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Demonstration of promising technologies to address emerging pollutants in water and waste water

Erwin Beerendonk
Theo van den Hoven

Call publication	July 2011
Short proposal	October 2011
Short listed	December 2011
Full proposal	February 2012
Awarded	May 2012
Contract	October 2012 (but starting date September)
Joint kick-off EC	16, 17 October 2012
EC pre-payment	6 November 2012
Project kick-off	8, 9 November 2012

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DEMEAU: GA 308339

EU Call: ENV.2012.6.5-2

Total costs: 4.6 M€

EC contribution: 3.0 M€
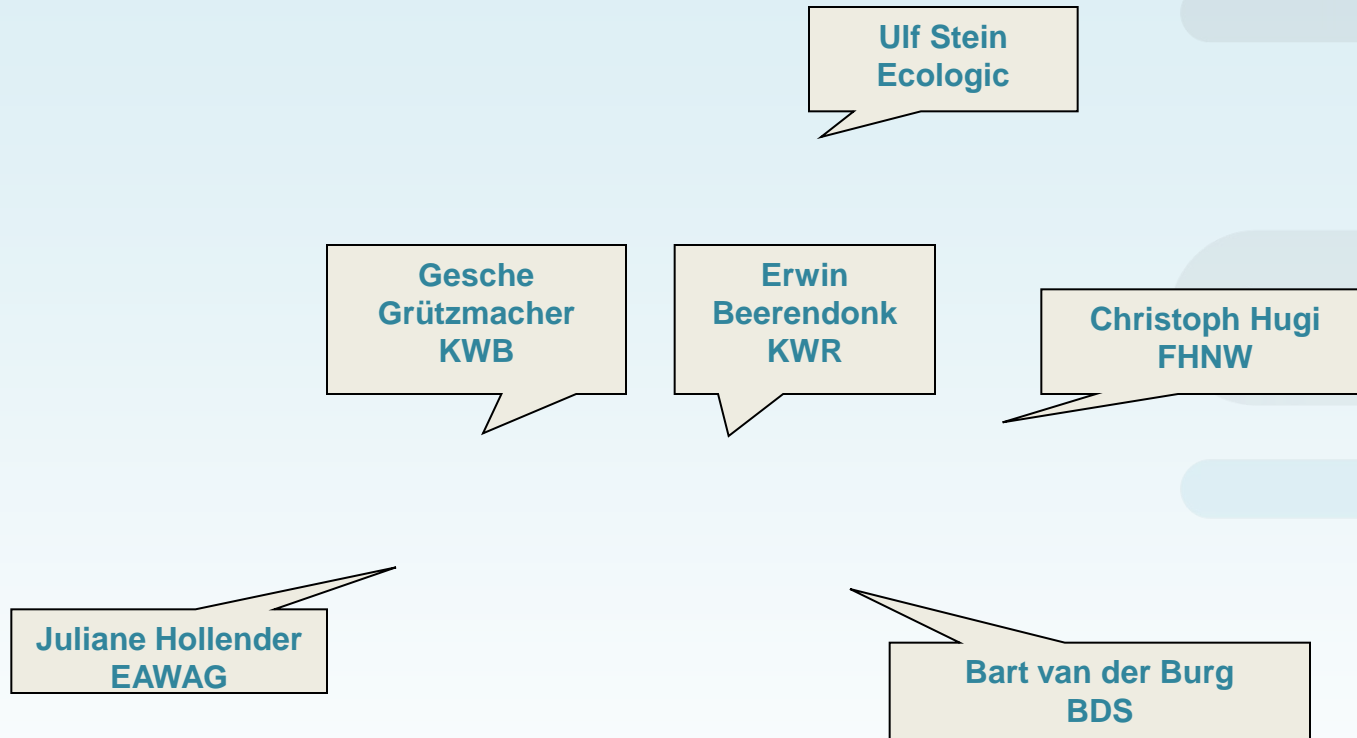
Duration: 36 months

Coordinator: KWR, Theo van den Hoven

Consortium: 17 partners from 5 countries
(NL, DE, CH, FR, ES)

Website: www.demeau-fp7.eu

Overall objective:

To promote the uptake of knowledge, prototypes and practices from previous EU research <u>enabling the water and wastewater sector to face emerging pollutants</u>

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WP11: Demonstration of MAR benefits and environmental impacts related to emerging pollutants in Europe

Deliverables
➔ Catalogue of EU MAR applications (database)
➔ Recommendations for optimum design & operation

Surface Water
Withdrawl

Q
Pond
Q
unsaturated zone
Aquifer
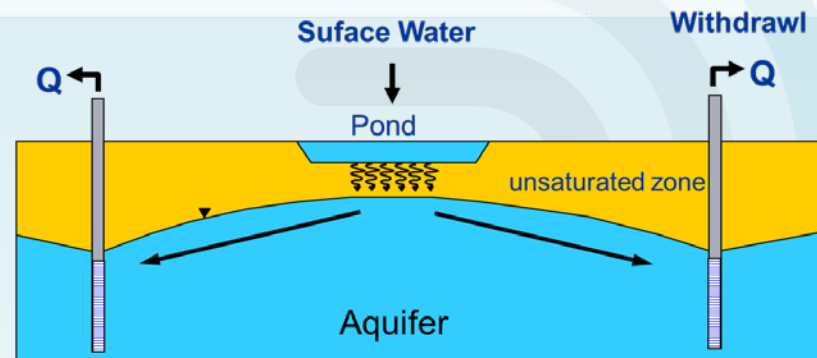
WP12: Development of a EU approach for MAR authorization

Deliverables
➔ Decision tree for MAR impact evaluation
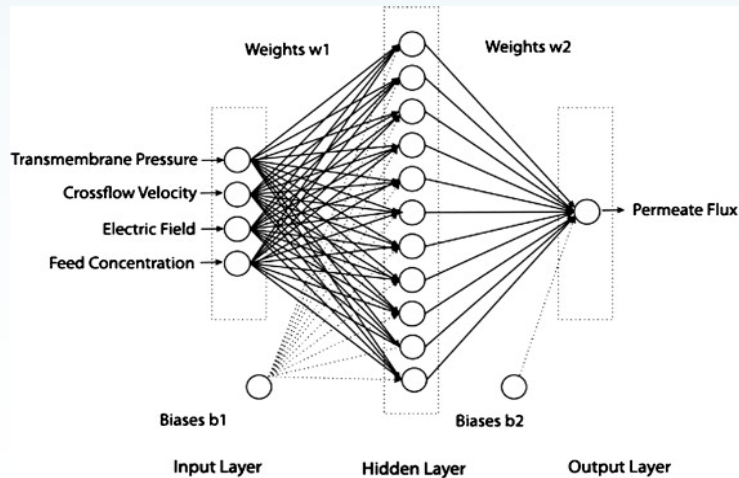➔ Pre-requisites and design criteria for new MAR systems in compliance with EU directives

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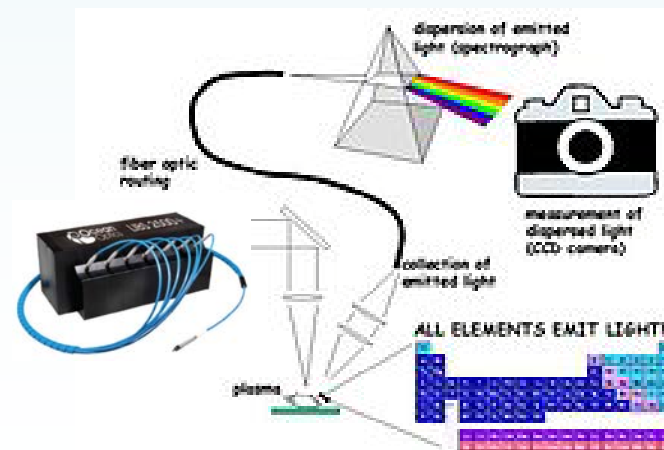Demonstration of promising technologies to address emerging pollutants in water and waste water

WP2.1 CeraMac

WP2.2 Hybrid Ceramic Membrane Systems

WP2.3 Neural Net Control

WP2.4 Laser-Induced Breakdown Detection

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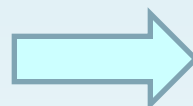
3.1 Demonstration of up-scaling, controlling, and validation of advanced oxidative technologies for drinking and waste water treatment:
Technologies: UV-H_2O_2, O_3-H_2O_2, O_3-biological filter

3.2 Decision tool for implementation of oxidation technologies based on water quality evaluation under regional framework conditions:
Assessment of transformation product and by-product formation

Foto Christian Abegglen

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4.1 Selection and validation
Selection criteria
Bioassay selection
Automation
Trigger values

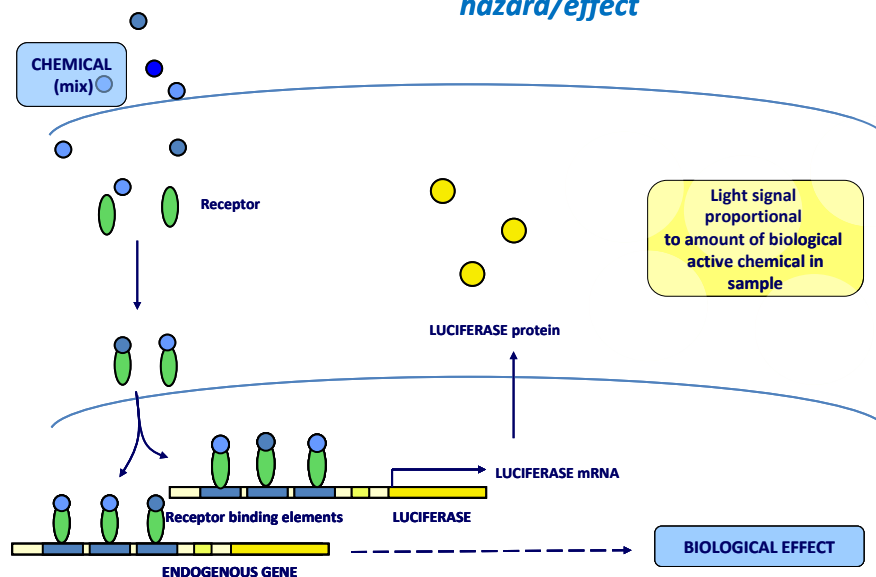**4.2 Implementation for monitoring**
Regulatory acceptance
Testing framework
Introduction to water utilities
Demonstration

CALUX® :chemical quantification coupled to hazard/effect

CHEMICAL (mix)

Receptor

Light signal proportional to amount of biological active chemical in sample

LUCIFERASE protein

LUCIFERASE mRNA

Receptor binding elements   LUCIFERASE

BIOLOGICAL EFFECT

ENDOGENOUS GENE

Market application

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5.1 Unique selling propositions
• Assessment of the sustainability profiles for identified new water technologies
• LCA for environmental footprints and toxicity
• Economics assessments via LCA
• Develop guidelines for sustainability assessment

5.2 Addressing and overcoming market barriers
• Foster implementation of identified new water technologies
• Address and overcome implementation barriers
• Give recommendations for promising applications

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https://www.youtube.com/watch?v=v8iihsQYOos

"Emerging substances" can be defined as substances that have been detected in the environment, but which are currently not included in routine monitoring programmes at EU level and whose fate, behaviour and human and eco-toxicological effects are not well understood (Norman network).