this situation by efforts to strengthen all phases of risk management, i.e. the knowledge base, disaster prevention, crisis preparedness and recovery after a possible emergency.

The presentation highlights the national framework, the role of the National Platform for Disaster Risk Reduction, Fire Rescue Service, and the increasing importance of preparedness at local level in the context of floods, wildfires, heat waves and cross-border risks. Special attention is paid to the strengthening of the involvement of municipalities and citizens as key actors in building resilient communities.

One of the activities supporting resilience building is the Interreg Central Europe project LOCALIENCE. The project is focused on strengthening local resilience by providing tools and knowledge for municipalities and individuals. Key activities in the Czech Republic include risk mapping, dialogue with local leaders, communication campaign and the development of a knowledge repository. Among the main outputs are a pilot-tested mobile early warning and timely emergency response application for mayors, and training activities supporting preparedness and risk communication. The national composition of project partners enables

all phases of risk management to be included, with partners as the Fire Rescue Service, the Czech Hydrometeorological Institute, the Union of Towns and Municipalities, the Ministry of Environment and Academia (Faculty of Medicine, University of Ostrava) and a wide spectrum of stakeholders, including vulnerable population as youngsters and aged people.

LOCALIENCE, as a transboundary project, contributes to common European resilience building goals, sharing experience and lessons learned, and demonstrating the importance of cooperation between various national authorities, local governments and civic partners for efficient resilience building.

Introducing the Recommended Heatwave Vulnerability Assessment Framework for the LIFE COOL ZONE Project

Gábor Kiss¹ – Anett Kocsis²

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The acceleration of global warming due to climate change is clearly indicated by the fact that nine of the ten warmest years in Hungary have occurred since the turn of the Millennium. The number of heat-wave days in the Carpathian Basin will increase significantly until the end of the 21st century, especially in the Great Plain and western Romania. This trend poses serious risks (such as a detrimental impact on human health), particularly for cities already facing heat island effects.

Within the framework of the project, local-scale climate modelling is carried out using the SURFEX surface model for large Hungarian cities that play a regional centre-role in the Hungarian settlement hierarchy. These cities have more than 90,000 inhabitants, including the pilot city, Debrecen and its cross-border city pair, Oradea (Nagyvárad). Focusing on these latter two cities with their Functional Urban Areas (FUAs), the project tests solutions that go beyond city administrative borders and address both urban and peri-urban areas to ensure regional climate resilience.

The NAGiS methodology model (based on the CIVAS model) is used for assessing climate change vulnerability by integrating indicators for exposure to climate change, sensitivity of the system to these changes and its adaptive capacity. Using the results of urban climate modelling, on the one hand, detailed local vulnerability assessments will be carried out for the two selected pilot FUAs bringing down the data background of the assessment to neighbourhood level (urban blocks and public areas). On the other hand, statistical data-based vulnerability

assessments will be prepared for the administrative area of eight Hungarian cities. Following the modelling and vulnerability assessments, intervention sites and types of settlement districts will be identified, determining where and with what interventions the resilience of the studied urban areas could be increased.

The results of climate vulnerability assessments (CVAs) will help to develop practical recommendations for innovative interventions, such as nature-based solutions. Furthermore, the statistical CVA outputs of the project will complete the current National Adaptation Geo-information System (NAGiS) thematic layers with the topic of urban heatwave vulnerability, and through that it will support national level decision making and knowledge base development regarding the topic.

Finally, the last slide provides an insight into further possible ways of utilising the professional materials and tools generated during the project implementation, after the project has been completed.

Managing Extreme Weather Events Caused by Climate Change and Cross-Border Cooperation – Showcasing Practical Solutions and Decision-Support Tools

Attila Ádám Nagy

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The increasing frequency of extreme weather events due to climate change highlights the urgent need for coordinated, cross-border responses. This theme was chosen to showcase practical tools and cooperation models that strengthen local resilience and key aspects of decision-making capacity in adapting to shared environmental challenges across regions.

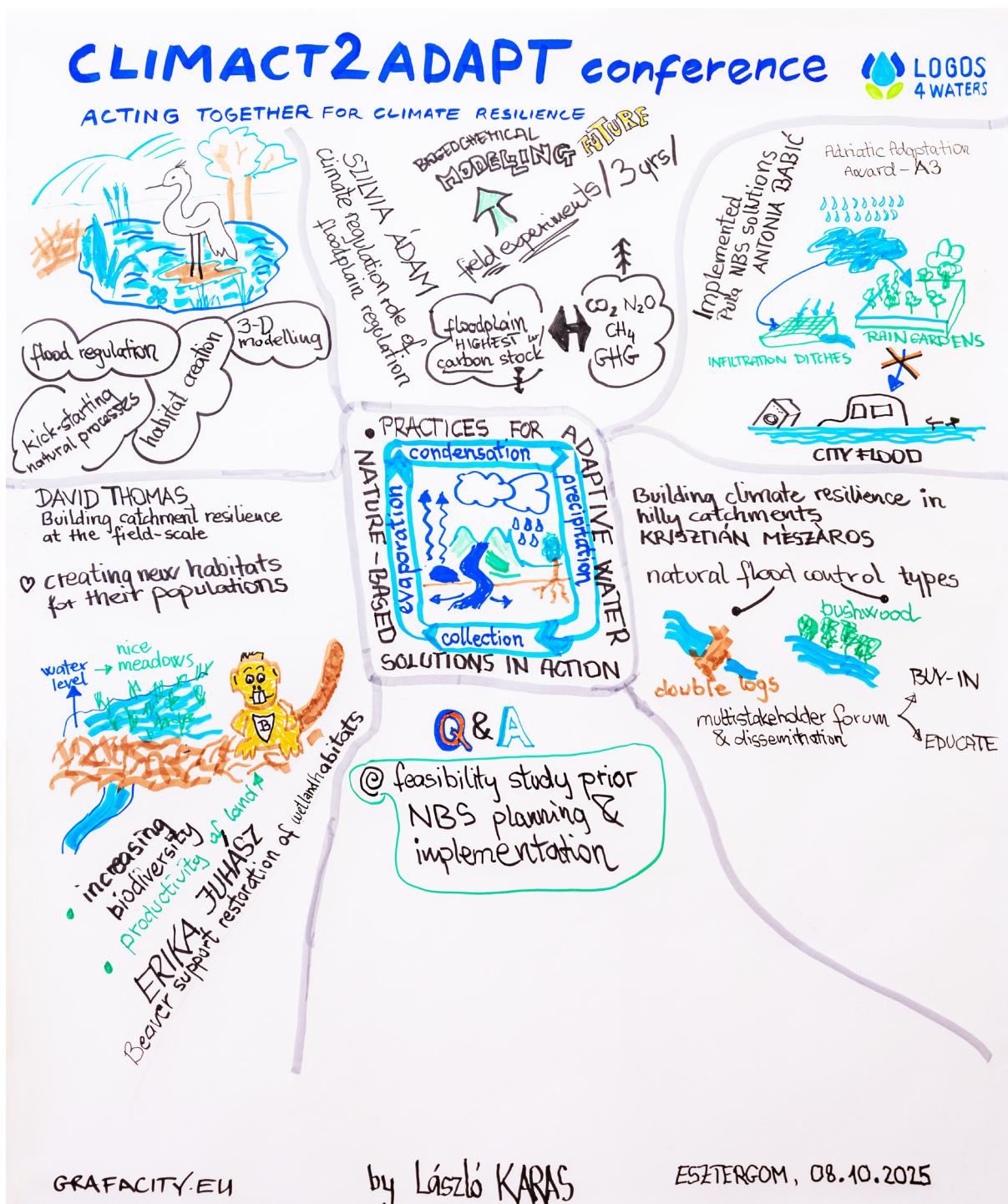
Following a short introduction about the importance of the topic, some statistical data presented helps to understanding the severity of extreme weather phenomena. Potential response steps on the regional level include the development of the international network of the Hungarian Disaster Management (UN, EU, NATO).

Cross-border cooperation is also paramount on the interregional level.

Examples of cross-border cooperation include SI-HU-A (Vas County), Interreg Central Europe, as well as the LOCALIENCE project that takes disaster managers out of their one-directional service provider position and connects them with local communities.

Practices for Adaptive Water Management

– Nature-based Solutions in Action



Building Catchment Resilience at the Field Scale – Nature-Based Solutions and Natural Flood Management

David Thomas

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Implementing nature-based solutions and natural flood management to build catchment resilience in historically modified agricultural landscapes.

Case studies are used to examine natural flood management and nature-based solutions in action, and the experiences gained are shared during the delivery phase – the model and design are translated into reality to create multi-objective climate adaptation schemes.

The use of drones and modelling software also provides technological advantages in quantifying scheme outcomes and their application in the field in guiding and informing practical application are explored in pursuit of wetland creation and stream restoration.

The case study showcased delivers on NFM, climate adaptation, catchment resilience, habitat creation, water quality improvement and positive reinforcement of local ecosystems.

The Role of Floodplain Restoration in Climate Change Mitigation along the Tisza River in Hungary

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– Márton Dencső, PhD⁵ – Szilárd Czobel, PhD⁶ – Mátyás Farkas⁷ – Ákos Malatinszky, PhD⁸

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This study focuses on the role of floodplain restoration in climate regulation as a nature-based solution and climate change adaptation measure with potential mitigation benefits.

Our climate is controlled by the circulation of greenhouse gases (GHG), which are influenced by the ecosystems. They can reduce or increase the atmospheric concentration of GHGs; this depends on the ecosystem type, locality and land use. The net greenhouse gas balance (NGB) is an indicator which shows whether an ecosystem plays a negative or positive role in climate regulation and considers the three main greenhouse gases (CO_2 , CH_4 , N_2O) with many other important factors such as meteorology, soil type and management practices (harvesting, fertilisation, mowing, grazing, etc).

The study was coordinated by the WWF-CEE and carried out by a scientific expert board. The three-year-long (2022–2024) pilot research estimated the net greenhouse gas balance (NGB) of implemented or potential floodplain restoration along the Tisza River at three different scales (1. local – 20 ha; 2. one former floodplain site – 4,500 ha; and 3. on landscape level – 150,000 ha). Based on field measurements, literature data and biogeochemical model runs we calculated the net greenhouse gas balance (NGB) to each ecosystem type before and after the restorations on all scales, and proposed land use change by hypothetical inundation.

The results concluded that the impacts of periodic floods, such as increased biomass production and improved habitat conditions, enhanced the ecosystems' carbon sequestration ability which was able to offset the total GHG emission of the restored area. The drought reduces the carbon sequestration potential, which will be more challenging in the future, but the controlled periodic flooding mitigates the negative impacts. On landscape or regional scale, the areas may change from a significant net greenhouse gas emitter to a net sink due to inundation-induced land use change. Intensively cultivated arable lands proved to be the worst choice from a climate regulation point of view due to their significant nitrous oxide emission coming from the used fertilisers. Nowadays, the former floodplains are mostly used as arable lands. In our research, we found that if two-thirds of the analysed former deep floodplain along the Tisza River were converted to non-intensive land use (grazing, mowing on wetlands) in harmony with controlled periodic flooding, the potential of climate change mitigation would be significant.

Restored floodplains offer a scalable solution for climate change mitigation and ecosystem restoration, underscoring the vital role of nature-based solutions in achieving EU climate goals.

Implemented NBS Solutions in the City of Pula

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² Head of the Unit for the Development of EU-funded Projects, City of Pula, e-mail: antonija.babic@pula.hr

We would like to outline how the City of Pula, Croatia, is using Nature-Based Solutions (NBS) to address urban challenges, particularly urban flooding and to highlight the city's commitment to sustainable urban development and climate adaptation.

Starting with the concept of stormwater drainage management of the City of Pula in 2011, today big scale projects and small-scale neighbourhood NBS solutions are implemented throughout the city.

In this presentation, several examples of implemented NBS solutions are presented:

- Rain Garden in Nazorova Street: This pilot project showcases the use of a rain garden to absorb and filter rainwater runoff, reducing the strain on the city's drainage system and enhancing local biodiversity.
- Roundabout on State Road D66: This example illustrates how an urban big scale roundabout can be re-designed with green infrastructure to manage stormwater effectively, demonstrating a practical application of NBS in a high-traffic area.
- King Tomislav Square: The presentation describes the transformation of this public space to incorporate green elements that improve its aesthetic appeal and function as part of a larger sustainable drainage system.
- Pragrande: A future project is planned for this flood-prone area, which is a valuable green wetland oasis due to its low elevation. The goal is to prepare an Architectural and Urban-Landscape competition to manage the drainage system of the comprehensive area using nature-based approaches.
- Small-scale neighbourhood solutions: The presentation also includes various examples of smaller-scale NBS solutions implemented throughout the city.

Building Climate Resilience in Hilly Catchments: The Experience of the Szilágyi and Gombás Catchments (Pilot Area of the LIFE LOGOS 4 WATERS Project)

Krisztián Mészáros

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This theme was chosen because Püspökszilág and its surrounding catchments face increasing challenges from both floods and droughts. The presentation demonstrates how community-driven, nature-based solutions can provide effective adaptation measures and strengthen long-term resilience.

Püspökszilág lies in the upper part of the Szilágyi and Gombás catchments, representing a typical hilly rural landscape of the northern Danube Basin in Hungary. The area faces increasing hydrological extremes, with flash floods eroding steep slopes and droughts depleting soil moisture and groundwater reserves. These alternating challenges threaten both local ecosystems and agricultural activities.

Within the LIFE LOGOS4WATERS project (2021–2025), the municipality implemented several nature-based water retention measures (NWRMs) to restore the natural water cycle and enhance climate resilience. Key interventions included log dams and brushwood barriers to slow down runoff and trap sediment, support infiltration and create new habitats. Together, these measures form a connected system that reduces flood peaks and improves drought resilience in the lower valley.

The project emphasised multi-stakeholder cooperation and community involvement throughout the planning and implementation. Local residents, municipal staff, NGOs, engineers and authorities jointly shaped the interventions through field visits and participatory workshops. Monitoring systems were installed to measure rainfall, water levels and ecological responses, providing valuable data for future upscaling.

The interventions have delivered multiple co-benefits beyond water management – improving biodiversity, stabilising soils, and transforming degraded areas into ecological and educational assets. The Püspökszilág pilot demonstrates how small-scale, low-cost and community-based actions can significantly strengthen local climate change resilience. The experience highlights the importance of stakeholder dialogue, adaptive design and supportive permitting frameworks for the wider adoption of natural water retention measures in rural municipalities.

A Nature-Made Solution for Water Retention: Beaver Impact

Erika Juhász, PhD

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Water retention and the restoration of wetland habitats are often hindered by conflicts of interest and administrative difficulties. However, there is an ecosystem engineer species that implements nature-made solutions by building dams. Its activity can be predicted based on hydrological and topographical conditions. Human–nature conflicts may arise, as landowners and the current infrastructure (roads, railways, dykes, electric networks, etc.) are not adapted to the beaver-induced landscape change.

In this presentation, we introduce the history and the current state of the Eurasian beaver in Hungary based on interviews, monitoring data and citizen science data (BeaverMap program). In case of some watercourses, we present the number of beaver dams and the magnitude of their landscape alteration. The size of the Hungarian beaver population was estimated at 10–11,000 individuals in 2020. The density of beaver dams was 59 dams/40 km in the Tápió region in 2023 and 114 dams/40 km in the Borsodi Mezőség in 2024. Beavers can contribute to the zero-stage restoration of wetland habitats (examples from the Tápió and Őrség region), which can help us to gain knowledge about the forgotten, original functioning of watercourses.

Following a brief overview of the international literature and Hungarian research data on beneficial beaver impacts (e.g. flood mitigation, microclimate regulation, enrichment of wetland biodiversity), we discuss conflicts and conflict mitigation practices. Beaver pond levellers, beaver deceivers, fences and electric fences are regularly applied by Slovenian and Austrian beaver managers and civilians. We share our experiences regarding the international “good practices”. In the last few years, the adaptation of these practices has already started in Hungary. Near Perőcsény, the fencing of an artificial dam was managed aiming to prevent the collapse of this structure because of beaver burrows. Beaver pond levellers were installed in Zebegény and near Gomba, aiming to stabilise the water level in the impounded stream sections.

Despite of the growing knowledge and experiences regarding beaver impact management, there is still a huge task for the future in Hungary and in other countries, as well. Society must recognise that if agricultural fields or other areas with human interest are flooded following the beaver-made habitat reconstruction, the conflict arises not because of the beaver, but because of the inadequate human land use. The water has dedicated places in the landscapes. Where possible, we should strive to improve the hydrological condition of these low-lying areas, aiming to mitigate the impacts of the increasingly serious drought events.

Communities and Municipalities Driving Climate-Resilient Futures

CLIMACT2ADAPT conference  ACTING TOGETHER FOR CLIMATE RESILIENCE

Barbara Petra Bezegh *Towards Cleaner Air* 2019-2026

- ATMO-Plan application web based for monitoring
- ATMO-Plan web based for monitoring
- Green Cadastre
- Pécs
- Reducing Residential Garden Waste burning
- Protective Forest in Debrecen
- Knowledge transform
- Network
- Monitoring of social and Economic impact
- Main results: Békéscsaba/Kaposvár 20 sensors Miskolc 60 sensors
- Development of Bike system → Eger, Tatabánya
- Smart Parking System → Pécs
- COMMUNICATION
- Ernő Décsi
- City Rain is worth its weight gold
- Rainwater strategy and Action plan → sharing
- Pilot project in various urban contexts
- Family houses Infiltration blocks
- Downtown Larger water tank → green irrigation
- Suburbs
- City Level Data Based evaluation
- Stormwater management models
- Rainwater storage
- Monitoring on rooftops
- Green roofs
- Raingarden system → spec. soil loose structure hummus as a sponge

Noémi Dálnoky *Connecting generations*

Ramóna Fajkuszné Kovács *Village Bezi* 550 residents

- Moderate the effect of heavy rainfalls
- More extreme events
- Newborn names on newly planted trees
- Bird feeding house contest
- Composting

Klára Kerpely *Water retention across the landscape*

- Lowland Problem, Solution
- Droughts and sudden rainfalls → City pits and dead channel → Drainage network
- Canal catchment areas
- Study trips
- Sharing Knowledge
- Create the Connection
- Improving the water supply Viztukor.hu

Mária Csikai *Development of Zugló Green infrastructure*

Action Plan of Budapest with no available support

- Engagement tools
- Situation analysis → MAP
- Empowering people collection of ideas
- Survey
- Your voice matters!
- Decision maker Stakeholders
- Citizens
- Working Group of Zugló
- Rákos-creek Area
- Opening Community Gardens
- Communication Channels Social Media Posters Flyers

GRAFACITY.EU

Towards Cleaner Air: Key Outcomes of the LIFE IP HungAIRy Project

Barbara Petra Bezegh

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The LIFE IP HungAIRy project, coordinated by HungaroMet Nonprofit Kft., runs from 2019 to 2026 aiming to improve air quality in ten Hungarian municipalities across eight regions. The project supports the regular renewal and biannual revision of local air quality plans by developing detailed emissions databases and a high-resolution decision-support and air quality modelling tool, the ATMO-Plan. An eco-manager network enhances local capacity by coordinating measures, raising awareness and assisting plan updates. Pilot actions address emissions from residential heating, traffic and agriculture, complemented by new monitoring infrastructure and communication campaigns. The project actively promotes knowledge-sharing nationally and internationally and monitors its environmental, social and economic impacts to foster sustainable urban air quality management.

Water Retention across the Landscape: Experiences and Challenges in the Kalocsa-Sárköz Basin (Pilot Area of LIFE LOGOS 4 WATERS Project)

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In our presentation I share our experiences with nature-based interventions such as wetlands and small reservoirs. I also highlight how these measures help us tackle both floods and droughts while fostering cooperation and community ownership.

As the lowland catchment area of the LIFE LOGOS 4 WATERS project, our objectives include implementing and presenting nature-based solutions, while also seeking ways to adapt to climate issues.

It is important to recognise that climate issues and water management issues must be addressed at the catchment level, as greater impact can be achieved by intervening at multiple points within a given area.

In the catchment area of the Sárközi I Canal, five municipalities have formed an alliance (Báttya as the coordinator, Kalocsa, Foktő, Drágszél and Dusnok as partners) to address the problem of water scarcity caused by drought and uneven precipitation patterns.

Rainwater generated during extreme precipitation events must be stored locally so that it can be used later in the landscape during drier periods with low precipitation. Taking advantage of local conditions, we have successfully rehabilitated two dead-arms in Báttya and Drágszél, a rainwater catchment system was built in Foktő, and in Kalocsa we can demonstrate that wetlands can also be provided for in recreational areas in an urban environment. In Dusnok, we present examples of good water management practices on an educational trail.

At the beginning of the project, the most shocking realisation was the lack of knowledge about how to effectively manage cooperation.

Our idea of cooperation worked well in theory, but in practice there were situations that needed to be resolved. As the project progressed, we understood how important it was to understand and accept different points of view and to communicate openly. Thanks to everyone's commitment to common goals, we were able to help each other through the more difficult periods. Now that the project has come to an end, we can proudly say that the work was a joint effort and the success is shared.

In the presentation, we share our experiences with nature-based interventions such as wetlands and small reservoirs. We will also highlight how these measures help us tackle both floods and droughts while fostering cooperation and community ownership.

The Development of the Zugló Green Infrastructure Action Plan – The Process, Results and Citizen Engagement

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Although the capital city already has a Green Infrastructure Framework (GIF), Zugló, its 14th district, has decided to be the first to create its own independent GIF. This initiative aims to get a complete picture of its current green infrastructure, and from there, to develop an action plan for its improvement with active community involvement.

In this presentation I report on the successes and experiences of this public engagement process, as well as on the resulting green development plans that have been initiated.

The presentation outlines the development process and results of the Green Infrastructure Framework (GIF) of Zugló. The key topics to be covered include:

- The rationale behind creating a separate, district-specific GIF to gain a comprehensive understanding of local green assets.
- The process of developing an action plan for green infrastructure improvement topics and focus points.
- The process of reaching out for political interest by involving decision-makers and office experts.
- The role of citizen participation, highlighting the successes and experiences of involving local residents in the planning process.
- The outcomes, specifically the green development plans that have been initiated as a direct result of this community engagement.

The objective is to share knowledge and best practices with other municipalities and stakeholders. Proactive, local-level planning for green infrastructure is a powerful tool for climate change adaptation. Community engagement is not just a formality but a critical component for creating effective and sustainable urban greening projects.

To inspire and inform, a practical example is provided of how local governments can take the lead in addressing climate change challenges.

City Rain Is Worth Its Weight in Gold – Water Retention Possibilities in Urban Areas with Different Characteristics

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Today, the main challenge facing local governments is how to find solutions that are as adaptable as possible to the challenges posed by global climate change, including flash floods caused by sudden heavy rainfall. Led by Hegyvidék (12th district), in cooperation with Erzsébetváros (7th district), Pestszentlőrinc–Pestszentimre (18th district), the City of Budapest and numerous other professional partners, the LIFE in RUNOFF – Urban Rain Project, partially funded by the EU between 2021 and 2026, supports urban climate adaptation in the field of rainwater management by finding and strengthening synergies between gray, green and blue infrastructure. Among various other actions, we have set up pilot projects with the aim of increasing our adaptability by retaining and reusing rainwater on site.

Our presentation shows how we were able to effectively reduce the harmful effects of sudden rainfall in different districts of the capital by combining nature-based and technological solutions. First, it is explained why preliminary data-based assessments are extremely important in similar projects. It is also shown how and where we identified the points of intervention in the three partner districts of Budapest, and then various demonstration pilot elements are presented that show how we managed to address the challenges caused by sudden rainfall. Our goal is to demonstrate to conference participants that rainwater should be treated as a valuable resource. Furthermore tools that other municipalities can also use are presented, as well.

Connecting Generations via Practices in the Garden and Building Community via Tree Planting Activities

Ramóna Fajkuszné Kovács

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Small communities close to cities sometimes face the difficulty of less local contact and cooperation between next-door neighbours compared to old times, and we are also all familiar with the problems of the generation gap. This program aimed to improve the local green environment and build community while providing opportunities for local elderly and young people to meet and share their experiences about plant cultivation.

The municipality of Bezi (Győr-Moson-Sopron County, Hungary) was awarded with a smaller amount of grant thanks to the LIFE20 CCA/HU/001604 program. The fund helped us not only to further continue the annual tree planting actions, but also to involve the local people in an environmentally friendly community building.

The Japanese cherry blossom trees and *Prunus cerasifera "Woodii"* trees were planted in early spring, on one of the last streets to be opened, where the roadside vegetation was scarce and not diverse. Obviously, the additional purpose of this choice of trees was to improve the appearance of the streets. Before the event, we invited everyone from the village to participate and help with planting, without a limitation to age, because our intention was to involve as many age groups as possible. In fact, this is not a new practice for us: the municipality pays attention to tree planting movements in the region, and has experiences with *Országfásítás* and *Nemzeti Faültetés Napja* (National Tree Planting Day) projects, as well. We connected the trees to our children, since every year a memorial board is installed by a tree, dedicated to

children who were born in that year. Later, they can see their names and find their roots there, even if they decide to move somewhere else in the future.

The broader impact of the LIFE LOGOS 4 WATERS project in Bezi was the other segment of our endeavour, namely the distribution of rainwater collectors. Anybody from the village could take one collector per household for free, but with one commitment: they welcome a group of children from our local elementary school and pre-school to their own garden, when some seasonal tasks are about to be completed. The local people were unexpectedly eager to invite the children and show them around in their own gardens while explaining their own gardening or nurturing techniques. At some places, kids were actively involved in the process, by harvesting apple, grapes or walnuts, planting flowers and taking care of seedlings. Fortunately, the educators in the local institutes were also enthusiastic to support this idea, adjusting these visits to the children's school activities and timetables. It is important to emphasise how these series of events could promote the relationship-building between generations. Since our village is located quite near to towns like Győr, Csorna and Mosonmagyaróvár, and the Austrian border is close as well, most people do not spend their working hours in this neighbourhood, and they often choose to spend their free time away, as well. Even though young couples and families with young children tend to move to small-scale settlements like ours, newcomers are not always engaged enough to connect with the already existing community. On the other hand, elderly people who have been living here for their whole life and now reach the age above 60, cannot participate so actively due to health issues. Consequently, the time and space for people to meet and get to know each other is rather limited. However, our program reaching both elderly and young people created a bridge to solve this problem to a certain extent. The closure of the program became a new tradition: every September a harvest day is organised, where local people can introduce the foods and drinks they made at home, explaining their own recipes and processes. Participants not only listen to the information but taste the "products" themselves and start conversations, leading to information exchange and cooperation. Our plan is to collect the recipes of the introduced food and drink to create our local recipe pamphlet, preferable in the nearest future.

These practices probably require more human engagement than money. Raising awareness and support educational programs is our common mission, but at the same time making efforts to solve local challenges is also possible. These initiatives were praised by locals and by other settlements in the area, setting an example for smaller communities. We hope that the impact of these small steps can be detected in the future, and we can find further opportunities to foster our upcoming ideas in a similar way, proving that smaller amounts of fund money can greatly contribute to slowly growing projects. Hereby, the municipality of Bezi would like to express our gratitude for this support, which made our achievements possible.

Climate Literacy and Community Engagement for Resilience



Enabling Transformative Innovation for Climate Change Adaptation: Tools and Approaches in the Danube Region

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The proposed oral presentation highlights how existing and cutting-edge EU Mission tools, methods and approaches for climate change adaptation can be customised and applied to support inclusive community engagement, awareness-raising and climate literacy in the Danube Macro-Region. It contributes to this endeavour by focusing on capacity building for local adaptation, strengthening public understanding and empowering civic participation for climate-resilient societies.

This oral session presents and discusses innovative and cutting-edge EU Mission tools, approaches and methods designed to support inclusive community engagement, awareness-raising and climate literacy, with the aim to enable just and transformative local climate change adaptation. Together, we will explore how these tools and resources can be enhanced, customised and applied in different local contexts to meet the specific challenges and knowledge needs of actors and communities in the Danube Macro-Region.

Building on the experience of the EU-funded Adaptation AGORA project (<https://adaptationagora.eu/>), key tools and methods presented in the session include the protocols for engaging targeted vulnerable groups (e.g. cultural minorities, youth, the elderly, disabled people, etc.), the AGORA Community Hub – a living digital environment facilitating communication and networking among stakeholders, scientists, experts, media and citizens – and two Digital Academies. The first Academy offers open access to climate data and risk monitoring, while the second, together with the AGORA Quiz App, is designed to tackle climate change disinformation. These educational and awareness-raising platforms provide scientifically grounded information, helping citizens debunk fake news and actively engage in climate action. Furthermore, we will present Voices of Climate Adaptation, a narrative-driven multimedia platform that frames adaptation as a people-centered journey and showcases how participatory approaches and collaborative efforts have empowered local communities and led to tangible adaptation measures across Europe.

The session will invite participants to engage in an interactive discussion, offering space to share insights and collectively discuss how these tools and methods can strengthen local capacity for inclusive decision-making and transformative climate change adaptation. Insights from the session will contribute to the ongoing development and optimisation of approaches that enable transformative innovation for climate change adaptation in the Danube Region, within the framework of the TiCCA4Danu project.

TiCCA4Danu – Transformative Innovation for Climate Change Adaptation in the Danube Region – is a three-year project started in June 2025, funded by the Horizon Europe program for Research and Innovation in support of the EU Mission on Adaptation. It proposes a novel and comprehensive transformative innovation framework to accelerate just climate change adaptation (CCA) at the level of cities and their interconnected surrounding administrative regions in the Danube Region. At the heart of the methodological approach of TiCCA4Danu lies the concept of place-based Transformative Innovation Policy (TIP), which promotes system-level change through effective governance changes, directionality and policy instruments that support discovery and experimentation. By linking TIP to Local Green Deals (LGDs) – an established instrument for sustainable transformation at the city level – and complementing them with a novel approach for transformative CCA at the regional level, TiCCA4Danu fosters long-term structural change and societal transformation that permeates across sectors such as water, health, mobility, infrastructure, energy, agriculture and ecosystems.

A central element is the Open Discovery Process (ODP), embedded in Smart Specialisation (S3) strategies. Operationalising TIP theory, the ODP fosters inclusive, evidence-based policy learning and co-creation by engaging quadruple helix stakeholders – government, research, business and civil society – with a focus on vulnerable groups and private sector participation.

TiCCA4Danu focuses its activities on four city regions in the Danube Macro-Region: Burgas Municipality and District in Bulgaria, Debrecen and the Hajdú-Bihar County in Hungary, Maribor and the Podravje region in Slovenia, Suceava and the Nord-Est development region. TiCCA4Danu establishes a direct link to the EU Strategy for the Danube Region (EUSDR) and emphasises cross-border collaboration by involving neighbouring counties from Ukraine (Odessa Regional State Administration) and Turkey (Municipality of Uzunköprü) into the co-creation and implementation processes.

Ultimately, we aim to foster a culture of experimentation, learning and transdisciplinary collaboration across the four city regions and the wider Danube Macro-Region, supporting actors and communities to learn, adapt and customise innovative and effective tools for just and transformative climate change adaptation.

Mainstreaming Nature-Based Solutions into Policies and Strategies – Lessons from the NBS4LOCAL Partnership

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Mainstreaming NBS into policies and strategies is crucial because NBS offer cost-effective, integrated solutions to environmental, social, societal and economic challenges, such as climate change, biodiversity loss and disaster risk reduction, while simultaneously enhancing well-being and economic opportunities. By embedding these nature-inspired approaches into governance, we can move beyond isolated projects to achieve sustainable, resilient urban and regional development.

As an introduction, the overall process of scaling up NBS interventions, from sporadic pilot projects to a full-scale Operational Program Call within the EEE OP Plus, is presented.

To effectively and successfully scale up NBS measures, a mutually reinforcing combination of top-down governmental and bottom-up community measures is necessary.

Adapting and integrating the experiences of different European regions into the development policy system can greatly help efficiency. Within the NBS4LOCAL project, the Flemish Blue Deal program was taken as a model for the new Green Infrastructure call, though the experiences of other regions were incorporated as well. Some of these elements will be presented, with the short introductory film made by our Finnish partner.

The deadline for the Water Framework Directive is 2027; we have the objectives of the Biodiversity Strategy 2030 and the new Nature Restoration Regulation, with clear objectives, timelines and a country plan that must be ready by 2026.

The appropriate sectoral plans are or will be ready, though experiences so far show that without integrating all relevant plans, we will not be able to achieve the goals. This is our task now for the future generations.

Colouring Resilience: Communicating Climate Action beyond the Grey

Olaya Moena Latasa

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Climate hazards and related health impacts that were once considered exceptional are at risk of becoming the new “normal” due to climate change. Climate literacy is therefore crucial for building resilient communities able to cope with these challenges. Research projects and communication efforts face the question: How can we better communicate resilience to citizens, policymakers, healthcare providers and researchers, in a context where climate change may generate eco-anxiety, media saturation and even hopelessness?

TRIGGER explores one possible response: to communicate climate change resilience not only with data, but also through emotions and creativity. In this presentation we show how we combine scientific rigour with visual narratives and artistic formats that spark curiosity and make complex issues accessible to diverse audiences: citizens, policymakers, healthcare professionals and researchers.

The educational materials of TRIGGER – videos, policy briefs, social media content – have been co-created using a shared glossary and tailored to the profiles of each stakeholder group. Beyond delivering information, our aim is to foster trust, empower action and create an emotional connection to climate resilience.

At WeDo Project Intelligence Made Easy, as leaders of the communication strategy of TRIGGER, we argue that aesthetics and art are not accessories but essential tools to open new spaces for dialogue. Art enables us to show climate change beyond catastrophe – bringing it closer, making it inspiring and transformative. Because only when science also becomes an aesthetic experience does resilience cease to be an abstract concept and turn into a shared practice.

From Grey to Green: Municipal Strategies for Urban Climate Resilience

László Mrekva

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I am currently conducting doctoral research. My overall research goal is to jointly address various aspects of land use and urban flood risk and to determine the possibilities for successful resilient management. I chose this theme to show how municipalities can shift from grey to green solutions – integrating mitigation and adaptation through green infrastructure, urban planning and multilevel governance.

Urban areas are particularly vulnerable to the impacts of climate change, yet they play a crucial role in effective mitigation and adaptation strategies. Cities currently house over half of the global population and are responsible for approximately 70% of total greenhouse gas emissions. The relationship between urbanisation and climate change underscores the need to move beyond conventional “grey” infrastructure towards resilience-focused approaches. This transition is urgent, as climate change intensifies extreme weather events – like droughts, floods and heatwaves – in both frequency and severity. Municipalities, therefore, are essential for translating national and international climate objectives into locally relevant strategies designed for specific community needs. This study explores municipal climate change resilience strategies, focusing on the institutional, planning, ecological and governance aspects of urban climate policy. Grounded in a framework that integrates mitigation and adaptation approaches, ecological urbanism and green infrastructure (GI), the research employs qualitative comparative case study methods to examine various local and international examples of urban climate governance and how municipalities implement resilience-oriented development paths. Findings highlight the importance of local political leadership, institutional capacity, and supportive national and EU frameworks in developing effective climate change resilience strategies. Urban resilience planning has become increasingly participatory, recognising the value of local knowledge and stakeholder collaboration in adaptive strategy development. Successful municipal approaches depend on integrated frameworks that combine sustainable urban design, nature-based solutions (NbS) and active community participation, which not only mitigate climate change impacts but also enhance biodiversity, improve air quality and promote overall community well-being. This study provides practical recommendations to enhance climate-conscious local governance and foster sustainable, resilient urban environments.

Municipal Responses and Investment Innovations in Nature-Based Solutions

CLIMACT2ADAPT CONFERENCE
ACTING TOGETHER FOR CLIMATE RESILIENCE

LOGOS 4WATERS

Key speakers and topics:

- HELI KARELAINEN**
Salla Give Back to nature campaign
donation, habitat restoration, awareness raising
free lunch in the nature
- GYÖRGY Laki**
Power of community support
challenges: flash floods, sinking water table causing desertification
waters directed to forest
beavers need NO permission
allies are schools & kindergartens
- MÓNICA NEMETH**
NBS solutions via combination of funding instruments
- CSABA VASZKÓ**
Transboundary water resource management
HU-RO catchment community development
Bihari-Kis-Sárrét
downstream, upstream, water retention, adaptive agriculture, crossborder cooperation

Central themes:

- PUBLIC FUNDING FOR LONG-TERM SOLUTIONS
- 6 barriers for scaling-up NBSs → check prezi
- experimenting w/ risk-taking
- cooperative, learning, sharing practices
- combine different funding instruments

Q&A:

- How to select an NBS site?
- make a vision w/ locals
- cost-benefit analysis
- get stakeholders involved

Logos 4Waters logo:

GRAFACITY.EU by László KARAS ESZTERGOM, 08.10.2025

Salla. Give Back to Local Nature! Campaign

Heli Karjalainen

Communications and Membership Coordinator, Matkalle Sallaan ry Association, e-mail: heli.karjalainen@salla.fi

The campaign demonstrates how small municipalities can create innovative, community-based solutions to help their share to tackle climate change while promoting biodiversity, sustainable tourism and local well-being.

The presentation introduces the idea and implementation of the project *Salla. Give Back to Local Nature! Campaign*. It explains how the campaign was initiated and what stakeholders and elements were needed to make it possible. The presentation illustrates how a single campaign can engage residents, visitors and businesses in supporting climate change mitigation through donations or concrete actions such as nature restoration, enhancing carbon sequestration capacity and sharing awareness. The objectives are to highlight practical local solutions, emphasise the importance of ecosystem restoration and preserving natural conditions, and inspire other regions to implement similar initiatives.

Small Hungarian Municipality in Climate Alliance – How Communities Can Shape Together a Better Future¹

György Laki

Vice President of the Hungarian Climate Alliance, Mayor of Kajárpéc, e-mail: 1lakigy2@gmail.com

Working for sustainability as mayor of a small municipality implies everyday challenges and the power of the community that helps overcome barriers and continue the work.

In 2021, the municipality of Kajárpéc won the Climate Alliance's Climate Star award in the resource conservation category. The presentation will showcase the activities and best practices that laid the foundation for this recognition.

With its project, “For Climate Action”, the municipality of Kajárpéc in northwest Hungary has set a clear focus: to protect old trees, plant new native ones and educate citizens on their importance. A total of 200 trees have already been planned – fruit trees at the local heritage

¹ The summary of the presentation was prepared by the editor.

museum and kindergarten, and deciduous trees in parks and along pathways. These not only beautify the townscape, but also provide protection against the summer heat. Moreover, they help to raise awareness for nature and climate protection among citizens by linking them to traditional values. This effect is enhanced with the “Six Oak Tour”. Once a year when the fruit trees blossom interested citizens and visitors are guided past the oldest trees in the town along a route covering around 7 km. Particularly old and well-known trees receive the “hero tree” title and are given a name tag. The local theatre group “Kajárpéci Vízirevü” is also drawing attention to these issues with three plays focusing on the environment and climate protection.

The municipality faces a double challenge: it is located in a border area, so in addition to extreme climatic conditions, it also has to deal with problems typical of both hilly and lowland terrain, which require different solutions. The municipality’s climate adaptation tasks are therefore very diverse, accordingly, awareness raising also plays a key role. The settlement tries to reach the population through the most receptive generation establishing a forest school, and receiving Green Kindergarten certification for its kindergarten.

Promoting Nature-Based Solutions via Smart Combination of Funding Instruments

Mónika Németh

Managing Director, Coordinator of TeAM Hub, BURST, e-mail: monika.nemeth@burstgroup.eu

Application of nature-based solutions requires a completely new set of skills, different attitudes, rethought planning procedures and maintenance practices. Leaving the beaten track requires experimentation and involves risks. Financial incentives are necessary even to make the first minor steps. Public funding schemes have a crucial role in supporting this shift of mindset, and their smart combination may pave the way even towards large-scale investments.

My presentation essentially builds on the contents of the training material developed in the NBS4LOCAL project, and the session entitled “Smart Financial Engineering” at the “Train the Trainers” online training event.

Core contents and objectives are:

- overview of barriers hindering the wider uptake of NBS, including low awareness, lack of multi-actor, multi-stakeholder cooperation, lack of data, inadequate regulatory framework, etc.)

- showing how public funding sources can play a role in addressing these barriers, thus not only focusing on investment money, but also using EU funds as catalyst to create an enabling environment
- sharing practical, real-life examples and good practices for a smart combination of various EU funding instruments by municipalities and regions
- showcasing how public funding schemes can pave the way for attracting private investment
- formulating key messages for designing a sustainable financing strategy for more systemic application of nature-based solutions
- introducing TeAM Hub – the Hungarian Hub for Nature-based Solutions coordinated by BURST

Landscape-Scale Water Retention and Transboundary Water Resource Management to Improve the Capacity of Climate Change Adaptation

Csaba Vaszkó

Project Consultant, Bihari-Kis-Sárrét Catchment Community, e-mail: vaszkocs@gmail.com

My presentation introduces a bottom-up adaptation initiative launched by local stakeholders from Hungary and Romania. Recently, the water balance has deteriorated significantly and both surface and groundwater levels have declined dramatically. Communities have recognised the need to adapt to the changing situation, on both sides of the border. The aim of this catchment-based community is to address the drought exacerbated by climate change by identifying landscape-scale natural water retention options and improving cross-border water management practices.

The area between Sebes-Körös and Fekete-Körös (Bihari-Kis-Sárrét) is part of the Körös River Basin, located in the Hungarian Great Plain and the western lowlands of Romania. This catchment is divided by the Hungarian–Romanian border. Due to the climate change, the water balance of this region has changed significantly. Rainfall has decreased, the temporal distribution of rainfall has become sparse and evaporation has increased. Transboundary rivers have experienced a reduction in median water yield and water stored in the form of snow in the Carpathians has been reduced to a minimum.

Small transboundary watercourses have dried up, open water surfaces have disappeared and the groundwater level has dropped by 4–6 meters.

Local communities living on both the Romanian and Hungarian sides of the border are experiencing the increasing adverse impacts of climate change. Nine Hungarian and three Romanian local municipalities and several local farmers have joined forces to improve local water resource management and local water balance. The community has developed a joint cooperation agreement within the framework of the EU-wide pilot project “Communities for Climate” launched by DG REGIO, and the first informal cross-border consultations involving water management institutions have begun.

The community aims to increase water resource availability during dry periods through natural water retention measures and to improve existing transboundary cooperation and water governance. Landscape-level natural water retention measures, enhancing sponge functioning in agricultural practices and using catchment-based approach in water resource management and water governance in cross-border watercourses are the three most important pillars of the cooperation.

Within the framework of the LIFE LOGOS 4 WATERS project, the community initiative was selected as one of the pilot projects. As a result, the local community received technical support to start exploring sites and solutions suitable for water retention. Key morphological features of the landscape, such as canals, claypits, ancient river beds and younger oxbow lakes, as well as low-lying croplands are being explored.

This community initiative was also selected by DG REGIO and the Association of European Border Regions (AEBR) as a new case. Within the framework of the “b solutions” technical assistance project, expert support will be provided to demonstrate how the absence of climate change considerations in the revision of cross-border agreements constitutes a legal barrier that hinders more effective cross-border water resource management. In this regard, local stakeholders and experts will explore how the evolving drought impact cross-border cooperation. We will identify and examine the legal and administrative provisions in both countries that differ, and assess how these differences create tangible challenges for joint water management efforts.

Based on the above, the objective of the presentation is to share the experiences of a community-driven catchment management initiative, to explore locations and solutions for landscape-based water retention as adaptation measures, and to share the experiences of cross-border water resource management challenges and improvement opportunities.

Storm-Ready Cities: Interactive Urban Water Management Workshop



Storm-Ready Cities: Interactive Urban Water Management

Dorottya Teveli-Horváth, PhD

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The workshop focused on supporting climate-resilient local water management by introducing natural water retention measures (NWRM) and by building cooperation between municipalities situated within the same small catchment area. During the 1.5 hours, participants were guided through an interactive sequence of learning, mapping and planning exercises to understand local water challenges and co-create initial steps for a shared adaptation strategy.

The session began with a short knowledge-building introduction to nature-based solutions (NBS) and natural water retention measures (NWRM) as multifunctional, cost-effective tools that restore ecological functions while reducing flood and drought risks. Participants were shown how green and blue infrastructure improve water retention, microclimates, biodiversity and the attractiveness of local spaces, while being less expensive than conventional grey infrastructure.

Next, participants explored region-specific water issues typical of hilly versus flat settlements, such as erosion, flash floods, droughts, inland water or soil degradation.

They then carried out a collective problem mapping exercise, placing local challenges on a physical or virtual map. They were encouraged to include citizen complaints and past incident reports to make the map realistic. This step helped visualise where cooperation between municipalities could create impact.

Participants were then guided to jointly imagine how a climate-resilient catchment could function in 2030 or 2050, using a “backcasting” method to describe an ideal water-smart settlement and work backwards toward present-day actions. They were encouraged to choose goals that are measurable, achievable and relevant to multiple municipalities.

Following this visioning activity, the group reviewed illustrative solution options at three scales – household, settlement and catchment levels. Examples included rain gardens, permeable pavements, log dams, pond creation, buffer zones and streambed restoration. Participants assessed which measures were locally applicable and most feasible.

The workshop then introduced methods for identifying key actors: municipal departments, farmers, national parks, district offices, engineers, civil associations and vulnerable population groups. Small teams worked on naming stakeholders and placing them in a matrix according to influence and interest.

Finally, participants discussed how to move from concepts to action, introducing the structure of an action plan involving responsibilities, timeframes, budgeting, indicators and funding options. The workshop did not create complete plans but laid the foundation for continued cooperation and expert involvement.

Field Trip

Hilly demonstrational catchment area of LIFE LOGOS 4 WATERS project

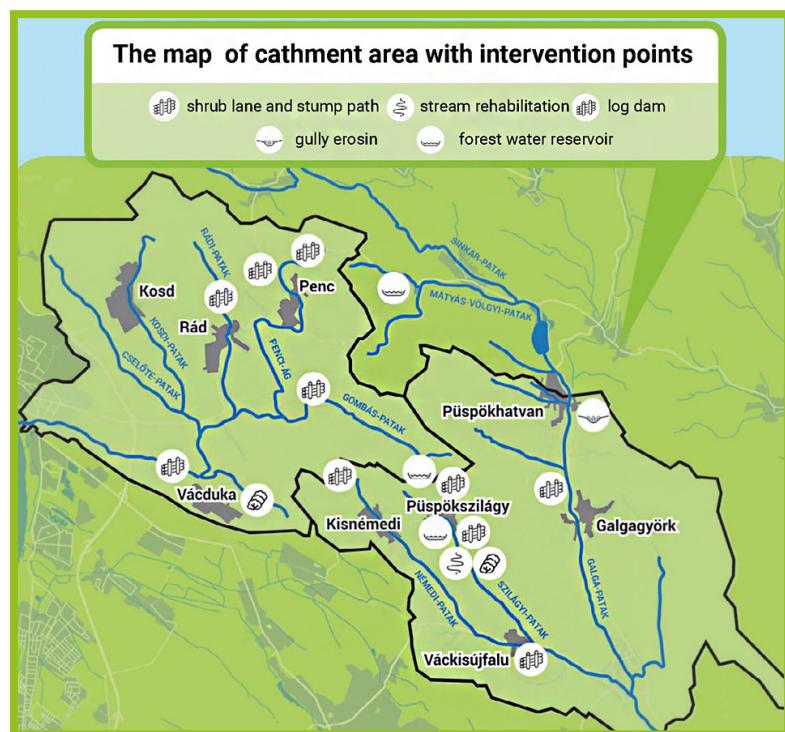
This session offers participants a unique opportunity to visit the settlements of the hilly catchment area led by Püspöksilág and its cooperating local governments, which serve as one of the demonstration sites of the LIFE LOGOS 4 WATERS project.

This small hillside settlement has become a flagship example of how integrated, nature-based solutions can effectively address the growing challenges of climate change in rural and mountainous regions.

Last year, Püspöksilág, with a population of 740, gained international recognition by being included in the URBACT “116 Good Practices” list, highlighting it as one of the 116 most inspiring examples of sustainable urban and territorial development across Europe.

A detailed description of the hilly catchment area and the solutions implemented within the framework of the project is available at https://climact2adapt.uni-nke.hu/wp-content/uploads/2025/09/LL4W_Summary-of-the-hilly-pilot-catchment-area.pdf.

The two catchment areas and the visitor centres can be explored through a virtual tour available at <https://viztukor.hu/virtualisseta/>.



Voices from our participants

“The range of experiences and good practices related to nature-based water management has expanded significantly. It became clear to me how essential broad sectoral cooperation and many small-scale local actions are for effective adaptation.”

climate policy expert

“The conference was exceptionally well organised, and I appreciated the open and constructive atmosphere. Learning about Hungary’s challenges and solutions in both grey and nature-based water management was highly valuable. The roundtable discussion showed how much progress depends on strong institutional and human relationships.”

adaptation specialist

“This was a great opportunity to share and exchange experiences. The professional organisation and the active interest from participants made the event especially rewarding.”

municipal expert

“I gained a deeper understanding of the Hungarian context, and it was inspiring to see how many good practices are already in place. While our challenges differ from those in Finland, the message is the same everywhere: we need to work together, and local actions can lead to wider change.”

communication expert

“The conference created a meaningful forum where practitioners, researchers and local leaders learned from one another. To implement nature-based solutions effectively, we must build relationships and exchange knowledge across borders, languages and professions. This event provided exactly that environment.”

expert of nature-based solutions

“I appreciated the chance to learn about local-level projects and effective communication techniques that truly reach citizens. The visual notes added a creative and memorable dimension to the whole conference.”

public administration professional

"The event reinforced the importance of cross-sectoral collaboration and integrating scientific knowledge into local decision-making. Climate resilience is not only a technical task, but also a shared responsibility for our communities."

academic representative

"The keynote speech was both alarming and motivating. It showed that even small local initiatives can contribute to global impact. The diversity of projects presented at the conference embodied the spirit of collective action."

NGO representative

"For a small municipality like ours, it was an honour to take part. We met experts who could advise us and guide us toward new opportunities. This conference gave us extra motivation, proving that our efforts truly matter."

local municipal representative

"It was encouraging to see growing attention to climate adaptation and to learn from artistic, sociological and communication-focused approaches as well. I also appreciated discovering several international good practices."

environmental expert



Closing Remarks

Dear Readers,

It has been a true pleasure to see the ClimAct2Adapt – Acting Together for Climate Resilience conference come to life. Over these inspiring days, researchers, local government representatives, policymakers and civil society actors came together to share ideas, experiences and good practices demonstrating that genuine progress in climate adaptation can only emerge through cooperation and open dialogue.

The exchange of knowledge, the spirit of partnership and the enthusiasm that filled this event have shown how much can be achieved when we think and act together. I sincerely hope that this publication will carry that same spirit forward, reaching not only those who attended in person, but also many others who are committed to building more resilient communities.

May the lessons, stories and inspiration gathered here continue to travel, from one municipality to another, from one river basin to the next – encouraging new partnerships and actions across Europe and beyond.

With gratitude to all who contributed to the success of the conference and this volume, I hope you had an insightful and inspiring read.



Sincerely

Zoltán Kivés

*Deputy State Secretary for Municipalities
Ministry of Public Administration and Regional Development*

