A local systems-based approach to explore water stress under climate change

Susanne Hanger-Kopp, 6th ECCA 21 June 2023
WaterStressAT project design

General Inputs
- Core-team meetings, workshop(s)
- Interviews
- Desk research
- Model parameters CWaM/ECHO

Stakeholder interaction
- Core-team reflection
- Interviews
- Core-team reflection
- Workshop with farmers

Intermediate steps
- Integrated Qualitative System map(s) IQSM
- Catalogue of management options
- Qualitative management scenarios

Quantitative modelling
- Model parameters
- Modeled scenarios

Final outputs
- Policy briefs
- IQSM repository
- Research papers
Modelling groundwater levels with the Community Water Model (CWatM)

Three out of four scenarios show similar means, but longer and more pronounced periods of low water levels.
Adaptation options in the agricultural sector

Transformation – building resilience

- More specific CAP interventions
- Changes in demand

- Organic, conservation, regenerative farming
- Diversification towards drought tolerant crops

External incentive

Internal incentive

Incremental adaptation – managing risks

- Monitoring groundwater levels / restrictions on withdrawal
- Bringing in water from Hungary

- Diversification within the existing crop spectrum
- More efficient irrigation technology

- Monitoring groundwater levels / restrictions on withdrawal
- Bringing in water from Hungary

- Diversification within the existing crop spectrum
- More efficient irrigation technology
EU Common Agricultural Policy (2023-2027)

- Minimum standards that target our management options
- Strong focus on soil

Reducing agricultural irrigation in Seewinkel for sustainable water management

Gap between Green Deal – CAP ambition and locally specific transformation needs
Some challenges for transformation...

• Communicating model results...
  ... participants preferred focusing on optimistic scenarios, deflecting from more radical options.
  ... model cannot reflect decision making realities of farmers.

• The dominant discourse preserves status-quo of agri. practice
  ... how to scale-up sustainable niche practices, requires actors and levels of action beyond the agri sector,
  ... and lack of opportunities to tailor agricultural policies at the sub-national level.
Contact us!
Susanne Hanger-Kopp, Julia Beier
International Institute for Applied Systems Analysis
E-Mail: hanger@iiasa.ac.at, beier@iiasa.ac.at
www.iiasa.ac.at/waterstressat