

Equipment

Laboratory for Environmental Sanitation

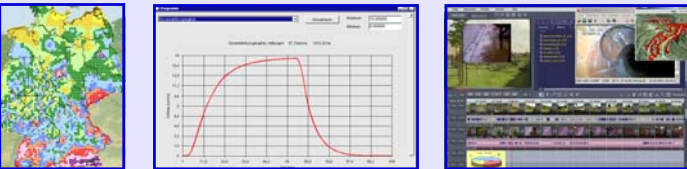


- Sewage analysis
- Water tests
- Sludge and solid examination
- Execution of field experiments
- Mobile run-off and level measurement for sewage, rainwater pipes and rivers
- Equipment for sewer inspection / tightness check

Compilation of waste technologies

- Equipment for grading and crushing the waste (hydrocyclone, jigger screening, granulator)
- Measuring probe for parameter assay
- Macroanalysis and particle size classification

EDV - Equipment



- Technical software
 - Sewers - Plants - Water conduits
 - Kanal++ with Flut / DYNA, Hystem-Extran
 - KOSIM, MOMENT, Denika, BelebungsEXPERT
 - STANET, Pumps, Infiltrationssoftware, HELP-3D, (self-styled) excel/pdf sheets
- Geo Information Systems
 - Arc-GIS, QGis
- CAD - work stations
 - Auto-CAD
- Video capturing and 3D-animation

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University of Siegen - Université de Siegen

Sewage and Waste Technology

efficient • practical • excellent



Department of Civil Engineering
Section Sewage and Waste Technologies



Research Institute for Water and Environment
Section Sewage and Waste Technologies



Activities

Sewage technologies

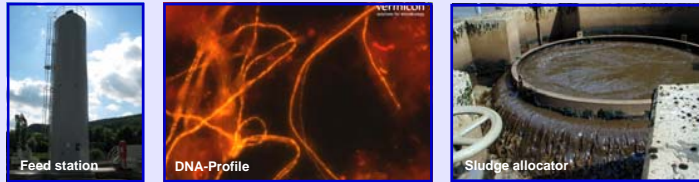
- Master plan sewer systems
- Integrated view of system components sewerage – sewage plants - water bodies
- Sewerage and rainwater management, drainage calculation and pollution load controlling
- Ability, improvement and extension of municipal sewage facilities and private drainages
- Pipe rehabilitation, sanitation and renewal through trenchless technologies ("Closed coverage type")
- Quality assurance and environmental pertinence
- Feasibility and impact studies on environmental terms
- Efficiency analysis and reduction of costs
- Occupational safety at sewage facilities
- Concepts for energy saving (regenerative heat recovery, aeration energy)
- Septic tanks, constructed wetlands and soil filters
- Problems of industrial and domestic effluents
- Sewage sludge, sand and other solids

Waste technologies

- Mass flow management on the construction site
- Development of methods and devices for ecological and economical evaluation of waste treatment, disposal and recycling
- Identification, evaluation, controlling and reduction of all kind of emissions
- Expertise on landfills in operation, decommissioning and maintenance (re-cultivation)
- Sustainability strategies and feasibility studies belonging to solid waste management
- Integration of environmental protection and working safety in operational management systems (certification to waste management companies, waste management concepts)
- Consulting in land recycling and handling with abandoned polluted areas or contaminated sites;
- Mapping, integration and visualization in GIS

Projects

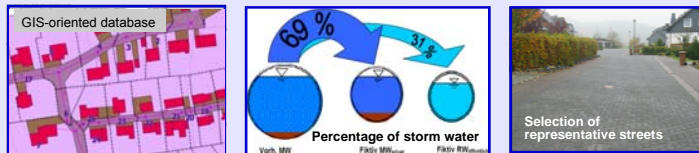
Calcium carbonate at sewage plants



Topic:

- 12-month-full-scale test at a sewage plant
- Permanent stabilization of the acid-neutralizing capacity (ANC); increase of the natural buffer
- Enhancement of the biological milieu
- Improvement of sludge gravity
- Implementation of an online control

Street drainage



Topic:

- Investigation of paved areas
- Usage of a Geo Information System (GIS)
- Examination of digital aerial photographs and universal land register maps; Local verification of premises
- Virtual construction cost calculation (2-Channel Method, 3-Channel Method)

Sewage plant



Topic:

- Review and assessment of sewage disposal
- Consideration about variants of peripheral and central sewage treatment
- Cost comparison with the LAWA - referral for several scenarios ("cost-efficiency")
- Value benefit analysis
- Decision guidance

Projects

Landfill site



Topic:

- Expert analysis of the sustainable elimination of olfactory issues
- Analysis regarding cause, impact and extent
- Registration, interpretation and improvement of the landfill operation
- Recommendation for decommissioning of trash dumps, re-cultivation and maintenance

Soil deposit



Topic:

- Expert's report on the prospective usage of the former soil landfill as an industrial area
- Historical exploration to indicate existing pollutants
- Risk assessment and sensitivity analysis
- Lab analysis of drill cores

Municipal budgeting



Topic:

- Inventory and status determination of the municipal property (infrastructure)
- Classification and evaluation of streets, municipal building construction, bridges, premises and forest
- Balancing of tangible assets and liabilities
- Usage of GIS for capture, support and presentation