

## About the organizers

The workgroup "Environmental Biotechnology" of the *Nederlandse Biotechnologische Vereniging* aims to inform its members about the latest developments of biological processes for the treatment of pollution, reuse of resources from waste and the implementation of clean production. See also: [www.nbvsite.nl](http://www.nbvsite.nl)

The FP6 project **SWITCH** aims to achieve more sustainable urban water management in the "City of the Future". A consortium of 33 partner organisations from 15 countries are working together on innovative scientific, technological and socio-economic solutions, which can then be more speedily replicated around the world. See also: [www.switchurbanwater.eu](http://www.switchurbanwater.eu)

### Organizing committee

Peter van der Maas  
(Water Laboratorium Noord)

Janneke Krooneman  
(Bioclear)

Elisabeth von Münch  
Mariska Ronteltap  
Peter van der Steen  
Gary Amy  
Piet Lens  
(UNESCO-IHE)

Mark van Loosdrecht  
(TUDelft)



Marie Curie Excellence Grant  
Biogeological Engineering  




## Seminar

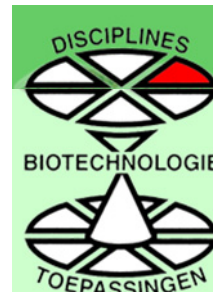
### Information

Location:

UNESCO-IHE  
Westvest 7  
2611 AX Delft  
The Netherlands  
<http://www.unesco-ihe.org>

Contact:

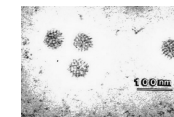
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### Trends in Environmental Biotechnology



### Pathogen removal for sustainable water cycles



December 4<sup>th</sup>, 2007  
Delft  
The Netherlands

## Introduction

With the international year of sanitation 2008, the United Nations draws our attention to the role of sanitation in achieving the Millennium Development Goals (MDGs). One of the most critical issues for mankind is to have sufficient quantities of microbiologically and chemically non polluted water available for all domestic, alimentary and industrial purposes. Access to proper sanitation plays a pivotal role in this, and today, still more than a billion people have no access to proper sanitation. Achieving the MDGs for sanitation in most developing countries by 2015 remains a challenge.

Availability of microbially safe water is a complex issue. Microbial contaminations are very diverse including pathogens which contaminate fishes and invertebrates as well as microbial toxic metabolites which accumulate in higher trophic levels. Water may act directly as vector for pathogenic microorganisms, for instance for nosocomial infections. Besides, surface biofilms inside pipings or containers are an increasing problem.

Innovative water management schemes, improved water treatment processes, new disinfectants, preventive measures for the control of emerging diseases and better risk assessment methods are means to provide safe water at a reasonable cost. This NBV seminar focuses on the pathogens - health relation in the water cycle. It wants to highlight 3 aspects:

- New technological designs that reduce pathogen risk.
- New analytical methods to assess water quality and the presence of pathogens in water.
- New approaches in disinfection, including prevention of contamination.

## Tentative Program

9:30 **Opening of the day**  
Prof. Piet Lens (UNESCO-IHE)

9:35 **Keynote: Global sanitation taskforce – Sanitation 21**  
Darren Saywell (International Water Association)

**Session 1 – Pathogens and the water cycle**  
Chairman: Dr. Peter van der Maas (WLN)

10:00 Source separated sanitation to improve environmental hygiene  
Ir. Marthe de Graaff (WUR/wetsus)

10:30 Evaluation of health impacts of sanitation in urban environments by Microbial Risk Assessment  
Dr. Peter van der Steen (UNESCO-IHE)

11:00 **Coffee break**

**Session 2 – Pathogen removal and disinfection**  
Chairman: Prof. Mark Van Loosdrecht (TUDelft)

11.15 Managing drinking water safety from source to tap  
Ir. Wim Hijnen (KIWA)

11.45 Inactivation of *Campylobacter* by UV during drinking water production  
drs. Gerhard Wubbels (WLN)

12:45 **Lunch + poster session**

**Session 3 – Novel detection techniques for pathogens**  
Chairman: Dr. Janneke Krooneman (Bioclear)

13.30 Real-time detection of viruses in surface water  
Dr. Ana Maria de Roda Husman (RIVM)

14.00 Pathogen detection by comparative genomics  
Dr. Willem van Leeuwen (Medical Center Rotterdam)

15:00 **Coffee break**

**Session 4 – Fate of pathogens in the environment**  
Chairman: Prof. G. Amy (UNESCO-IHE)

15:15 Removal of pathogens from domestic sewage in natural systems  
Dr. Henk Lubberding (UNESCO-IHE)

15:45 *Campylobacter* in water  
Dr. Imke Leenen (Grontmij)

16.15 **Closure of the day**

### Registration Form

(Please fill in capitals)

*Seminar 'Pathogen removal for sustainable water cycles'*  
Delft, December 4, 2007

Name:

Title:

Company/Organization:

Department:

Address:

E-mail:

Poster presentation  
I wish to present a poster:  YES /  NO

Poster title:

The registration fee is:  
NBV-Members: 15 €  
Non-NBV- Members: 40 €

Return application form by fax or e-mail to:

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