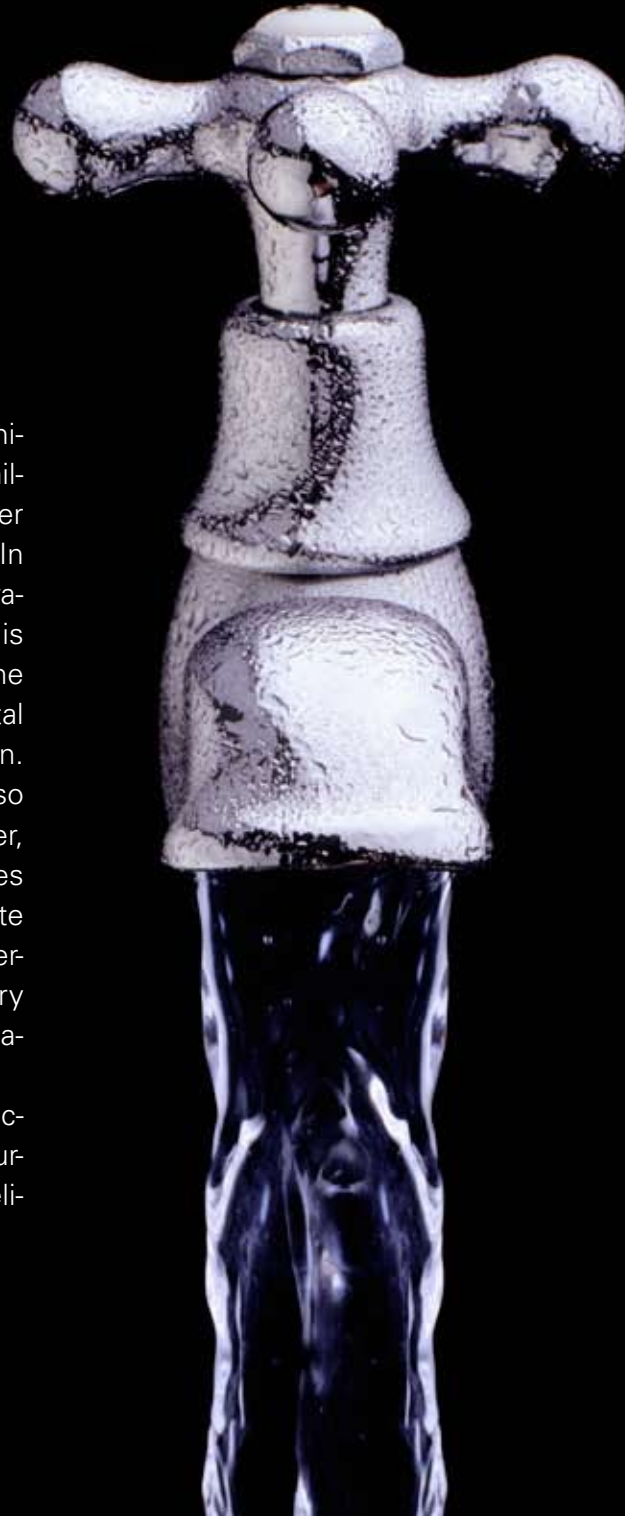


Water, Sanitation, Engineering and Health

Presentation of an Expert Group at UMB



Global Disease Burden

About 40 % of the world population lack basic sanitation facilities, resulting in approximately 1,6 million child deaths per year, due to diarrhoea or other water-, sanitation- and hygiene-related diseases. In major parts of the world no public or private infrastructure for wastewater collection and treatment is available and the poorest countries are suffering the most from adverse health effects and environmental degradation associated with insufficient sanitation.

The management of water resources is also linked to the occurrence of malaria and dengue fever, other major water-related diseases. The frequencies of extreme weather conditions caused by climate change and the possible outcomes in terms of water-related diseases are prompting for multidisciplinary research efforts integrating both technical and managerial adaptation strategies.

These issues are instrumental in future capacity building aiming to reduce the global disease burden and increase the livelihood” to “improving livelihoods.



Decentralized Wastewater Treatment

In rural areas the only option for proper wastewater handling is treatment on site, by soil infiltration, treatment in natural or constructed wetlands or other similar systems. These treatment systems are robust, have low maintenance costs and produce high effluent qualities.

By separating (source-separation) the toilet wastes (blackwater) from the other wastewater flows in the household, valuable resources (energy and plant nutrients) can be captured and utilized locally and the residual wastewater (greywater) can be treated and reused in various ways on site.

The local resource utilization enabled by source separation methods and proper management strategies makes crop produc-

tion possible, hence increasing the livelihood in the local community. In addition, the need for external water supply is reduced and the impacts on health and environment are kept to a minimum.

Implementing the principles of source separation and local reuse in the poorest countries require careful attention to local needs and constraints.

Building local capacities on design, implementation and management is therefore crucial for the successful adaptation to new technologies and management schemes that can move the community towards safe sanitation.

Wastewater Reuse

Wastewater reuse in agriculture has several benefits, but can also result in significant health risk if not undertaken in a safe manner as in many developing countries.

This work, which began in 2008 in Ghana, is assessing the health risks associated with the reuse of wastewater in agriculture and the cost-effectiveness of interventions for mitigating the health risks.

The project was initiated by the WHO and partly funded by the EconSanRes of the Stockholm Environment Institute and the Norwegian Research Council.





Diarrhoea and Dengue Fever

Diarrhoea and dengue fever are major health problems resulting in millions of deaths annually. Two projects have recently been funded by the Norwegian Research Council and UMB. In early 2010, we started a project in Laos and Thailand (DIADEN) to assess the risk factors of the two diseases and any interlinked relationship between them.

The findings of the study will lead to the development of an integrated risk management framework for mitigating both diseases. In the second project (HEALTHPLATFORM), to begin in the end of 2010, we will study the effect of different interventions to control diarrheal diseases and dengue fever in primary schools in rural Colombia, South America.

The latter project also aims to develop a scientific and educational collaborative platform between UMB, the Universidad El Bosque (UED) in Colombia, and other South American partners to promote innovative scientific research, capacity building, and student exchange on water, environment, sanitation, disease epidemiology, and health.

Facts about the Expert Group

Water, Sanitation, Engineering and Health

Topic:

- Decentralized Wastewater Treatment
- Wastewater Reuse
- Diarrhoea and Dengue Fever

Vision:

Objectives:

Description of the group:

Members:

Arve Heistad
Petter Deinboll Jenssen
Thor Axel Stenström
Hans Overgaard
Razak Seidu

PhD-students:

Lelum Manamperuma
Vegard Nilsen
Emma Anakhasyan
Wei Liu
Sudeep Hada
Nsa Dada
Ricardo Rosado
Nanthasane Vannavong
Pascale Stang



Norwegian University of Life Sciences

www.umb.no/imt-en
arve.heistad@umb.no
0047 64 96 54 00