

Europe's Sanitation Problem

Demonstrating Affordable Decentralized Sanitation, Wastewater and Nutrient Re- use in Rural Bulgaria

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Rural Sanitation Background



- **Centralized water supply in 96% of the villages in the country;**
- **No sewer, no working mechanism for wastewater management in 98% of the villages in the country;**
- **No solid waste collection in 50% of the villages.**





Management of wastewater / greywater

- Very few households produce wastewater – only greywater;
- Soakaways for waste / greywater;
- Emptying of the soakways;
- Discharge in the garden;
- Discharge in the neighbor's garden;
- Discharge along the street;
- Discharge in the nearby gully.







Groundwater vs drinking water quality



Traditional reuse of wastewater



Traditional reuse of biowaste



Introduction of sustainable sanitation in rural Bulgaria

- UDD toilets, plus
- Waterless urinal, plus
- Greywater treatment facility: vertical planted soil filter, mulch filter, plus
- Sanitizing of ecosan products, incl. composting, vermicomposting, plus
- Reuse of ecosan sanitized products to improve soil fertility for more efficient agriculture.

Building of UDD toilets





Composting



Re-use of sanitized sanitation products

No application



Urine application



Re-use of sanitized sanitation products







Thank you for your attention!