# Electrocoagulation as Decentralized Wastewater Treatment towards a Sustainable Development

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## Vision & Mission

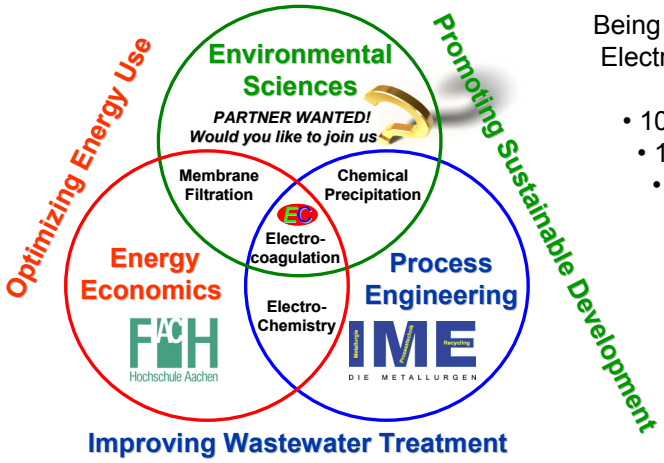


**Fig. 1:** Workgroup synergies and main goals

## Electrocoagulation at a glance

Being well suited for decentralized and continuous operation, Electrocoagulation technology provides several benefits like:

- 100% controlled phosphorus removal (eutrophication)
- 100% turbidity removal reducing membrane fouling
- Above 50% COD, TOC, TNb removal rates (average)
- Very low energy demand requirements (<0.2 kWh/m$^3$)
- Environment-friendly and cost-effective coagulant
- Simple and effective one-step metal recycling process
- Sludge free of heavy metals or sulfides (without salts)
- Effluents suitable as fertilizers (inexpensive disposal)
- $CO_2$ sequestration chance as primary treatment (CDM)
- Powered by clean energy becomes entirely sustainable

Technical advisory was provided at **RWTH-Aachen** University with kind support from

**Prof. Dr. Ulrich Koelle**
Institute for Inorganic Chemistry **IAC**

**PD. Dr. Michael Schroeder**
Institute for Physical Chemistry **IPC**

Wastewater was supplied by the municipal Sewage Treatment Plant **Aachen-Soers** with the friendly support from **WVER Wasserverband Eifel-Rur**

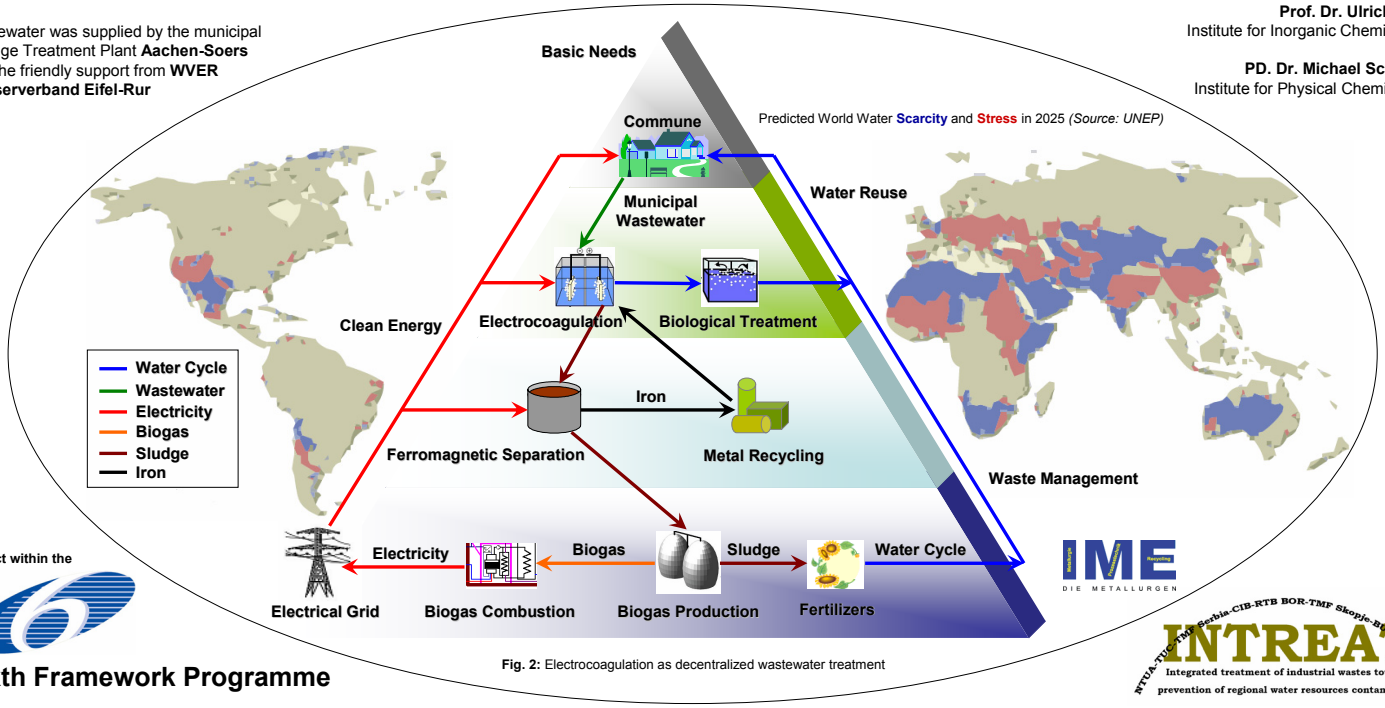


**Fig. 2:** Electrocoagulation as decentralized wastewater treatment

Project within the
Sixth Framework Programme

INTREAT
Integrated treatment of industrial wastes towards prevention of regional water resources contamination

## Research & Development

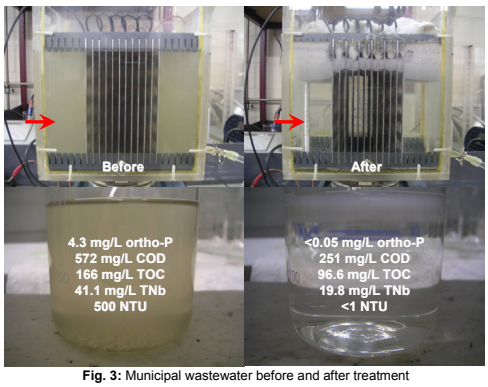


**Fig. 3:** Municipal wastewater before and after treatment

Results from tests using municipal wastewater provided by the sewage treatment plant Aachen-Soers WVER allowed to determine the efficiency of EC-process in a real application.

After treatment, effluents seem to be not only more suitable for agricultural purposes, but also the amount of sludge is much less and more easy to handle as pollutant-free fertilizers.

## Conclusions & Outlook

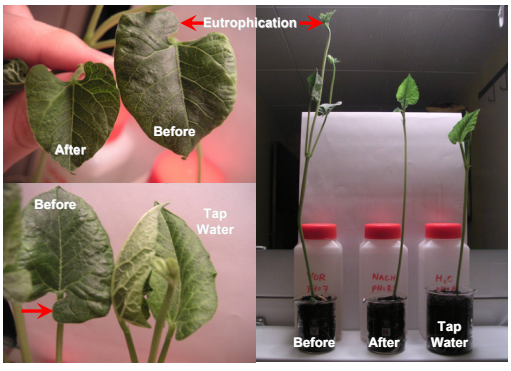


**Fig. 4:** Water reuse test using before and after treatment effluents



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