SUSTAINABLE ENERGY AND CLIMATE ACTION PLAN OF MERANO/ MERAN

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BACKGROUND AND PROBLEM

- Merano/Meran: Small sized city with 40.000 inhabitants in Adige Valley, South Tyrol, IT
- Merano signed the Covenent of Mayors for Climate & Energy
- A regional strategy to climate change adaptation is missing.[1] This generates a lack of planning for climate change in South Tyrolean cities
- Missing comprehensive strategies, which are including a broad range of economic sectors and spheres of life[1] (only 3 examples in Italy) [2]

METHODOLOGICAL FRAMEWORK

- Calculation of climate scenarios based on data of local weather station of Merano/ Meran
- Involvement of local and regional experts from 10 policy sectors:
  - Expert – Interviews: Screening of most important climate risks and vulnerabilities based on climate scenarios
  - 2 rounds of focus group workshops for defining most important climate risks, evaluating them by expert judgement and creating a catalogue of adaption options
- Search for indicators
- Prioritisation of objectives and measures by the local administration

RESULTS

Risk and Vulnerability Analysis in 7 policy sectors:

- 1st round of workshops: 20 climate risks, ~70 adaptation options
- 2nd round of workshops 13 climate risks, ~ 45 adaptation options
- After prioritisation: catalogue of 33 measures

DISCUSSION

- Evaluating the impact of climate risks by expert judgement is problematic due to over- or underestimation. Corrections were made by defining most important objectives of the municipality.
- Finding impact-related indicators is challenging because of lacking measurements. Actions for data collection to define vulnerability hotspots for various risks are needed to set up a monitoring system.

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Workshop and Poster Session 2.4.F:
Climate risk assessment: from climate impact research to adaptation planning

FINDINGS FROM THE CASE STUDY OF MERANO/ MERAN

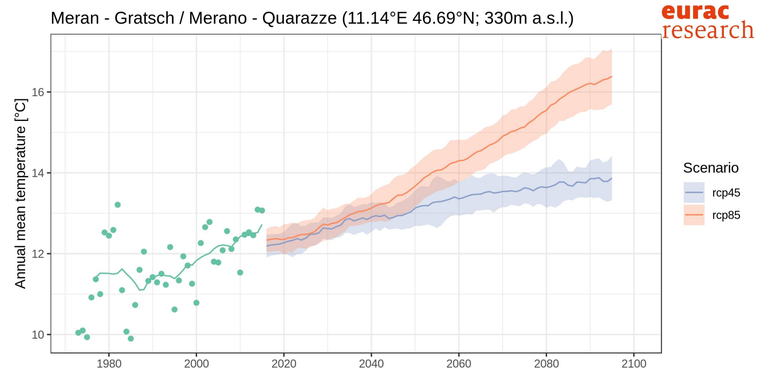
Workshop question 1: How can climate risk assessments inform and support the adaptation process (planning, monitoring, evaluation)?

- The risks and vulnerability assessment conducted, using qualitative methods resulted in a suitable way of supporting adaptation planning in the case of Merano.
- A vertical integration of stakeholders was needed/ i.e. stakeholders from the provincial administration were involved.

Workshop question 2: Do we have enough understanding on climate related hazards, vulnerabilities and impacts in mountains to come up with mountain specific climate risk assessments?

- Mountain – related adaptation measures in Merano are concerning only two aspects:
  - The sensibilisation of inhabitants for natural hazards like landslides and rockfalls
  - The modernisation of the old stormwater drainage system, which simultaneously is still used for the irrigation of mountain agriculture in the city's surroundings.

CLIMATE SCENARIOS [3]



MODEL OF CLIMATE IMPACT ASSESSMENT

Description through indicators

e.g. annual mean temp., N° of tropical nights (T min. >20°C)

Building density (m³/m²), soil sealing (m²), type of land use

Population density and development, Urban district without local service supply

(Number of inhabitants per km²)

Climate hazard (actual/ future)

Vulnerability & Exposure

Climate risk

Social problems for elderly people through heat island

Interpretation and evaluation through workshops

Policy sectors	Most important climate risks
Buildings, Land use planning, transport and civil protection	• Changing urban microclimate • Urban flooding • Damage to buildings and infrastructure caused by floods, debris flows • Damages caused by wind and storms
Agriculture & Forestry	• Dry periods & water scarcity in agriculture • Abiotic damage in forestry (dryness, storm damage)
Health	• Increased spread of allergenic pollen • Distribution of diseases transmitted by vectors (tiger mosquito) • Heat stress for old people
Tourism	• Heat effect on Merano as a health resort
Water	• Increased flood risk (mostly because of the outdated rainwater canal system)
Energy	• Increasing energy demand for room cooling (private and business) and cooling of public vehicles, perishable products, industrial processes, thermal power plants
Biodiversity	• Increasing impairment of plant health due to dryness

REFERENCES

1 Zebisch et al. 2018
2 Pietrapertosa et al. 2019
3 Eurac Research Institute for Earth Observation, 2018