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Integrating climate adaptation in the City of Bratislava

Eva Streberova
Office of the Chief City Architect
Bratislava, Capital City of the Slovak Republic
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Presentation outline

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- Climate change hazards in Bratislava
- Adaptation journey of Bratislava City
- From Strategy to Action plan
- Challenges in integrating climate change adaptation
- Using RESIN´s standardised tools for urban resilience – examples from Bratislava

Climate change hazards in Bratislava

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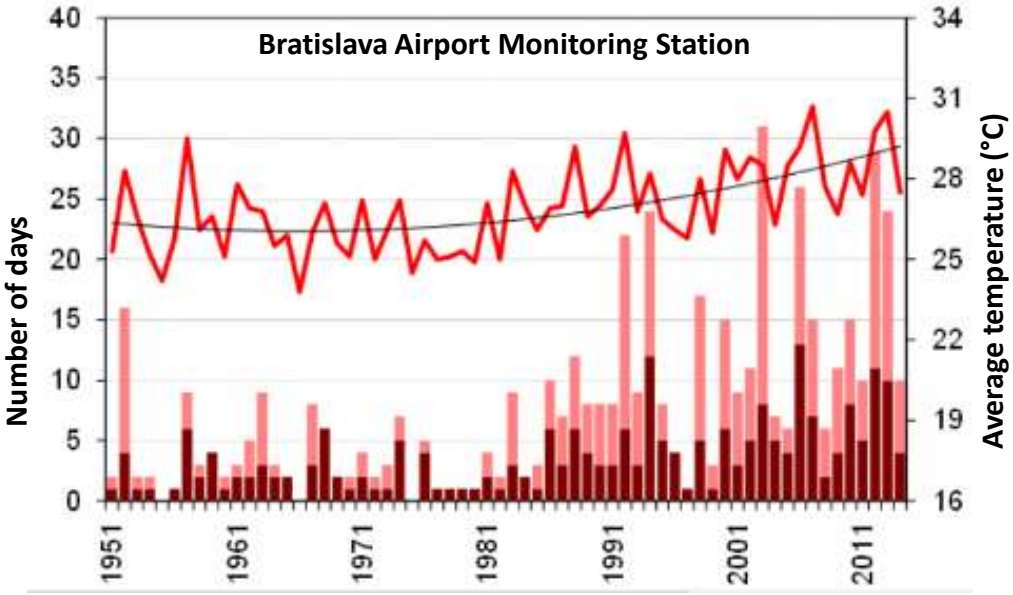
Rise in average temperature, more frequent heat waves ...

- in 2017 there were 4 heatwaves and a new record for a total number of tropical nights in Bratislava (31 in total)



... and periods of droughts

Since 12/2016 to 08/2017 was longest period of drought since 1981 and lasted 221 days (standardised precipitation evapotranspiration index was below -1)

Source: up - Slovak Hydrometeorological Institute, Changes in occurence of hot and tropical days (press release) 1ž/7/2015, http://www.shmu.sk/sk/?page=2049&id=632, below – The longest period of drought since 1981 measured in Bratislava Airport Monitoring Station. Source: Slovak Hydrometeorological institute report http://www.shmu.sk/sk/?page=2049&id=858

Climate change hazards in Bratislava

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... and flash floods from torrential rainfall ...

- tendency to occur after heatwaves, causing damage in lower areas, areas with higher share of impermeable surfaces.

... temperature extremes.

- *impacts on human health*
- *overall increase in mortality during heat events in Slovakia*
- *multi-day heat periods are accompanied by a much higher negative response in mortality in the Slovak population (especialy in 2003, 2007, 2010, 2012) (Výberči et al., 2015)*

Source: flash floods in Bratislava after heavy rainfall in 2014 http://www.pluska.sk/regiony/bratislava/zatopena-bratislava-cesty-su-neprejazdne-voda-nakupnom-centre.html below – Duration of heat events, average value of daily mean temperature anomaly (left chart) and total mortality deviations (right chart) during 1996–2012 summer heat events in Slovakia (Source: Vyberci et al. 2015)

EU Cities adapt (2012-2013)

Signing of Covenant of Mayors (2012)

Covenant of Mayors
Committed to local sustainable energy

SEAP 2013

Akčný plán udržateľného energetického rozvoja Hlavného mesta SR Bratislavy

Signing of Mayors Adapt (2014)

MAYORS ADAPT
THE COVENANT OF MAYORS INITIATIVE ON ADAPTATION TO CLIMATE CHANGE

Strategy for CCA (approved in 2014)

Bratislava is preparing for CC project (2014-2017)

bratislava
zelenaj sa

Action plan for CCA 2017-2020 (04/2017)

H.2020 RESIN (2015-2018)

RESIN

From Strategy to Action plan

Strategy for adaptation to negative effects of climate change for Bratislava City – adopted in 6/2014

Action plan for adaptation to negative effects of climate change for Bratislava City – adopted in 4/2017

Adaptation measures according to sectors

- From 83 adaptation options to 27 adaptation measures,
- From vision and goals to tasks and milestones,
- 28 municipal, governmental and other stakeholders

Challenges in integrating climate change adaptation

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- **Governance structure & competencies** - among different governance bodies and authorities (the city, its boroughs, its organisations, local authorities)
- **Stakeholders & participation**
- **Design and co-create the new** – monitoring and communication framework
- **Report back** – Mayors Adapt and Covenant of Mayors
- **Update the outdated** – vulnerability assessment, the sectors and other areas of special attention

Using RESIN´s standardised tools for urban resilience

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SUPPORTING DECISION – MAKING FOR RESILIENT CITIES

- **Design and co-create the new**

  Communication and monitoring framework

  - *by using the learning centre of the* **eGuide**
  - *in English speaking countries the options of the eGuide can be explored towards developing a such a strategy using the online environment of the tool*

- **Report back** – Mayors Adapt and Covenant of Mayors

  Bratislava is using the **IVAVIA tool and the Adaptation library** to:

  – *define indicators for the vulnerability assessment that are reported externally,*
  – *carry out assessments for the implemented adaptation options and report these (internally and externally)*

Using RESIN´s standardised tools for urban resilience

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- **Update the outdated – *sectors and areas of comptence***

  By using the **Adaptation library** to:

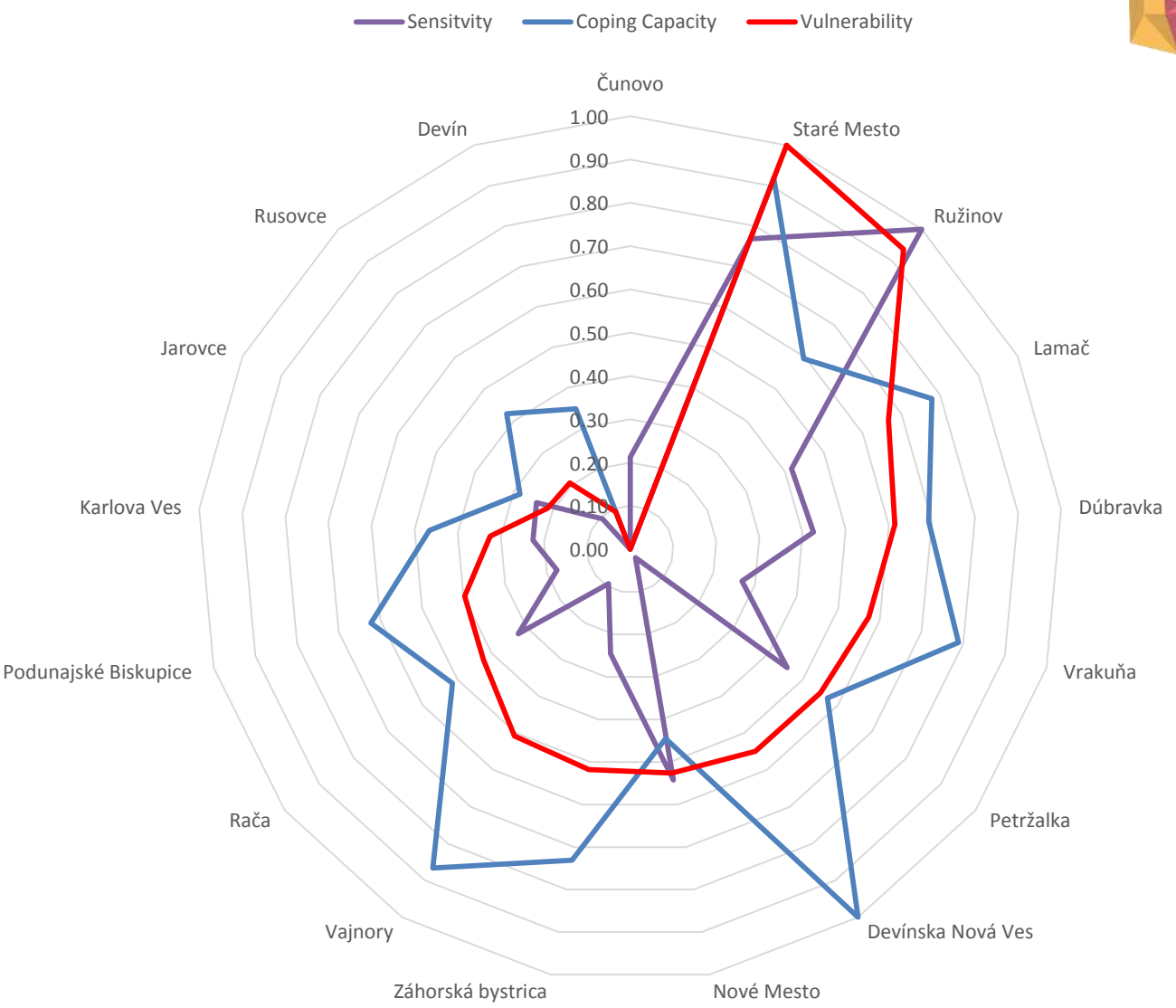
  – *to **choose** among different adaptation options in specific locations, depending on different criteria*
  – *as a **tool for the expert public***

- **Update the outdated – *vulnerability assessment***

  By is using the **IVAVIA tool:**

  - *to increase the city´s resilience during heatwaves, droughts and torrential rainfalls*
  - *to support the **participation** of the City´s **stakeholders***
  - ***logical approach** to defining the different elements along a chain (hazard – stressor - impacts - vulnerability – risk)*
  - *Its design respects the **limited resources** of a resilience officer (time, certain skills)*
  - *IVAVIA´s **supportive tools** to help with the calculations and producing other outcomes such as spatial visualisations (maps, impact chain diagrams, etc.).*

Examples of visualization of results – IVAVIA tool



Examples of visualization of results – IVAVIA tool

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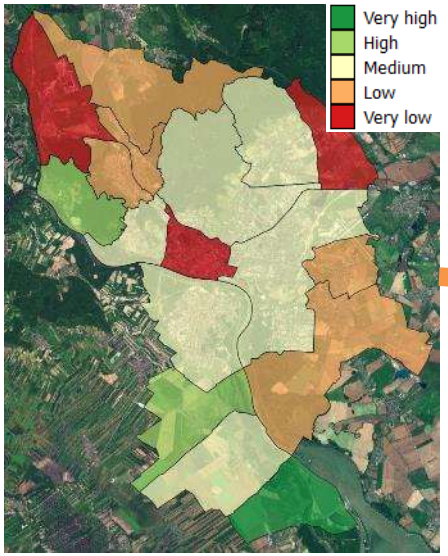
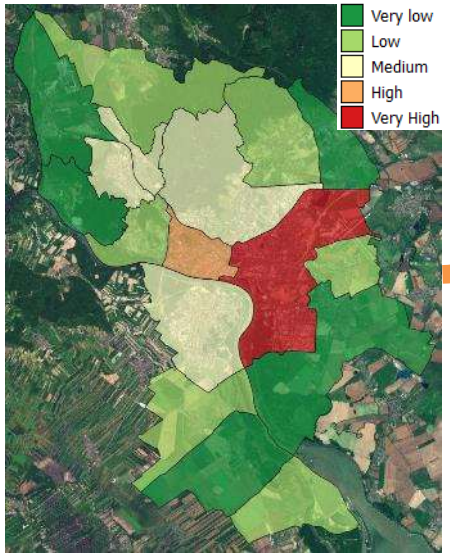
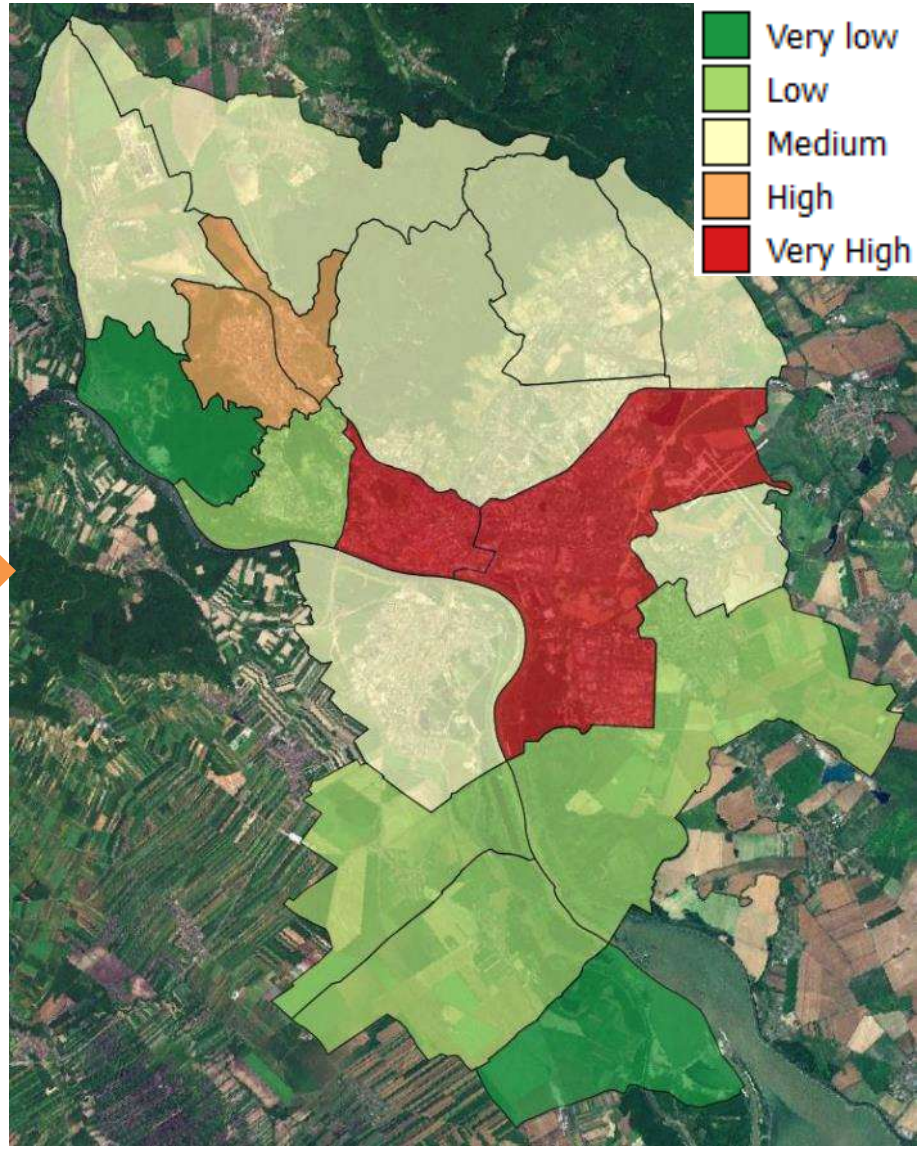
Coping Capacity



Sensitivity





Vulnerability

References

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Thank you for your attention!

Office of the Chief City Architect

architekt@bratislava.sk