SaliDrâa جوج

Salt in the system

iES Landau - Institute for Environmental Sciences - Group Social-ecological Systems

Introduction

The German Moroccan research project is focusing on the consequences of climate change and human activity on the water bodies of the **Drâa River Basin**. The aim is to find solutions for problems like **salinization** and develop strategies for **sustainable water use** that benefit the people in the Drâa River Basin and the environment. Climate change, the overuse of water resources and falling groundwater levels contribute to increasing salinization of soils and water bodies in the basin which negatively affects the survival of local plant and animal species, reduces agricultural production and threatens human well being. Hence **sustainable adaptation strategies** are needed.

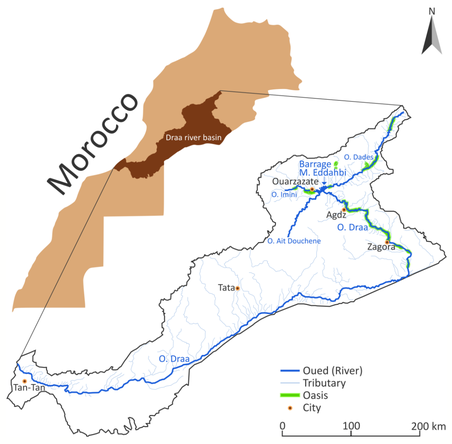


Figure 1: Study Area

Project structure and methods

WP1: Transdisciplinary cooperation

This work package serves the targeted exchange of methods, concepts, theories and results between the different work packages, team members and practice partners, the clarification of terms, the strengthening of personal relationships, as well as the organizational coordination in the project team.

WP2: River Ecosystem

Aim: Assess the effects of water/soil salinity and other anthropogenic/natural stressors on biodiversity and ecosystem functions of the Drâa river.

Methods and data collection:

- Quantitative and qualitative sampling of the river biodiversity.
- Laboratory and field experiments.
- Point and continuous physico-chemical measurements of the river water.
- Remote sensing and GIS.

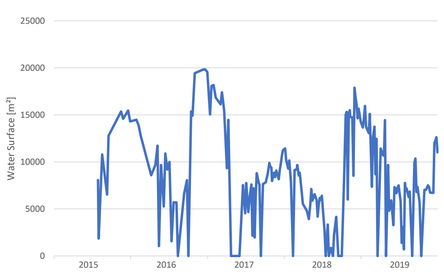


Figure 2: Water Surface Area [m²] in the study site "Mrimina" from mid-2015 to 2019.

WP3: Ecosystem Services

Aim: Assess the values of the key ecosystem goods and services in the Drâa river basin to facilitate their integration into the local and regional decision-making process.

Methods:

- The Economic of Ecosystem and Biodiversity (TEEB) approach to identify ecosystem services.
- Social network analysis to identify environmental resources decision-makers and managers.
- Environmental valuation and value aggregation methods.

Data collection techniques:

- In-depth-semi-structured-interviewing with decision-makers at governmental institutions, local associations, and farmers' households.
- Focus groups approach.
- Quantitative surveys.

WP4: Land and water conflicts

Aim: Analyse and explain what drives the current water and land-related conflicts in the Drâa basin.

Qualitative methodology:

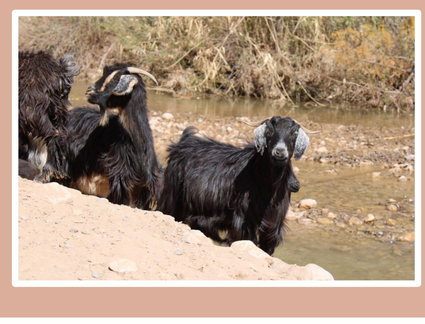
- Case Study approach applied to conflicts.
- Actor-based approach to analyze the conflicts (Schilling, 2016).
- Life trajectories to understand water and land-use-practices in the context of wider socio-political processes.

Data collection techniques:

- In-depth-semi-structure interviewing with water users, traditional authorities, and governmental institutions.
- Systematic observations of daily water and land use practices.

WP5: Transdisciplinary conclusions and recommendations

By combining the various results and observations of the previous work packages, work package 5 aims develop practical recommendations for water use and conservation plans as well as to develop new concepts of social-ecological systems in relation to river basins. New transdisciplinary concepts may be insightful applicable to overcome challenges in the context of complex interactions between humans, water and biodiversity, not only in the Drâa river basin, but worldwide.



Status quo

- Several **exploration field work visits** have been conducted by both social and ecological teams.
- **Data** have been gathered about the Drâa river basin; flow regimes, habitat heterogeneity, water physico-chemical measurements, land use and anthropogenic activities.
- Good **contacts** have been established with stakeholders, local authorities and scientific partners and common ground for future collaborations have been discussed and underlined.

Next steps

- **Field campaigns** focussing on quantitative seasonal, social and ecological **assessments** are ongoing.
- A **project website** will be launched next month: www.salidraajuj.uni-landau.de
- The next large **project workshop** will be held end of this year

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Reference: Schilling, J. (2016). *Actor-based Conflict Analysis Applied to a Case Study in Northwest Kenya.* Augsburg.