

URBAN BLOCKS, CLIMATE SHOCKS

Adapting climate risk assessment
on urban block level in city
environment

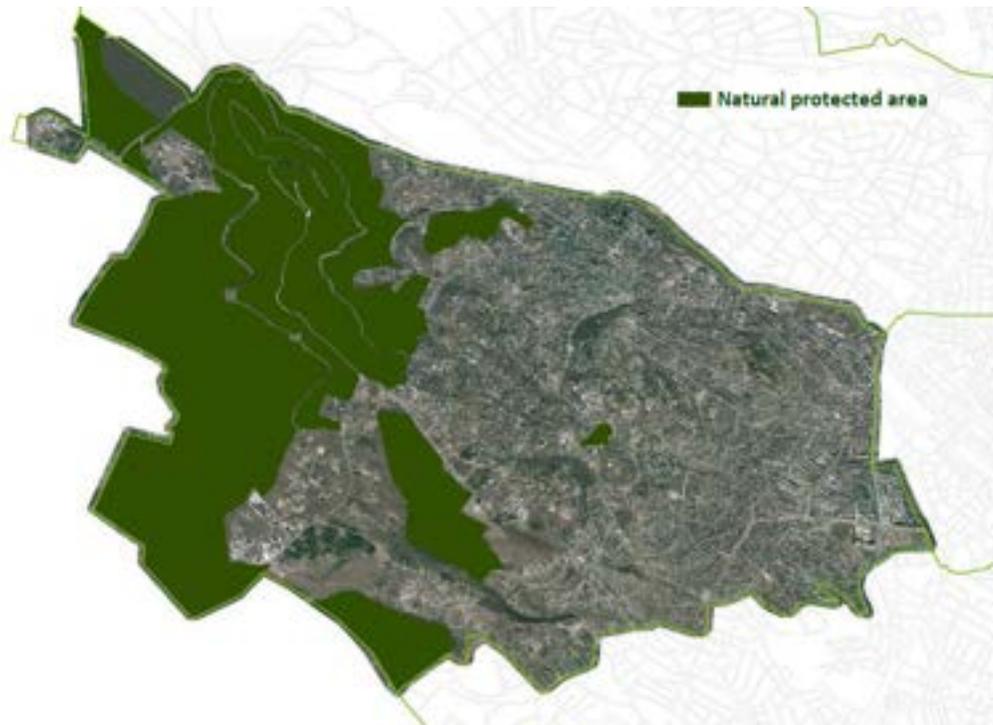
Municipality of the 12th District of
Budapest (Hegyvidék Municipality)

Hungary, Budapest

Emese Décsi



About us



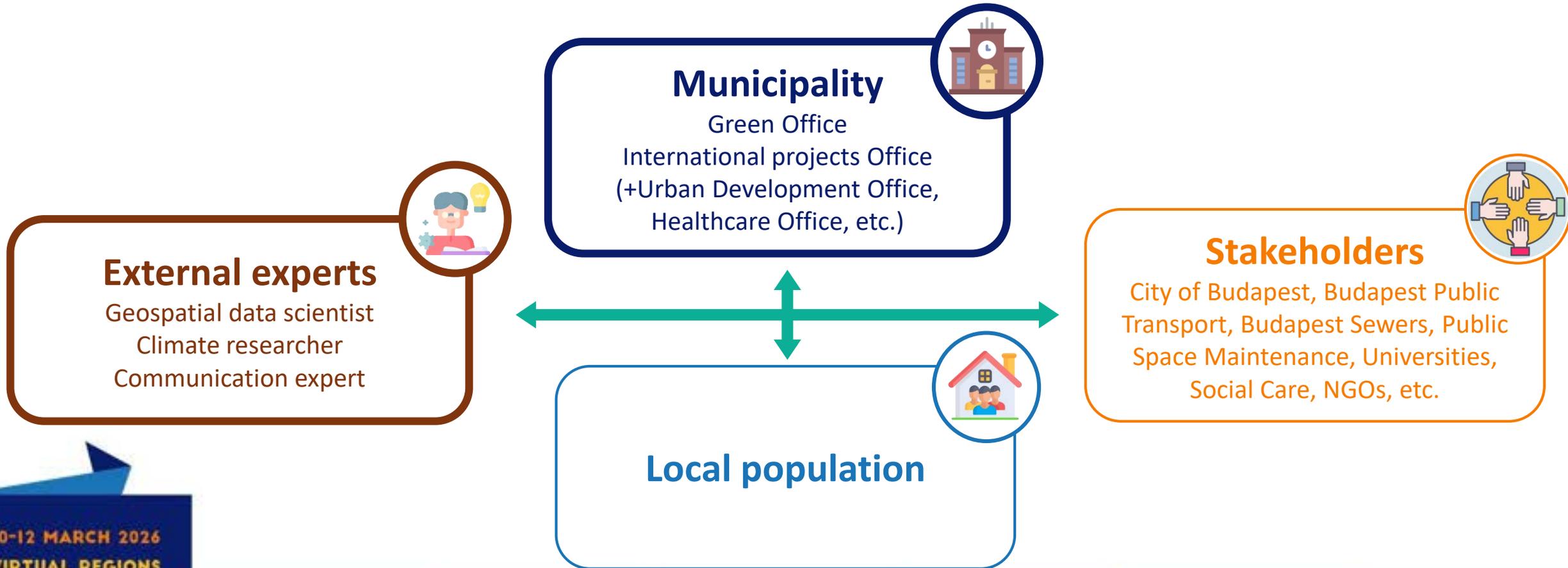
Hegyvidék Municipality

- a district in Budapest
- 27 km²
- 57,000 inhabitants
- 33% elderly
- hilly topography
- vast green area



About us

Managing Risks towards a Climate Adaptive Hegyvidék (MARCAadapt)

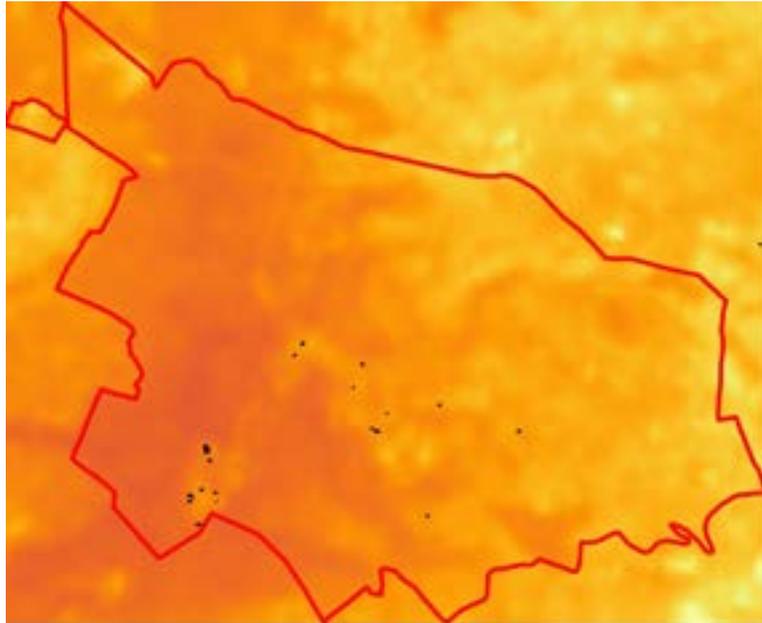


Problem description

Heavy rainfall



Heatwaves



Drought



Decision context

Vulnerable population



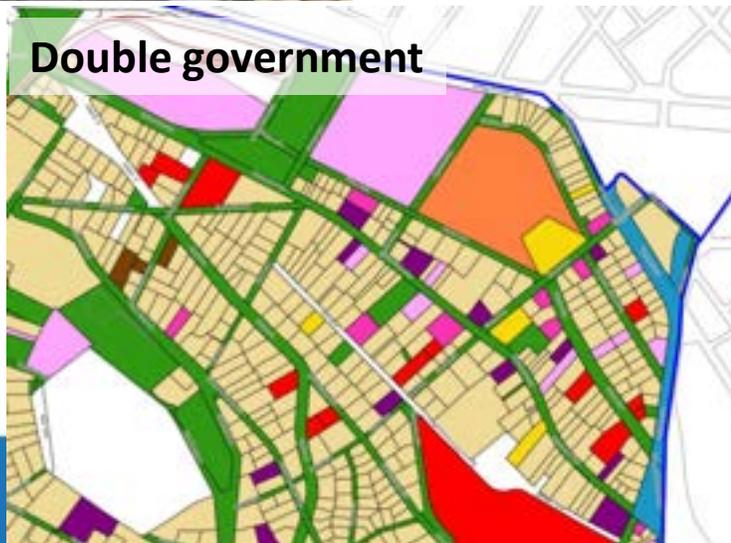
Urban environment



Critical infrastructures



Double government



Protected ecosystems



Workflows and indicators

	Heavy Rainfall	Heatwaves	Relative drought (urban green areas)
Hazard	EURO-CORDEX – precipitation flux, RCP 4.5, RCP 8.5, 2041-2070	SURFEX – heatwave days and tropical nights, RCP 4.5, RCP 8.5, 2031-2060	CMIP6 global climate models - WASP index, SSP3-7.0 and SSP5-8.5, near future
Exposure	Land cover, mobility	LANDSAT, tree canopy, land cover, shade, mobility	LANDSAT, mobility
Vulnerability	Sewer features, flood points, building features, public transportation, basic services	Demographics, building features, public transportation, basic services	Land cover, tree density

With stakeholders!

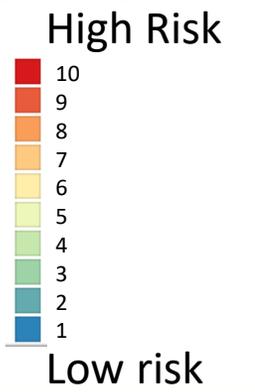
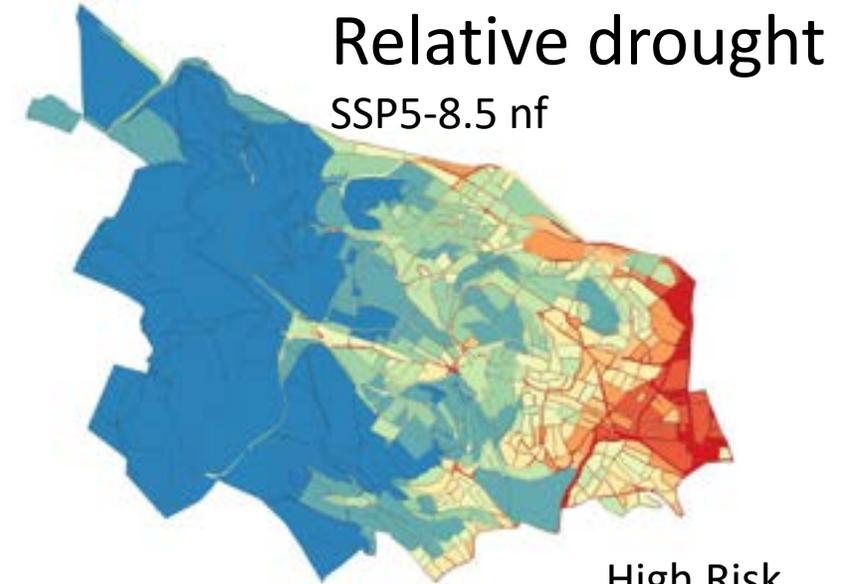
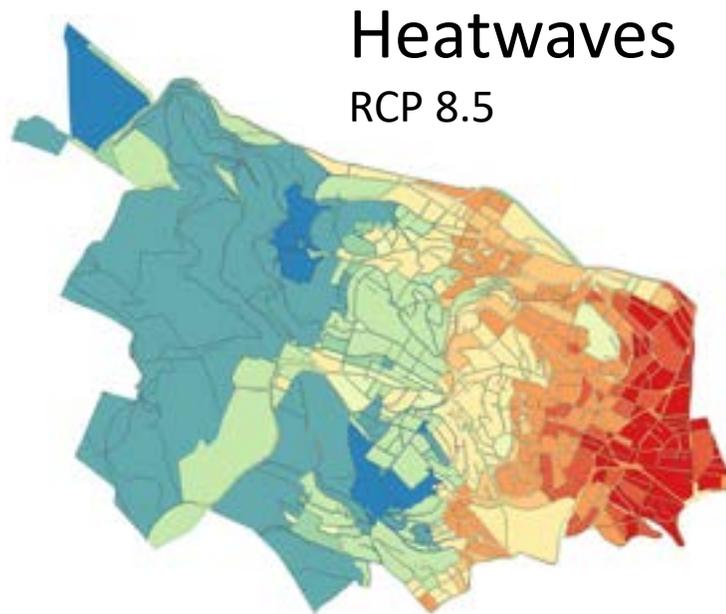
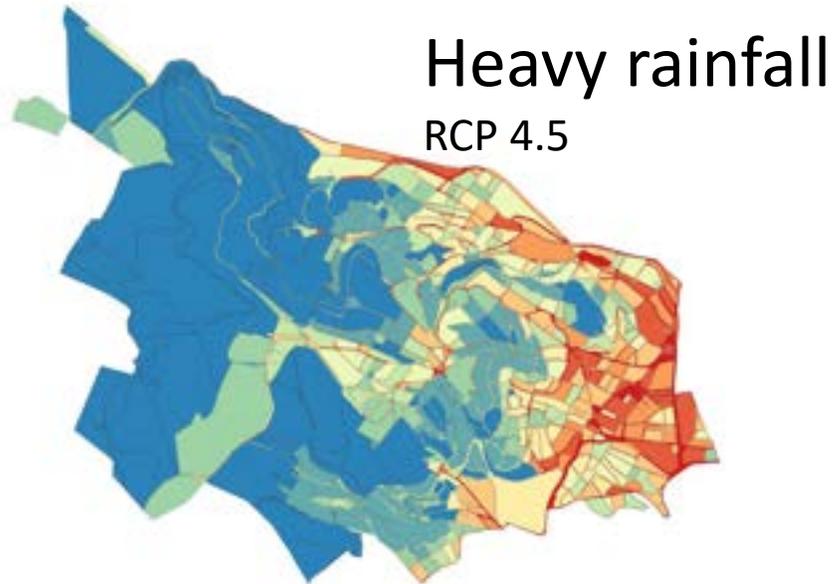


Data processing

- Spatial scale: **urban blocks and streets**
- 1-10 scores
- Weights
- **Risk = Hazard x Exposure x Vulnerability**



Climate Risk Assessment - Results



Key Risk Assessment

<i>Risk Workflow</i>	<i>Severity</i>		<i>Urgency</i>	<i>Capacity</i>	<i>Risk Priority</i>
	C	F		Resilience/ CRM	
Heavy rainfall	Orange	Red	Dark Red	Orange	Very high
Heatwaves	Orange	Red	Dark Red	Yellow	High
Drought	Orange	Red	Dark Red	Orange	Very high

Community involvement

Objectives:

- Education
- Capturing personal experiences

Methods:

- Workshops
- Thematic lectures
- Online survey, posters
- Gamification



Main conclusions

Overlapping high risk scores – interconnected management?

Identifying intervention **target areas** - instead of singular locations!

Using **input indicators** separately for planning actions – what aspect should be improved?

Future CRA improvement opportunities – **fine-tuning** indicators, collecting **more data**!

Difficulties in **explaining responsibilities** to the citizens – new involvement actions!

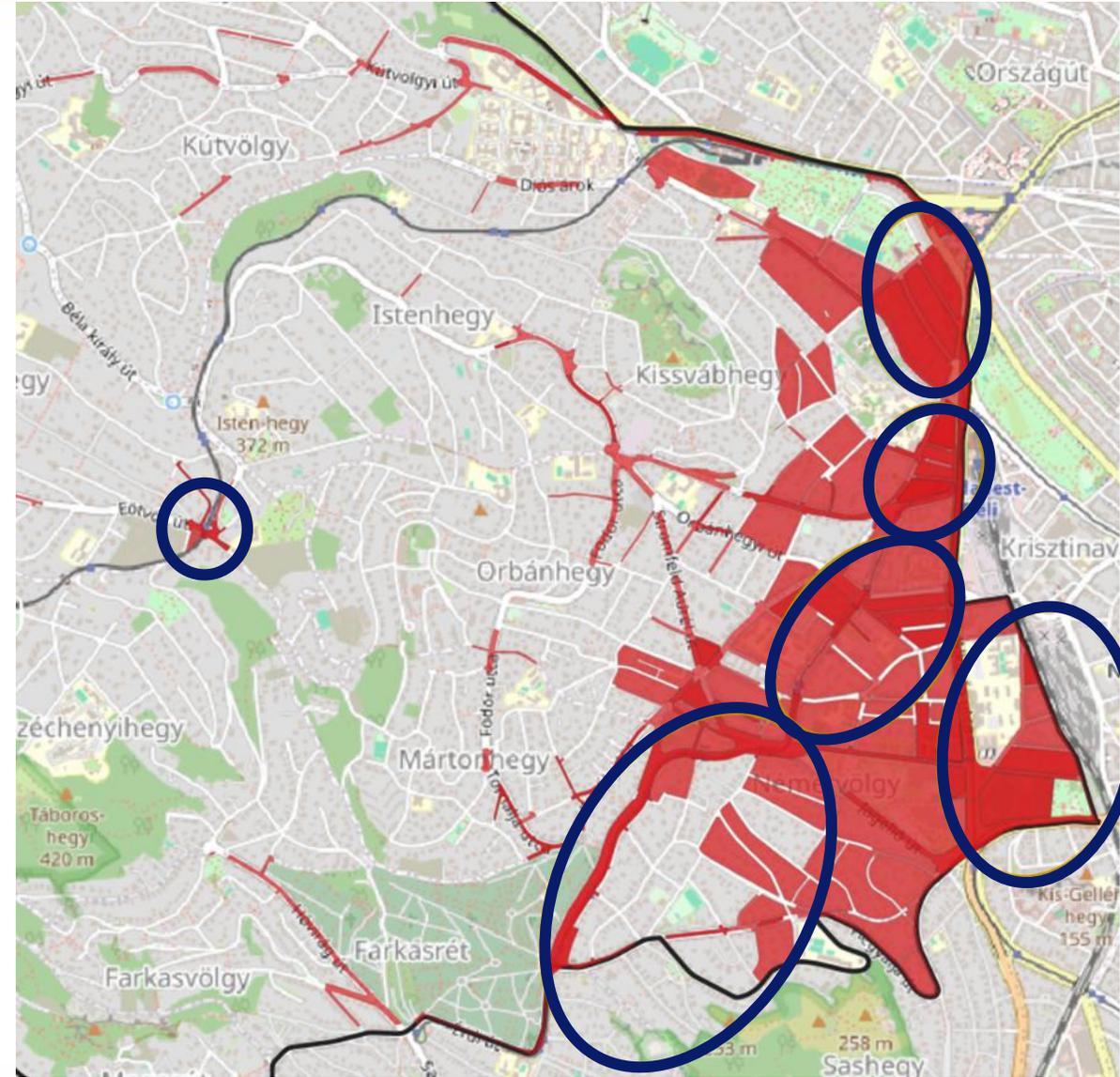
Usability

Targeting climate adaptation and risk management measures regarding:

- Sectors
- Spatial location
- Priority, timing

Building connections with other developments.

Mobilizing stakeholders (and residents) to take action.



Lessons learned

TEAMWORK

- Team members with diverse backgrounds
- Weekly team meetings, structured working documents

PARTNERHSIPS

- Stakeholders are key players – keep in touch!
- Connections with other, similar projects

LOCALIZED METHODS

- Tailor your own indicators and codes
- Interpret the results as general trends, discover main patterns and make comparisons
- Contrast the results with external sources

COMMUNICATION

- Responsibilities are shared – focus on involvement and communication
- Reach the citizens through generally popular topics
- Maps and data are convincing – when well visualized!

Next steps

- Mapping and evaluating current climate risk management processes
- Outlining improved risk management actions with stakeholders and decision makers
- Community involvement activities in the framework of a university course
- Communication of the results
- Updating relative drought CRA with an extensive tree register database

Thank you for your attention!

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