

# Sustainable Climate Outcomes for People of Eastern Slovakia (SCOPE)

SCOPE team City of Košice— Zuzana Jarošová



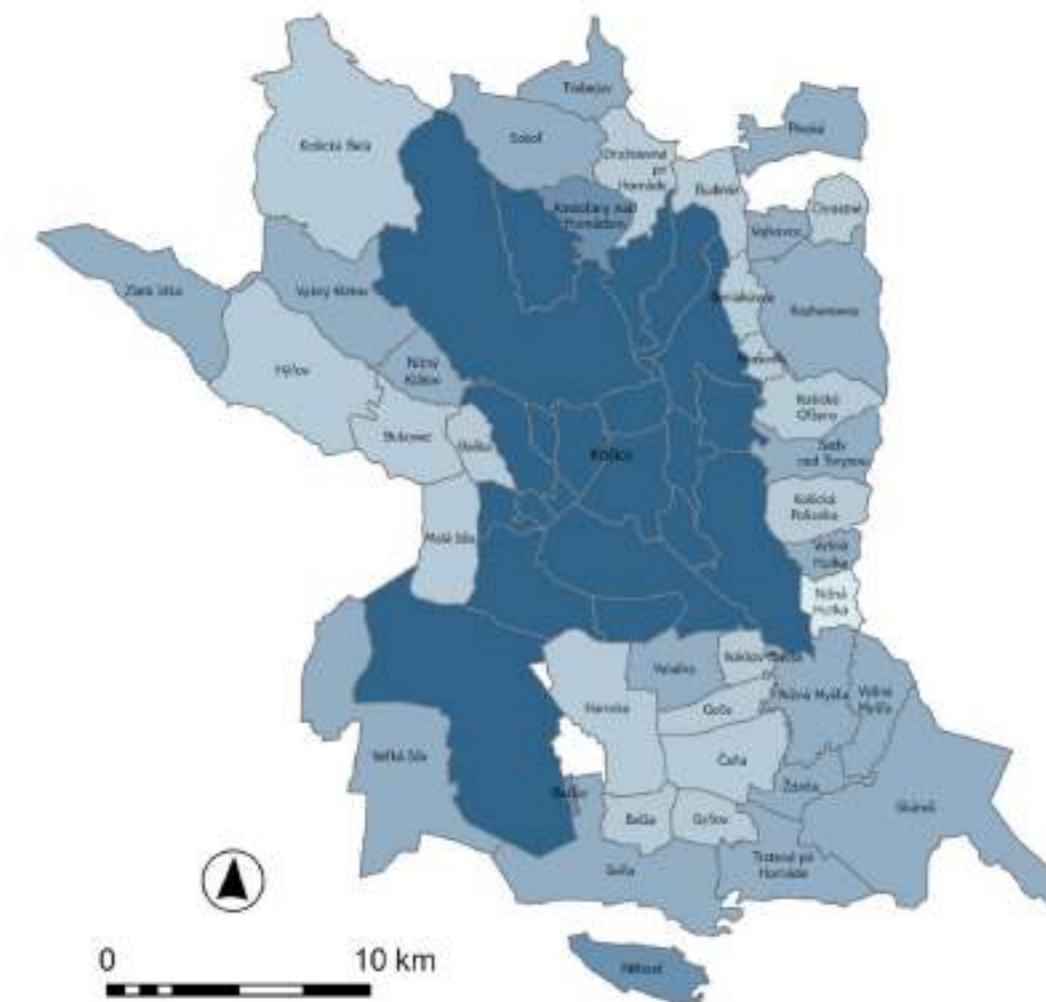
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**CLIMAAX**  
climate ready regions

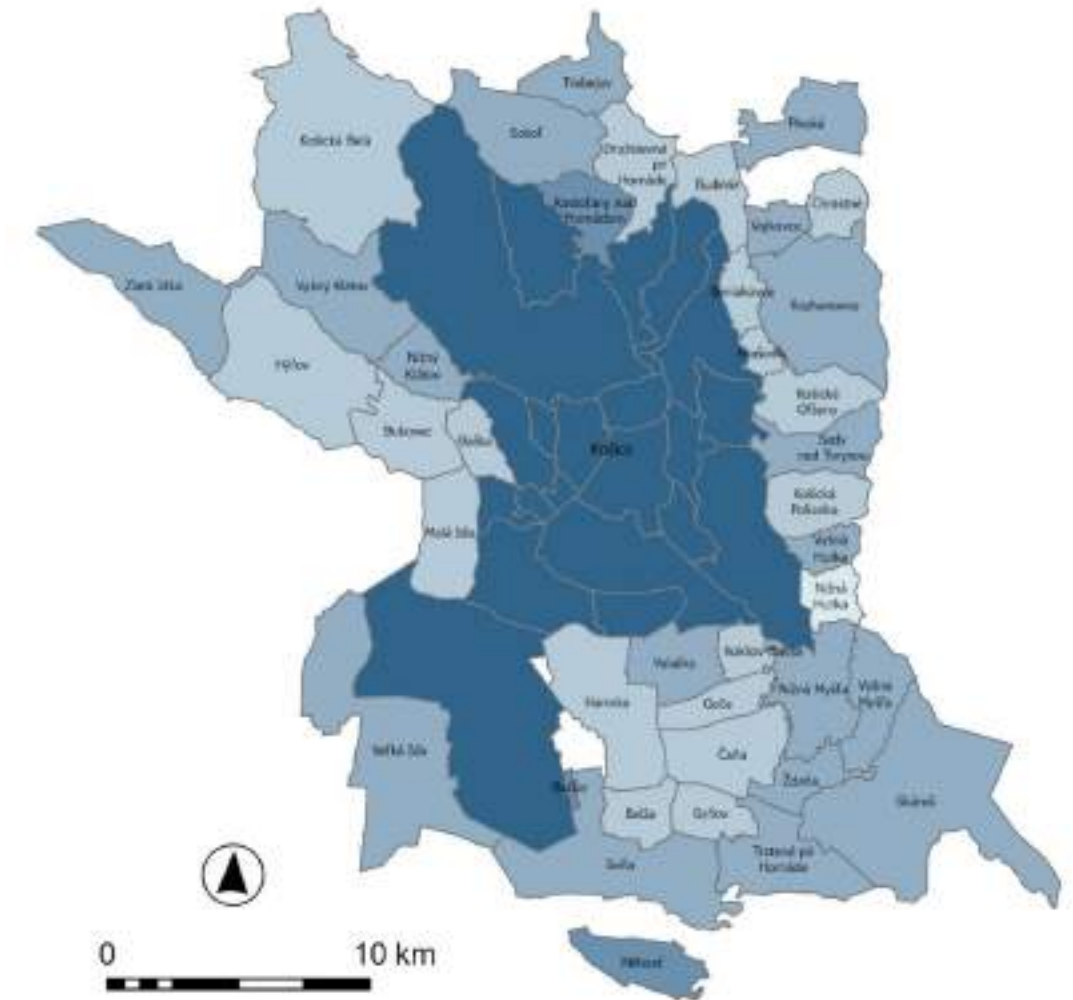
# Basic information

- **SCOPE: Climate Outcomes for People of Eastern Slovakia**
  - **Starting date: 01/10/2024**
  - **Duration: 22 months**
  - **The main objective of SCOPE project is detailed mapping and analysis of climate related risks specific to the Kosice region. By utilizing the advanced tools and methodologies provided by CLIMAAX, we will generate and regularly update localized climate risk data that is both accurate and actionable**
  - **Total SCOPE budget €171,975**
- 
- SCOPE project is a CLIMAAX cascade project
  - CLIMAAX: CLIMAtE rIsK and vulnerability Assessment framework and toolbox is a 4-year Horizon Europe project that will provide financial, analytical, and practical support to improve regional climate and emergency risk management plans.
  - CLIMAAX includes two Open Calls to fund selected beneficiaries



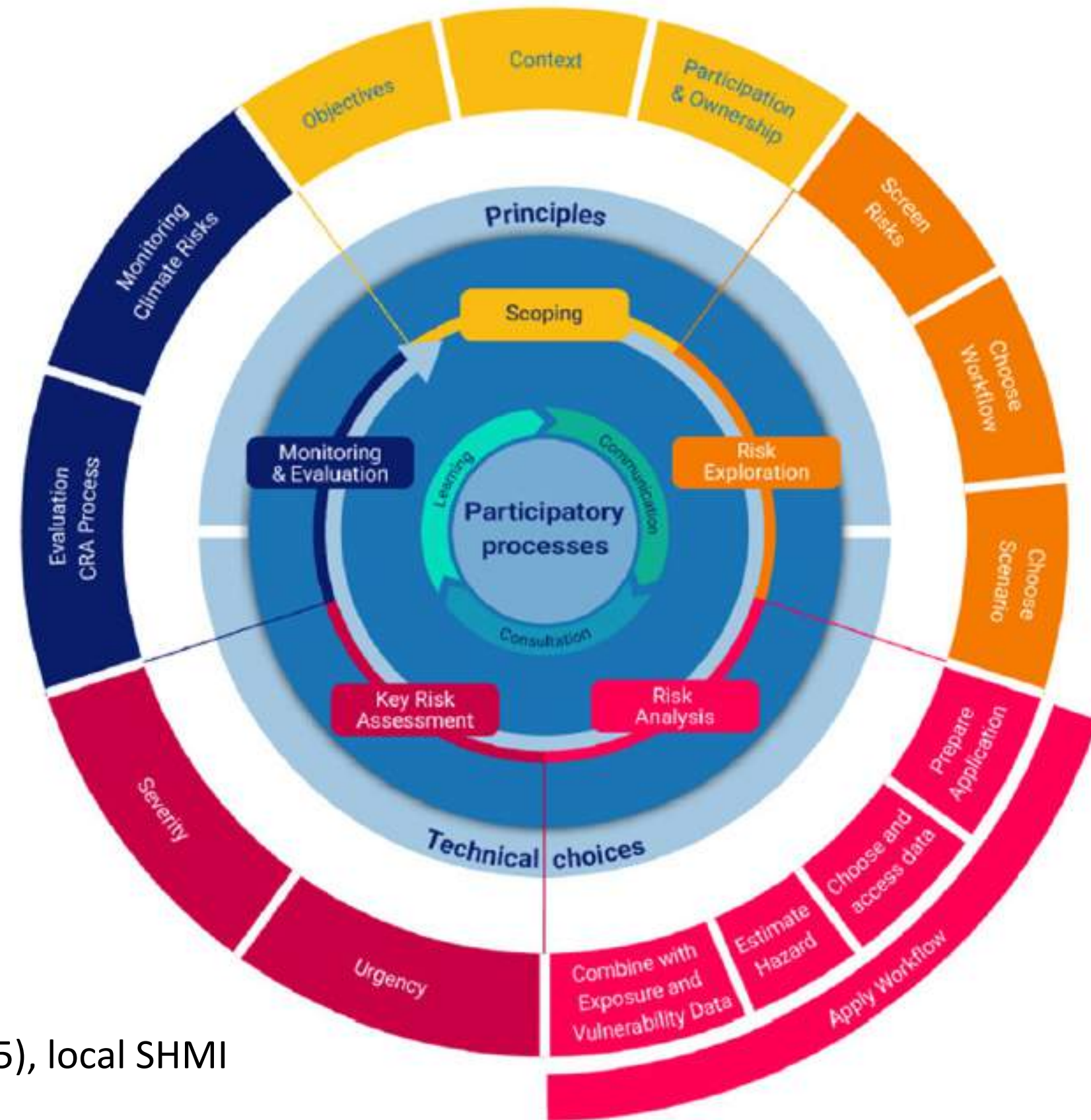
# What we want to achieve

- **Moving forward in our climate mission – building climate resilience of the city and 40 surrounding municipalities**
- Detailed mapping and analysis of locally specific climate risks using new approaches – application of the CLIMAAX methodology and its advanced tools (toolboxes)
- Participation in the CLIMAAX European community/platform – same methodology for all, sharing experiences and stories
- Integration of identified results – climate risks – into city governance and planning:
- development of policy recommendations for spatial planning, civil protection, and climate-resilient infrastructure
- **Increasing the resilience of the population and territory to the impacts of climate change**



# Metodology

- The project follows the CLIMAAX methodology, consisting of five steps: Scoping, Risk Exploration, Risk Analysis, Key Risk Assessment, and Monitoring.
- Focus on two main threats: extreme rainfall and heatwaves
- Data collection\* and processing according to the CLIMAAX methodology
- Involvement of local stakeholders and partners
- Threat and risk analysis based on procedures – **toolboxes**



\* Data sources include Euro-CORDEX simulations (RCP 8.5), local SHMI records, WorldPop data, and Landsat 8 satellite imagery..



# Where are we now

Projekt: SCOPE, program CLIMAAX  
Termín realizácie 1.10.2024 - 28.2.2027

| PHASE OF WORK (P-Phase)                                     | DELIVERABLE                                                                                                             | DATE (M-month)            | Milestones (MIs)                                                                                                   | KPIs                                                                                                                                                                                                                                      | WORKPLAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Phase 1<br>Multi-risk climate assessment                    | D1: Implementation of the CLIMAAX common methodology and Toolbox for multi-risk assessment and analysis of the results. | M1-M6 (10/2024-3/2025)    | MIs1: Stakeholder meeting in Phase 1 - done;<br>MIs2: Phase 1 results presented                                    | 2 of workflow successfully applied on deliverable 1 (M5) (P1);                                                                                                                                                                            | project management plan (10-11/2024)<br><br>Risk scoping phase with the involvement of local authorities and sector representatives (10-12/2024)<br>Familiarisation with the CLIMAAX Toolbox, data requirements and synergies with local specificities (data, policy, strategy) & Executing CLIMAAX Toolbox for selected (scoping phase) risks. (11/2024-2/2025)<br>Interpretation of results, presentation to local stakeholders. Gaps and local needs assessment. (2/2025-3/2025) |
| Phase 2:<br>Refined regional/local multirisk assessment.    | D2: Refined regional/local high-resolution analysis and risk assessment and comparison of results.                      | M7- M16 (4/2025 - 1/2026) | MIs3: Stakeholders meeting and co-design in Phase 2 - done;<br>MIs4: Attend the CLIMAAX workshop held in Barcelona | 2 of workflow successfully applied on deliverable 2 (M14) (P2);<br>12 stakeholders involved in the activities of the project (M7-M21) (P2-P3);<br>12 communication actions taken to share results with your stakeholders (M7-M21) (P2-P3) | Local data gathering and processing (4/2025-1/2026)<br>Stakeholders revision/co-design of the local CRA workflow (5/2025-12/2025)<br>Adaptation of the CLIMAAX workflows and toolbox & Computation of local CRA (6/2025-12/2025)<br>User-oriented Interpretation of the results with key stakeholders(12/25-2/2026)                                                                                                                                                                 |
| Phase 3:<br>Climate Adaptation strategies and improved RMP. | D3: Contribution to local adaptation strategies and improved risk management                                            | M17-M22 (2/2026-7/2026)   | MIs5: Policy recommendations delivered;<br>MIs6: Attend the CLIMAAX workshop held in Brussels                      | 4 publications and dissemination actions (M6) (P1), (M15-M16) (P2), (M20-M22) (P3);<br>4 notes for policy makers (M18-M22) (P3);                                                                                                          | Build on ongoing participatory approach to define viable adaptation strategies communication and engagement campaign (2-6/2026)<br>Translate CRA results into actionable measures at different levels city/region life (2-6/2026)<br>Identify CLIMAAX driven adaptation success stories for replication in other regions/sectors (2-7/2026)<br>Policy recommendations (adaptation strategy, civil protection, planning and building code) (3-7/2026)                                |

- We completed Phase 1 of the project: General climate risk assessment
- Now in phase 2 - refined regional/local high resolution analysis and risk assessment and the comparison of results

## PHASE 1: COMMON METHODOLOGY applicable at regional/local scale in Europe

- Multi-risk
- Applicable at any interested region/municipality/community
- Enabling to establish a common Risk Assessment benchmark across Europe
- Using as much as possible the common information already available

## PHASE 2: REFINED REGIONAL/LOCAL HR ANALYSIS AND RISK ASSESSMENT

- Refinement of the multi-risk assessment carried out in Phase 1
- Using local data / local downscaling of the large scale climate indicators
- Capable to integrate local high-resolution data and approaches
- Enabling to enhance regional /local risk assessments

## PHASE 3: EXPLORATION OF LOCAL ADAPTATION STRATEGIES and improved Risk Management Plans

- Explore potential adaptation options and helps to identify relevant actions at local scale to address the risk and vulnerabilities identified
- Analysis of local adaptation options and strategies and improved RMPs
- Guidance on examples of best practices

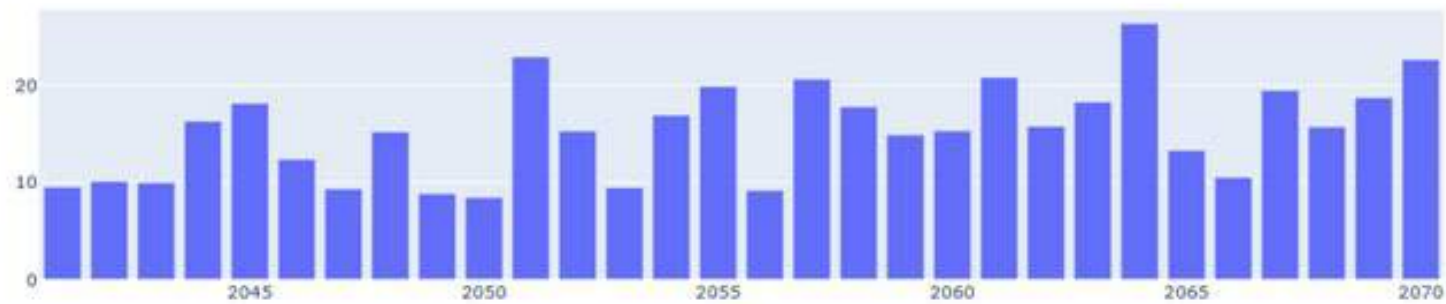


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# Results of the first phase

Annual maximum precipitation for 3h duration in Kosice

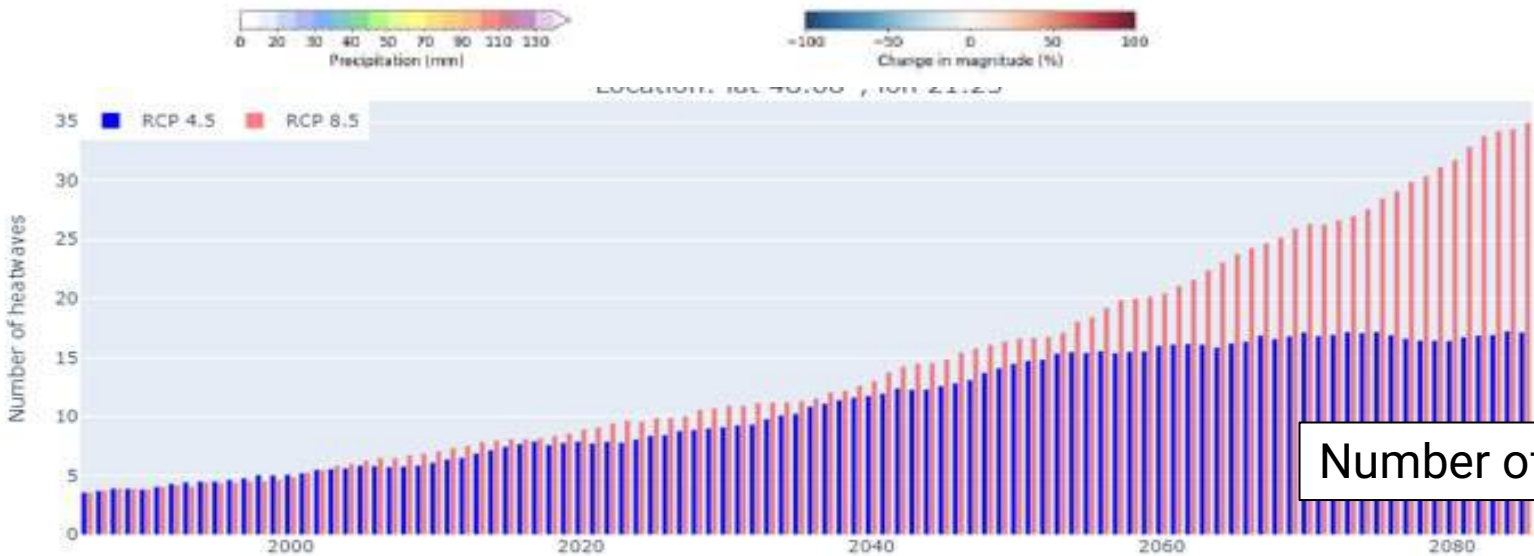
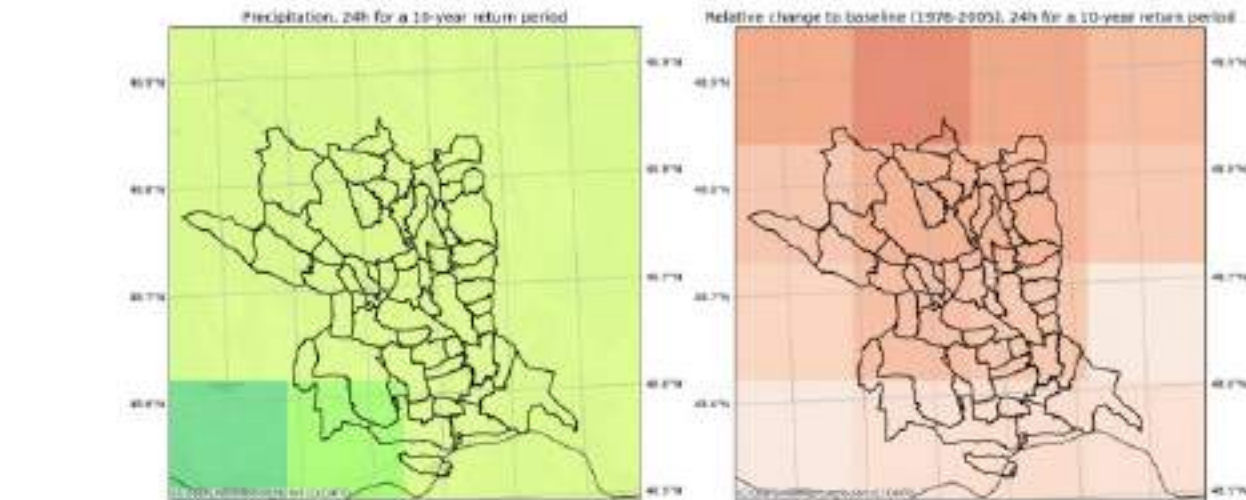


Based on the results obtained through the workflows, focus on two major climate threats: extreme rainfall and heatwaves.

Climate projections indicate a significant increase in both the frequency and intensity of extreme precipitation and especially heat waves between 2041 and 2070.

For example, a rainfall event with a historical return period of 50 years could occur every 14 years.

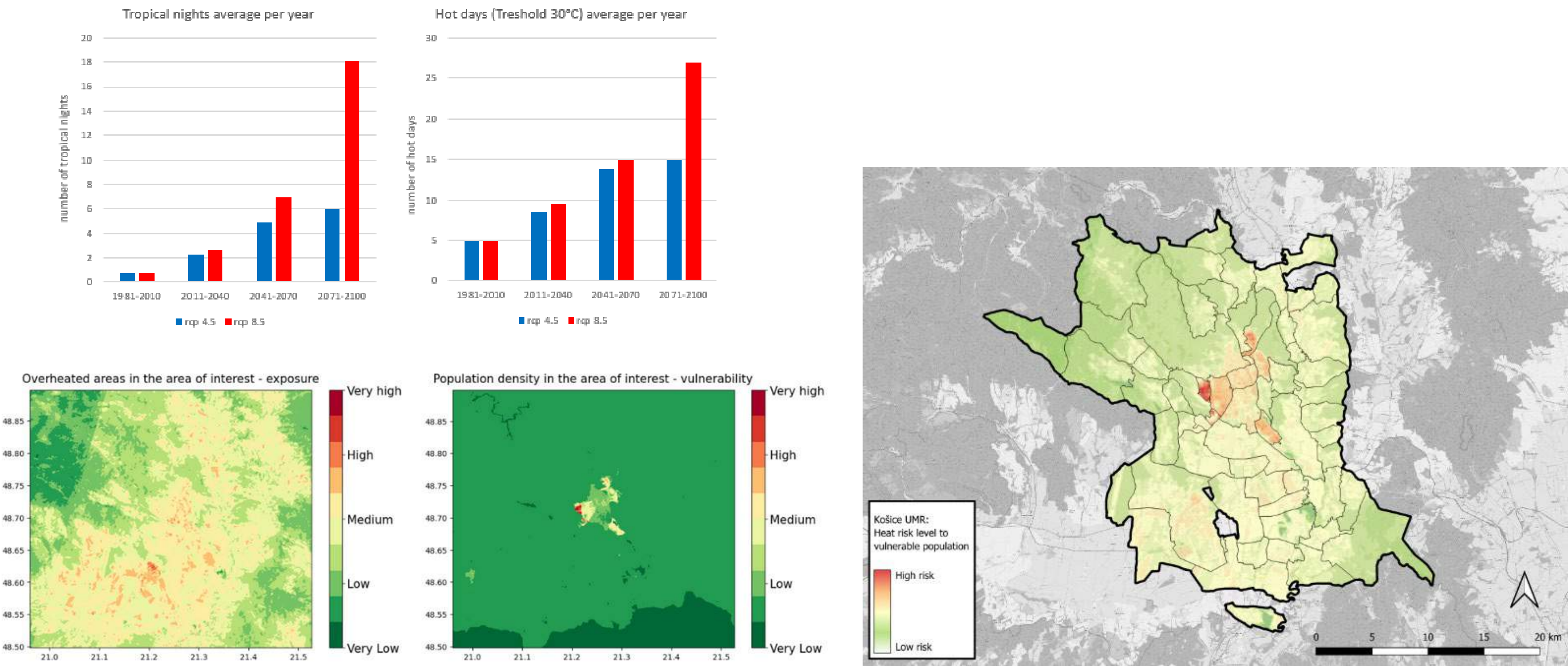
Flood-prone zones have been identified near the Hornád River and in depressed urban areas with insufficient drainage.



Number of heatwaves



# Results of the first phase



# Results of the first phase



CLIMAAX

Climate risk assessment Sustainable Climate Outcomes for People of Eastern Slovakia (SCOPE) Slovakia, Košice Region

Košice, the second-largest city in Slovakia, is the metropolitan hub of the eastern region with over 283,000 inhabitants and a natural cross-border center. Located in the Hornád River valley, its northern part is forested, and the south opens into flatlands. Since 2019, Košice has been a signatory of the Covenant of Mayors, committing to a 40% reduction in CO<sub>2</sub> emissions by 2030. Within the CLIMAAX project, the city focuses on localized climate risk assessment and adaptation to the adverse impacts of climate change.

Materials and methods

The project follows the CLIMAAX methodology, consisting of five steps: Scoping, Risk Exploration, Risk Analysis, Key Risk Assessment, and Monitoring. Two main workflows were selected: **extreme rainfall and heatwaves**. Data sources include Euro-CORDEX simulations (RCP 8.5), local records from SHMI, WorldPop data, and Landsat 8 satellite imagery. Stakeholders from the city, regional government, universities, NGOs, and other institutions were engaged in co-design and validation processes.

Results

Two main hazards were identified, based on the results generated through the workflows. Climate projections indicate a significant increase in both frequency and intensity of **extreme rainfall and heatwave** events for the 2041–2070 period. For instance, a rainfall event with a historical return period of 50 years could occur every 14 years. Vulnerable neighborhoods include Staré Mesto, Juh, Džungľa, and Luník IX (with high social vulnerability). Flood-prone zones were identified near the Hornád River and in depressed urban areas with insufficient drainage.

Recommendations

- incorporating detailed local socio-economic and infrastructure data,
- expanding the hazard-impact event database (floods, heatwaves),
- implementing adaptation measures such as greening, shading, water retention, and early warning systems,
- additional workflows for drought and wildfire risk in Phase 2
- developing policy recommendations for spatial planning, civil protection, and climate-resilient infrastructure,
- records of events such as floods, forest fires or droughts are often insufficient and their recording needs to be improved, which is also what will be focused on in the project

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# What will happen in the next phase of the project?

specification -  
detailed analysis and  
assessment of risks  
in the area



Incorporating  
detailed local socio-  
economic and  
infrastructure data



Database expansion,  
specification of local  
climate events  
(floods, heat waves,  
fires)

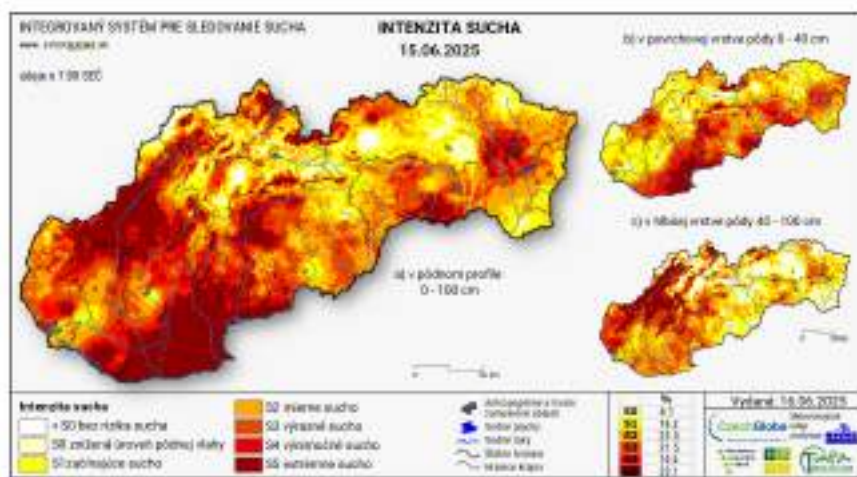


Expanding the risk  
assessment to  
include drought and  
forest fires



New recommendations (or  
adaptation plan update) on  
how to adapt effectively, also  
showing positive stories of  
adaptation

Translate CRA results into actionable  
measures at different levels city/region  
life





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*Thank you!*



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