



Multi-functional Constructed Wetland

Description

A constructed wetland is multi-functional filter system that purifies wastewater through the natural functions of microorganisms, plants, and substrate. The treated water can be reused in agriculture. They use physical, chemical, and biological processes for the conversion and removal of contaminants. The treatment beds consist of shallow-lined basins filled with filter media (generally gravel or sand) and are commonly planted with aquatic macrophytes. They treat wastewater from a wide range of sources, such as domestic, industrial, and agricultural wastewater or landfill leachate, and are situated in different climate zones around the world.

Benefits

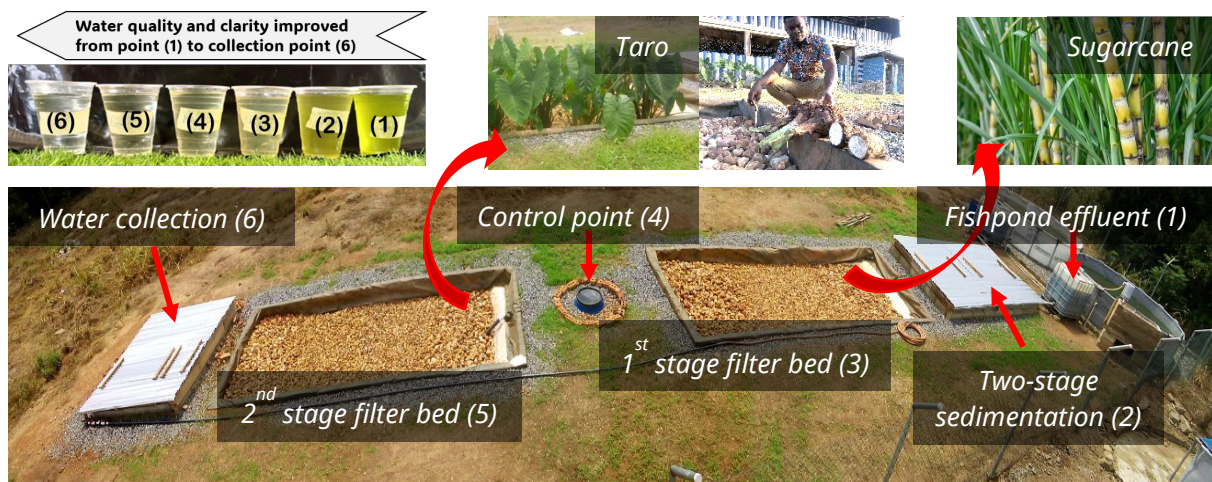
- Promotes sustainable water management
- Can be adapted to produce food, herbs and medicinal plant

Challenges

- Requires sufficient space, limiting applicability in densely populated urban areas.
- Regular maintenance is crucial to prevent clogging.
- The initial setup cost may be unaffordable

Country Example: CSIR, Crop Research Institute Ghana

The purpose of the study at the Council for Scientific and Industrial Research (CSIR), Crop Research Institute was to treat fishpond effluent and assess the viability of cultivating multifunctional plants (taro and sugarcane) in the filter beds. The MFCW was fed 1000L of fishpond effluent daily. On a biweekly basis, various locations of the MFCW were checked for water quality, including temperature, salinity, pH, total dissolved solids (TDS), conductivity (EC), and dissolved oxygen (DO). Each month, samples of water were taken to determine BOD, COD, Total Phosphorus, Total Nitrogen, E-Coli, and Total Coliforms.



Knowledge Sharing Centres

Below are the contact persons for country specific questions. Please refer to them or the Coordinator from Hochschule Wismar, for details about the technologies that have been piloted or project research, training, and dissemination activities that are being planned in your region or country. The project runs until May 2025, with Knowledge Sharing Centres established to continue the work beyond that date. More details available on the website <https://www.divagri.org>

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This fact sheet serves as a general overview of the above bio-based technology (BBT). It is one of seven BBT factsheets. It describes one prototype of this technology that was developed prior to 2023. Adaptations of it have been made for the various country and local contexts. Please contact the country Knowledge Sharing Centre for more details. The EU-funded DIVAGRI project (2021-2025), 'Revenue diversification pathways in Africa through bio-based and circular agricultural innovations' seeks to provide African subsistence and smallholder farmers with tools to sustainably improve farm productivity, profitability and resilience through improved management of farming resources, output diversification and creation of high-value circular bioproducts. For more, visit [divagri.org](https://www.divagri.org)



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