

EU Project Neptune

(www.eu-neptune.org)

New Sustainable Concepts and Processes for Optimization and Upgrading Municipal Wastewater and Sludge Treatment

Duration: 01 November 2006 - 31 March 2010
Coordination: Eawag, Switzerland, Prof. Dr. Hansruedi Siegrist

- EU Neptune project (Contract No 036845, SUSTDEV-2005-3.II.3.2)
- is financially supported by grants obtained from the EU Commission
- within the Energy, Global Change and Ecosystems Program
- of the Sixth Framework (FP6-2005-Global-4)

The scope of sewage treatment is changing: today municipal WWTP are seen as end-of-pipe treatment before discharge to avoid eutrophication, toxic effects and hygienic health hazard in surface water.

Due to global demographic trends, climate change and new legislations future focus is put on quantity and quality of effluents: **WWTP are delivering resources to the environment and for human activities.**

Existing focus:

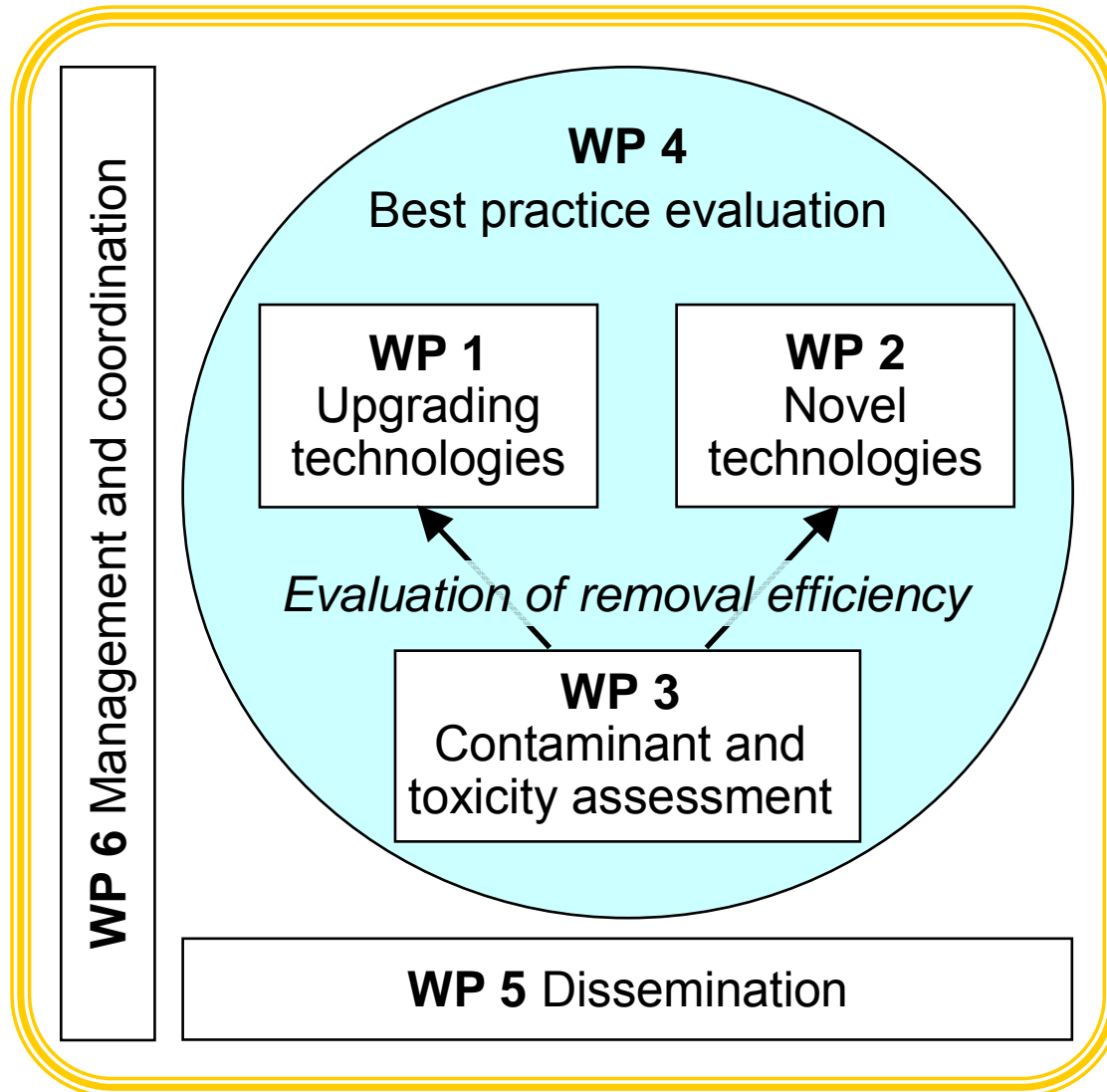
- wastewater treatment
- nutrient removal
- pathogens removal
- energy optimization
- sludge disposal

New focus:

- water reuse
- nutrient recycling
- micropollutants and ecotoxicity removal
- energy production
- reuse of sludge and of its resources

This shift has implications on the quality goals for WWTP products.

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Consortium:

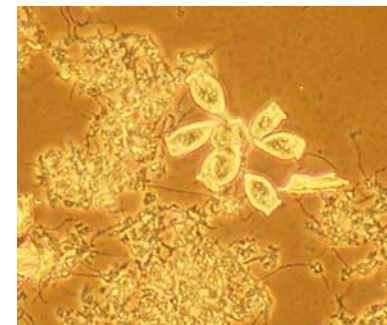
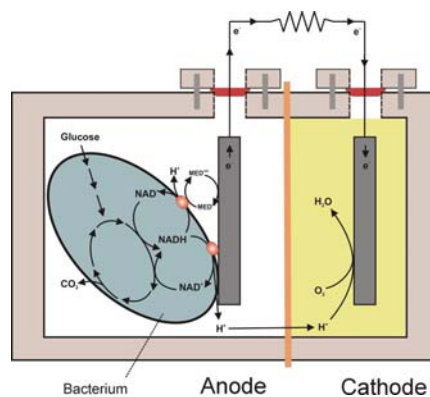
- 7 GOs and Universities
- 2 Industry and consulting
- 7 SMEs
- 2 Non-European partners
- 28 End-users

Topics

- Improvement and optimisation of nutrient removal with in-situ online sensors
- Sustainable sludge handling, treatment and inertisation
 - Separate treatment of primary and secondary sludge
 - Sludge disintegration and inertisation methods
- Waste design methods to reduce nutrients and micropollutants
 - Separate sludge liquid treatment with nitrification/anammox
 - Hospital wastewater treatment
- Effluent treatment for removal of micropollutants and pathogens
 - Ozonation of WWTP effluent
 - Activated carbon adsorption

Topics

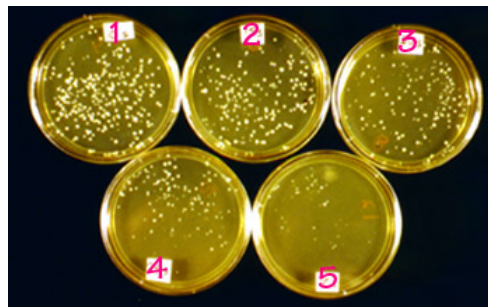
- Microbial fuel cells
- Ferrate technology
- Manganese oxide upflow bioreactor technology
- High temperature pyrolysis
- Polymer production from sewage sludge



WP3: *Contaminant and toxicity identification and assessment*

Topics

- Determination of organic pollutants and metabolites
- Ecotoxicity assessment of effluents
- Identification of pathogens and indicators
- Concept for a mobile analytical unit



WP4: Life Cycle Assessment (LCA) of different wastewater treatment processes

Topics

- Method development
- Method application for the assessment of environmental sustainability and best practices of wastewater and sludge treatment
- Data generation and provision



Topics

- Website construction
- Midterm workshop and end-user conferences
- General dissemination of results
- Newsletter, two issues were published
- Catalogue composition

