ZuWaKo

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Anticipating synergetic water uses in future irrigation what challenges do we face in South-Western Germany?

Janina Moschner – 26th Sep 2024

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Panel 2: Ag / Urban Water Reconsiliation









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Overview

1. Conditions for future water conflicts in Germany

2. Policy-Mix-Scenario building with Cross-Impact Balances (CIB)

- 1. Challenges in South-Western German future irrigation
- 2. Potential synergetic policy-mixes (preliminary selection)

3. Outlook



1. Conditions for future irrigation water policies in Germany



Risk factors:

- Climate change
- Increasing demand
- Decreasing qualities
 - Unsustainable use
- Poor resource management
 Low water retention capacity of the
 soil



Theoretical irrigation requirements (mm/year) for near-normal and dry years, drawn from McNamara et al. 2024



1. Conditions for future irrigation water policies in Germany

- Identifying scenario spaces with cross-impact balances (CIB) considering the 10 context factors with various alternative developments (Kosow et al. forthcoming)
 - How do they influence future water conflicts?
 - How do they interrelate?

- Selecting three diverse locally distinct scenarios
 - Environment and society in crisis
 - Growth through adaption to climate change
 - Sustainable transformation



Method by Weimer-Jehle 2006, more on: <u>https://www.cross-impact.org</u>



2. Policy-Mix-Scenario building with CIB



Figure 1: Effective direction in CIB policy-mix scenario model. Elements and influence diagram. Effects on problem structuring and system understanding by re-iterating process.



2.1 Challenges in South-Western German future irrigation

- Insufficient and unreliable data availability
- High system complexity and future uncertainty
 - Contrasted by siloed policies
- Different degrees of agency among actors
- Need for cooperation in the most effective measures
- Authorities not responsive but at the center of most policies
- Shifting responsibility and governance positions



2.2 Potential synergetic policy-mixes (preliminary selection)

- Locally anchored policies are conditions for effective synergies, i.e.
 - cross-sectoral water re-use, i.e. industry & agriculture / urban greens
 - restoring ecosystem services, i.e. agriculture & environmental organisations
 - rainwater harvesting / infiltration, i.e. agriculture / urban greens & authorities
 - a balance between using schemes and societal prioritisation, incl. control, i.e. authorities and politics (cross-sectoral and multi-level)



3. Outlook

- Future water conflicts are complex, uncertain, and potentially conflictive
- Need for sustainable practices in all sectors
- Strong need to clarify responsibility and governance tasks
- Openness to diverse future developments for robust and synergetic policy-mixes
 - Participatory modelling
 - Nodal point identification
 - Serious gaming





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Project website: https://www.zuwako.de/

Method website: www.cross-impact.de





Thanks for your interest!

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