Case study factsheet

Sewerage Systems Ghana

Last update on 2024-12-16

Project WIDER UPTAKE

Ghana

Description

The Accra Demonstration Case, implemented by the Council for Scientific and Industrial Research (CSIR) and Sewerage Systems Ghana Limited (SSGL), aimed to demonstrate the viability of two water-smart solutions:

1. Water Reuse: Treated wastewater from SSGL's Mudor Treatment Plant was used to irrigate vegetables at a CSIR demonstration site. Monitoring focused on the quantity and quality of the wastewater, soil, and vegetables, including physico-chemical characteristics, microbiological parameters (E. coli, Vibrio), and heavy metal content. Results indicated that the treated wastewater was safe for irrigation, and the vegetables produced were of good quality and met safety standards.

2. Biochar Production: SSGL produced biochar from a composite of fecal sludge and sawdust (2:1 ratio). This biochar was provided to 15 SMEs for trial use as a fuel alternative to wood charcoal. Monitoring assessed the biochar's quality (calorific value, moisture content, ash content, etc.), its burning characteristics, and the associated air emissions (CO, PM2.5) during its use in uncontrolled cooking tests. Results showed the biochar was a high-quality fuel with environmental and health benefits.

The overall objective was to demonstrate the feasibility and benefits of these symbiotic solutions for sustainable resource management and business development in Ghana.

What the case study is about

Sectors: Water, agriculture, and SMEs using wood-based charcoal (various sectors)

End - users: Public and private sectors for agriculture, and for replacement for charcoal in heating

Scale & capacity:

Plant has capacity of treating 18,000m3 per day of municipal wastewater

Under demonstration, 20-30m3/day of treated water will be transported for farmers' use; and 500-1000kg/day of biochar will be produced

Legislation and policy recommendations

- Circular Economy Action Plan (COM/2020/98 final)
- UWWT directive

Key national applicable:

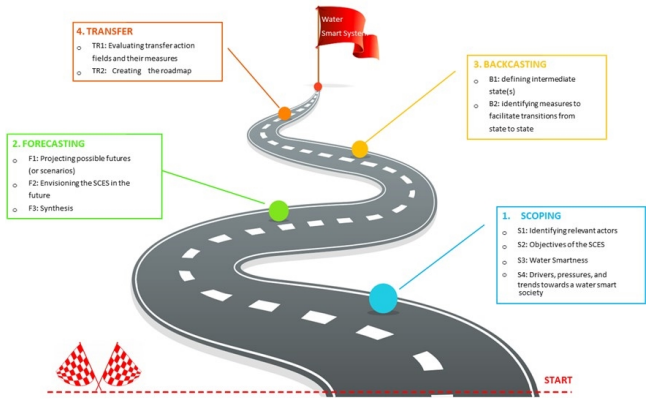
- Environmental Sanitation Policy, Ghana
- Ghana Standards Authority, Standard Requirements for Effluent Discharge (GS 1212:2019)
- Accra Metropolitan Assembly Byelaws

Applied technologies

- **Resource for Circular Economy**
- **Water Reuse and Recycling**

Applied product

The WIDER UPTAKE roadmap guide



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Scale

Operational scale of this case study related to the application of tools and technologyies

- Local scale

Challenges

Challenges that are addressed through the application of tools and/or technologies to the case study

- High or increasing irrigation water demand for agriculture
- Need for reuse and recovery schemes for wastewater & sludge

Related tag

biochair

Downloads

The following file can be downloaded from the online page of the case study:
https://mp.watereurope.eu/d/CaseStudy/47

- Report on Monitoring of Irrigation Water and Biochar
  (source: https://wider-uptake.eu/publications)

Contact data

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Involved organisation

1. CSIR