

Wastewater as a resource: research project about wastewater reuse for agricultural irrigation in Namibia

Background / Problem:

Arid regions like Namibia face a serious risk to water security driven by the impacts of climate change and the increasing demand from population growth and agricultural irrigation. These challenges are further compounded by limited inland water resources and subpar water infrastructures. The diversification of water resources, especially water reuse, could significantly reduce reliance on rain-, surface- and groundwater. With appropriate treatment, municipal wastewater can be safely reused for agricultural irrigation.

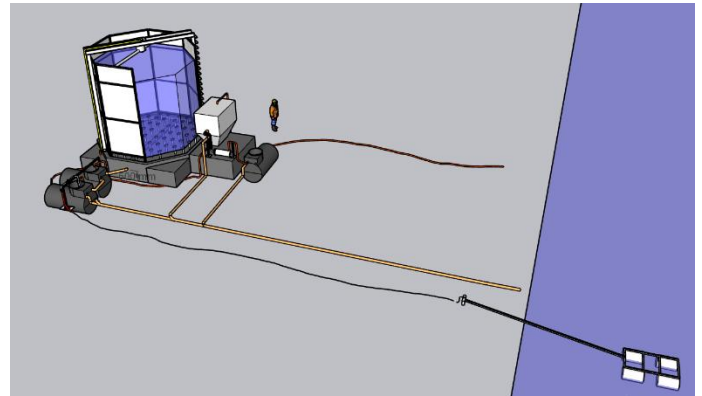


Abbildung 1: Modell der Pilotanlage

As part of a research project, a pilot-scale wastewater reuse plant is being operated in Namibia to provide further treatment of semi-treated wastewater from wastewater ponds. The pilot plant integrates different technologies for further wastewater treatment, including a trickling filter, a pile cloth media filter, and UV disinfection. Its aim is to produce irrigation water that is safe and complies with both national and international standards for agricultural reuse.

Assignment:

The following tasks may be addressed in the thesis:

- Planning and implementation of regular wastewater sampling along the process line
- Implementation and coordination of physical-chemical and microbiological water analysis
- Analysis of the performance of individual treatment steps and combinations
- Individual tasks depending on project progress (and individual/personal wishes)

Target group: Master students of environmental science, civil engineering or similar programs. Ideally you have completed the “Wassergütepraktikum” or have similar lab work experience. Motivation for independent and scientific work, combined with problem-solving skills and a solution-oriented approach. Good written and spoken English.

Begin: Flexible, but no earlier than December 2025

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