

A scenario and monitoring based planning approach to strengthen the resilience of the cultural landscape

A case study based on the example of monitoring risks towards heavy rainfall events from the research project StadtLandNavi

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Case study StadtLandNavi

- the following speech is based on experiences from the research project StadtLandNavi (2018-2023)
- the project is working on
 - governance analyses
 - cultural landscape analyses
 - citizen and expert participations
 - indicator and scenario systems
 - technical background
 - new dataflows in the region
 - start of technical implementation



Motivation

- regional planning is monitoring and regulating land use and cultural landscape
- the region of Leipzig is characterized by a very dynamic development
- typical long planning cycles have deficits in terms of responding to such dynamic processes



Motivation

- implementation of a decision support and monitoring system to reduce uncertainty
- the indicator and scenario framework should be tailored to the needs of the involved parties



Example heavy rainfall

- hazardous heavy rainfall events are becoming more frequent and devastating
- certain landscape characteristics are able to strengthen the resilience of cultural landscape or are especially vulnerable



Mitteldeutscher Rundfunk, Bernd März;
<https://www.mdr.de/nachrichten/sachsen/chemnitz/zwickau/schlammlawine-oberlungwitz-unwetter-100html>.

General conditions

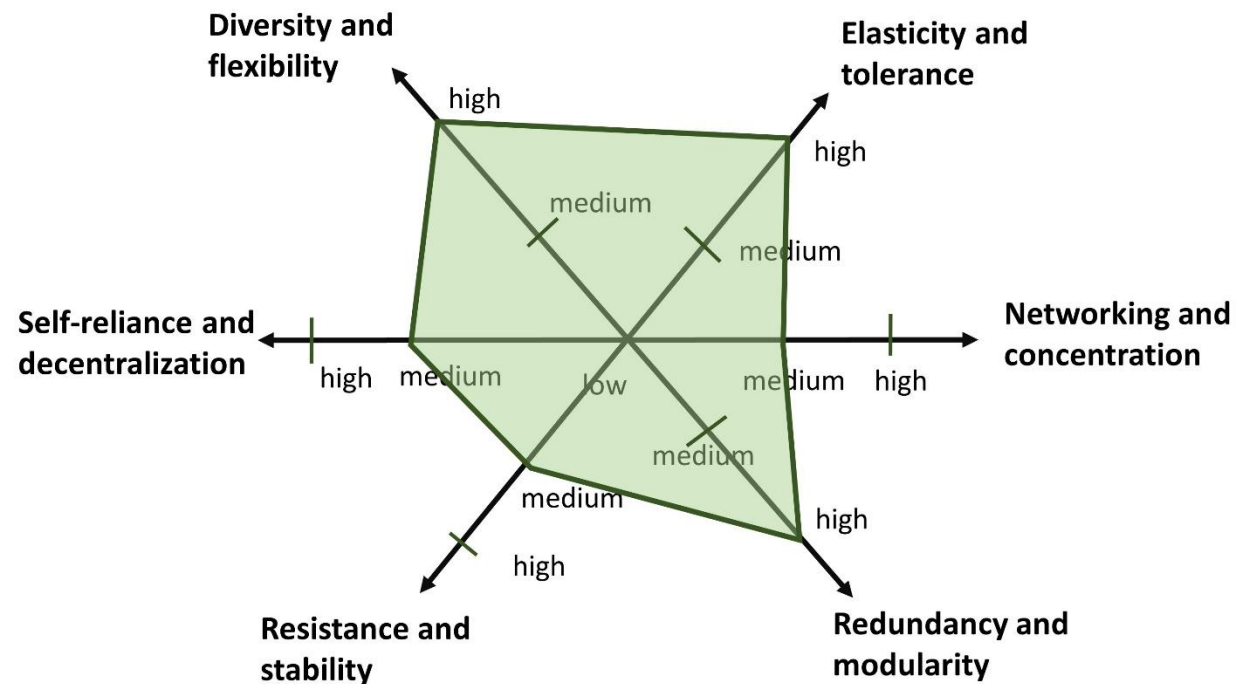
- each landscape has its own resilience
- landscape specific criteria determine the parameters needed to evaluate the resilience
- for adequate planning current knowledge about the development of the criteria is a prerequisite



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General conditions

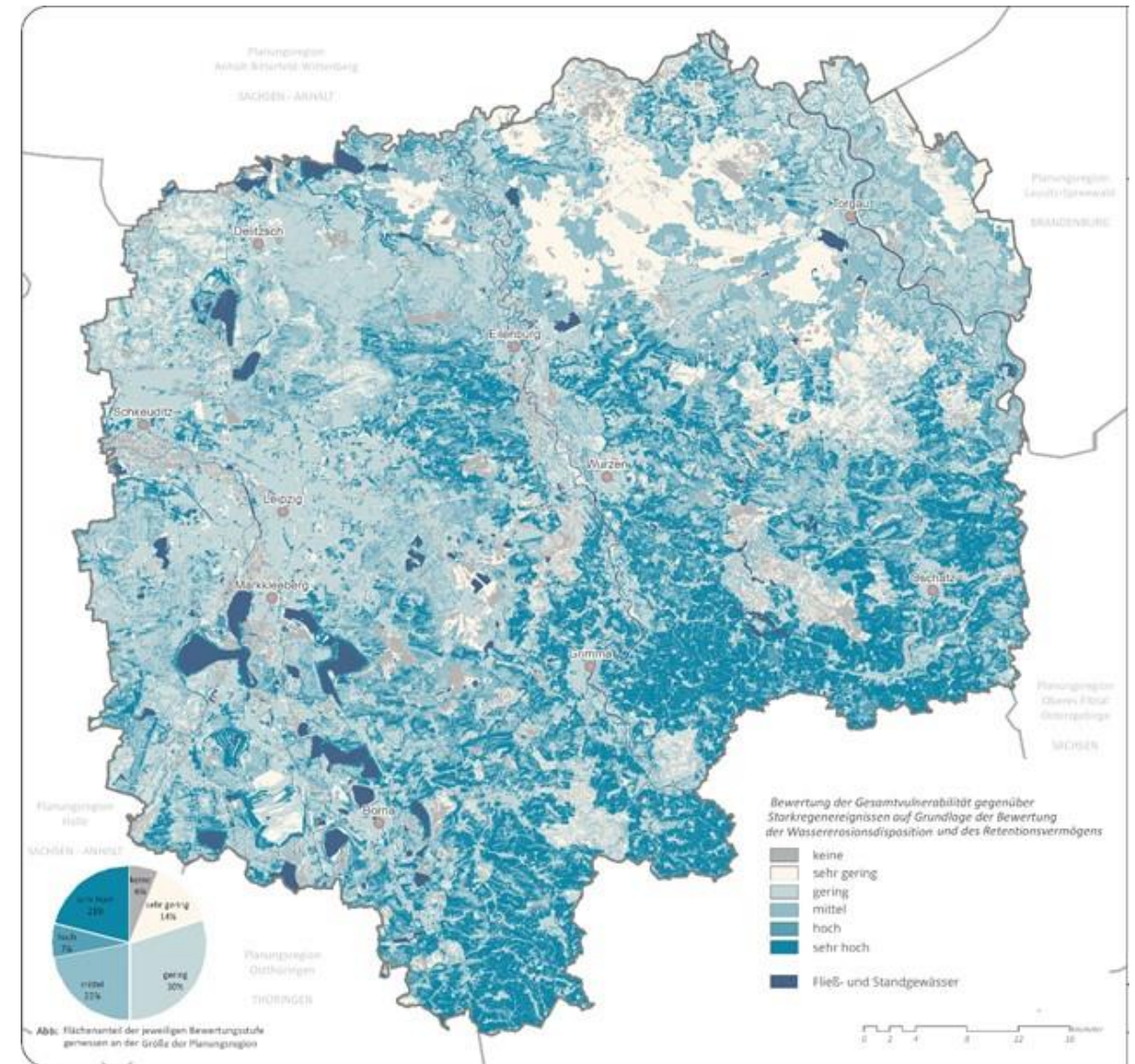
- Parameters to be considered in terms of resilience to heavy rainfall events are for example:
 - soil type
 - slope
 - landscape elements
 - crop rotation
 - management methods
- each criteria needs to be rated how it influences resilience



Translated from: SCHMIDT, C. (2020), Landschaftliche Resilienz. Grundlagen, Fallbeispiele, Praxisempfehlungen, Springer Spektrum.

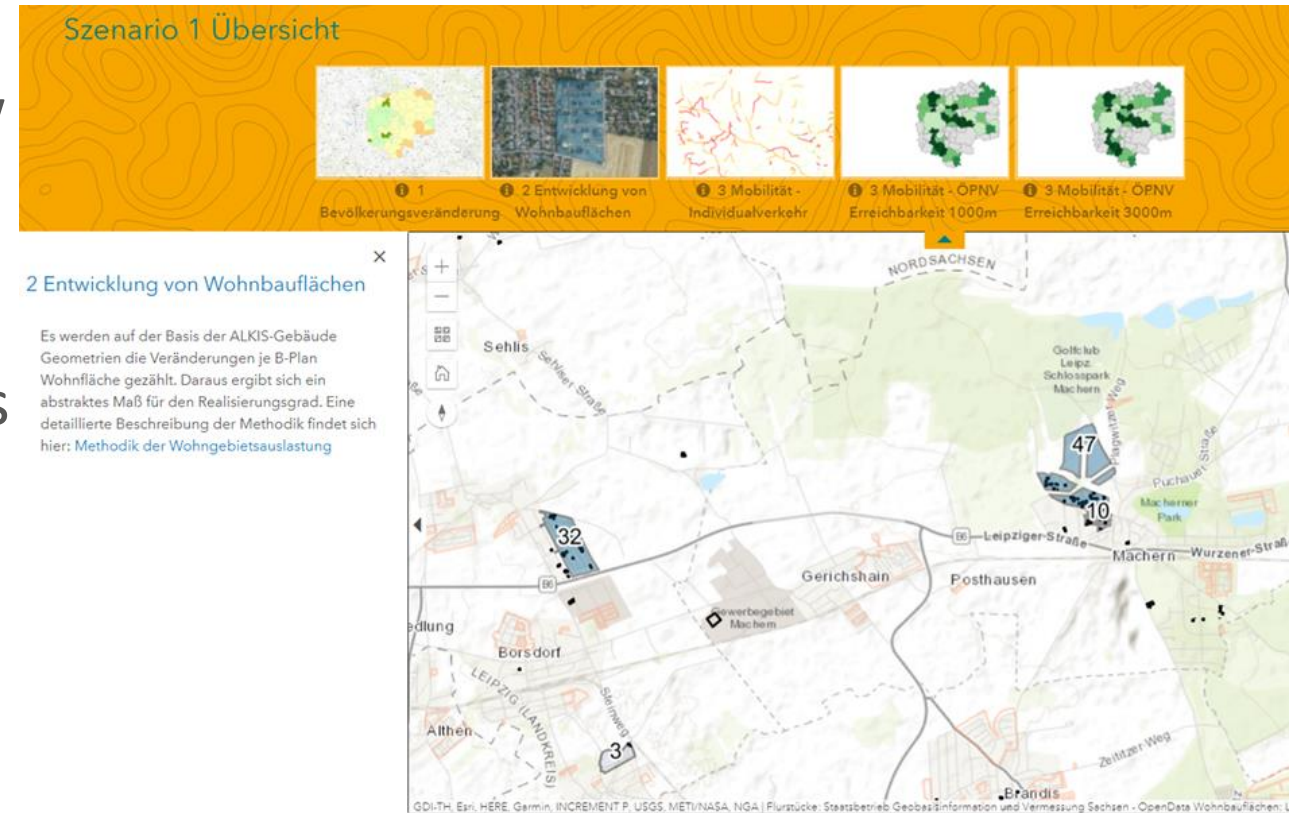
Monitoring

- dynamic factors, like landscape elements or crop rotation need to be monitored on regular basis
- target definitions need to be coordinated
- easy to use indicators are necessary for supporting decisions and communication
- data acquisition, methodology, technical framework and perpetuation needs to be established within the region



Monitoring

- the monitoring tool exist right now as demonstrator and for communication, implementation will be soon
- the monitoring framework consists of several subsets that are combined to main indicators for each topic
- sub-indicators can be used on their own or as combined and weighted layers for decision support

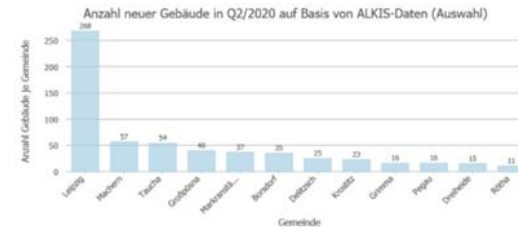


Monitoring

- descriptions and documentation of the methodology is an important part of the knowledgebase that is being built up alongside
- ideally indicators are recalculated when one of the entry datasets is changing

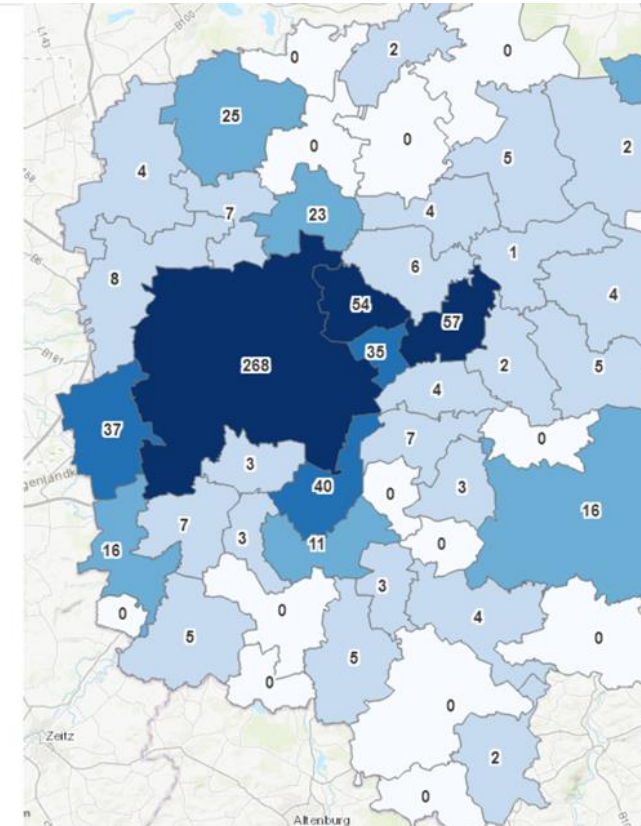
Indikator neue Gebäude zwischen Q4/2019 und Q2/2020 auf Basis von ALKIS

Auf der Basis der ALKIS-Daten können je Quartal die neu hinzugefügten Gebäude abgebildet werden. Dies ist technisch einfach umzusetzen und hat den Vorteil das das Liegenschaftskataster hier deutlich aktueller sein kann als die Betrachtung des Luftbildes (Quartalsweise gegenüber bis zu 3 Jahre)



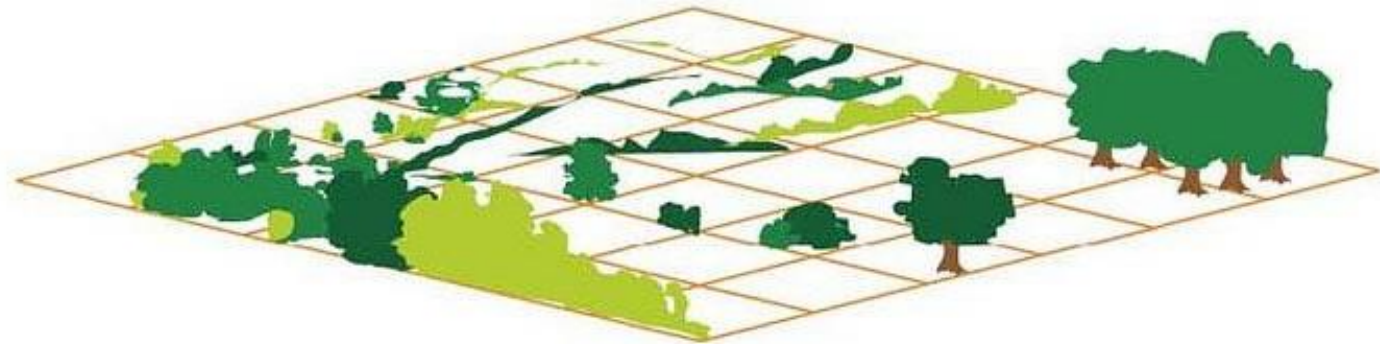
Bezug zu SDG:

Der Indikator kann als Unterstützung zur Abschätzung der Flächenversiegelung durch Gebäudeneubau genutzt werden (SDG 11.3.1 "Flächenverbrauch" wenn in



Workflow

- identifying important topics
- developing indicators and methodology based on latest and local knowledge
- verification of data availability
- discussion with target audience
- adjustment based on available data and needs
- creating technical framework
- perpetuation through agreements



U.S. Government Accountability Office, changed by the author

Conclusion

- existing indicator systems are often not suitable for the questions at hand due to coarse spatial resolution or lack of quality or availability of data
- technical framework needs to be implemented on top of existing systems of a willingly partner in the region
- perpetuation needs to be prepared on all levels like technical, administrative and data exchange



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Findings

- most difficult and not fully solved issue of monitoring is data availability
- current planning and decision making is often based on interpretation of incomplete data
- testing new, more data driven methods for decision support needs lot of communication



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Thank you for the attention!

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