

## Water & Energy

Weet jij hoe je  
water laat branden?



## Water & Materials

Weet jij hoe plastic  
in water groeit?



## Water & Awareness

Weet jij hoe je geld  
verdient als water?



Choose  
**SMART** ...

Project 8.56

Project 8.57

Project 8.58

Project 8.59

Project 8.60

Project 8.61

Project 8.62

... be inspired  
by **WATER**

There is **NO**  
alternative  
for **WATER**



**Smart**  
**WATER**  
**Solutions**



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Weet jij hoe je geld verdient als water?

werk aan  
water  
wonderen

## A-quality

24/7 water quality monitoring and analysis

8.56

The 24/7 guarantee of the quality of drinking water is essential. This project develops a hand-hold water purification device and a testing system which can be used at (remote) location to provide reliable water and to carry out water quality analysis without (expenses) analysis in a laboratory.

### Topics:

- Concept design & Construction
- Membrane technology
- Microbiology
- Monitoring & Control

### Students:

- Biomedical & Laboratory Research (BM)
- Chemical Engineering (CT)
- Electrical & Electronic Engineering (EL)
- Industrial Design Engineering (IPO)
- Mechanical Engineering (WB)

### Companies:

- Tropicare / CarePlus B.V.
- Centre of Expertise Water
- Jotem Waterbehandeling B.V.
- Pentair X-Flow B.V.



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# GreenSource

Blending safe water with interactive training **8.57**

In many African countries, urban areas are subject to frequent droughts, and access to safe and reliable drinking water remains a crucial problem, especially for poor households in urban and peri-urban areas. The project wants to develop an educational platform to be used in (e.g.) Africa to instruct new (water treatment) technologies to students/adults in a proactive and interactive way making use of smartphones and/or tablets.

### Topics:

- Interactive computer modelling
- Membrane technology
- Professional gaming
- Virtual & Augmented Reality (VR/AR)

### Students:

- Creative Media and Game Technologies
- Chemical Engineering (CT)
- Industrial Design Engineering (IPO)
- Mechanical Engineering (WB)

### Companies:

- GreenSource SA B.V.
- Pentair X-Flow B.V.
- TenCate Grass
- DrainProducts



# GREENSOURCE

let's play. let's drink.

# International Water Technology

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## Forensic research meets water drugs detection on PD

8.58

There is a strong need for effective ways to monitor the presence medial residues in (waste)water. These detection techniques can also be used by forensic research teams in their investigation and fight against illegal drug production laboratories. This project develop and evaluates different kind of sensor techniques such as biosensors (biobricks), ELISA, in-vitro bioassays, or chemo-sensors.

### Topics:

- Chemical fingerprinting
- Chem sensors
- Labelfree molecular detection
- (Nano)forensics

### Students:

- Biomedical & Laboratory Research (BM)
- Chemistry (CH)
- Forensic Research (FO)
- Applied Physics (TN)

### Companies:

- Saxion-chair Advanced Forensic Technology
- National Police
- Waterboard Vechtstromen
- InProSense (Germany)

Het Parool

HOME AMSTERDAM STADSGIDS

## Analyse rioolwater: Amsterdam cocainewalhalla



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## Let's burn water biogas from aqueous waste streams

8.59

The project deals with a new sustainable system to recover nutrients, to produce biobased materials & energy and to recycle reliable water from waste water. The anaerobic membrane bioreactor (AnMBR) converts the organic components present in waste water in methane, while the membrane separates the cleaned water from the sludge for reuse.

### Topics:

- Analytical chemistry
- Biobased energy
- Membrane technology
- Microbiology

### Students:

- Biomedical & Laboratory Research (BM)
- Chemistry (CH)
- Chemical Engineering (CT)
- Mechanical Engineering (WB)

### Companies:

- Pentair X-Flow B.V.
- Technical University of Delft
- Waterboard Vechtstromen



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## Medicines removal from water

a 140,000 kg heavy project

8.60

With increasing access to healthcare all over the world, more and more medicines are prescribed which left-overs end up in the sewage system and eventually in the surface and ground water. To remove these medicinal residues from (waste) water a new type of Layer-by-Layer nanofiltration (LBL-NF) membranes and the process to apply these new membranes are being developed.

### Topics:

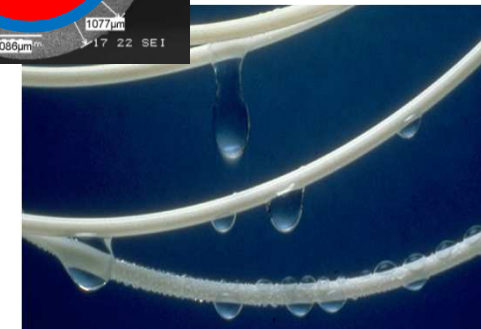
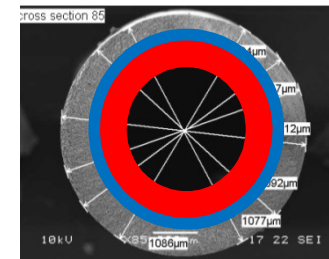
- Hydrodynamics
- Membrane technology
- (Multicomponent) Modeling
- Organic chemistry

### Students:

- Chemistry (CH)
- Chemical Engineering (CT)
- Applied Physics (TN))

### Companies:

- University of Twente
- Waterboard Vechtstromen
- Stichting HuizeAarde



UNIVERSITY OF TWENTE.

International Water Technology

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# NEW Resource Recovery Machine

a sustainable sanitation solution

8.61

This project provides a modular solution for the poor people but also be applicable for the Dutch army as portable system during missions abroad. The NEW-concept is an autonomous, solar-powered, compact and off-grid (sewerless) resource recovery machine which utilizes membrane biotechnology for the recovery and generation of fertilizer **NUTRIENTS**, renewable **ENERGY** and clean **WATER** from wastes.

### Topics:

- Concept design & Construction
- Membrane technology
- Microbiology
- Monitoring & Control

### Students:

- Biomedical & Laboratory Research (BM)
- Chemical Engineering (CT)
- Electrical & Electronic Engineering (EL)
- Mechanical Engineering (WB)

### Companies:

- Jotem Waterbehandeling B.V.
- Pentair X-Flow B.V.
- Technical University of Delft
- University of South Florida (U.S.A.)



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## Water & Awareness

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# Intelligent drinking water dispenser a sustainable water bottle distribution solution 8.62

Water is essential for life, and the supply of proper drinking water is not so common in many countries as in our country where 24/7 the best drinking water is supplied at our own homes. This project develops a dispensing machine for reusable, durable drinking bottles reducing the need to buy (expensive) bottled water and decreasing the disposal of the empty plastic bottles causing a worldwide solid waste problems (and partly also the plastic soup).

### Topics:

- Consumer products
- Design & Construction
- Embedded software
- Internet of Things

### Students:

- Applied Computers Science (TI)
- Electrical & Electronic Engineering (EL)
- Industrial Design Engineering (IPO)
- Mechanical Engineering (WB)

### Companies:

[jointhepipe.org](http://jointhepipe.org)



International Water Technology

**SAXION**

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