World Toilet Day 2018

Summary:

In support of the UN World Toilet Day (WTD)[1], Engineers Without Borders Denmark(EWB-DK)[2] and Water DTU[3] had organised an event at the Danish Technical University (DTU) Lyngby Campus on 19 November 2018. About 60 participants had registered for the event, including several international students from DTU.

The program included presentations from various invited stakeholders: international organisation (UNICEF), educational institutions (Copenhagen University and DTU), NGO (EWB-DK), and consultant company (NIRAS), each from their side playing an active role in supporting the Sustainable Development Goal (SDG6) on sanitation and water. As a part of SDG6, everyone should have a safe toilet by 2030.

Esther Shaylor (UNICEF) highlighted the importance of sanitary engineering and safe water, sanitation and hygiene (WASH) practices. On the global scale, 2.3 billion people don't have access to basic sanitation services and it is estimated that access to sanitation, good hygiene practices and safe water supply could save 1.5 mill. children pe ryear. Based on the Joint Monitoring Programme conducted by UNICEF and WHO, much progress can be observed on SDG6, however, for 9 out of 10 countries where >5% of population lack access to sanitation are progressing too slowly to achieve universal access to basic sanitation by 2030. UNICEF recognises the role of innovation to address these challenges and the need to improve on existing technologies and products. By leveraging bussiness, industry and markets UNICEF can influence new and existing products for SDG6. This is done by following the innovation process from ideation, research, development though to scaling. UNICEFs Innovation team work by identifying the need, carrying out research and development and working to support scaling of relevant products. By working in this way, UNICEF hope to begin to support countries to achieve SDG6 and improve the sanitation service delivery for 2.3 billion people around the world.

Peter Mackie Kjær Jensen (Copenhagen University, Public Health) outlined several basic linkages between sanitation and public health . It is well known that drinking water quality (pathogenic microorganisms) has a direct impact, however other factors, such as the amount of water daily available for the household, kitchen hygiene, personal hygiene (hand washing), children's eating habits (by fingers or cutlery), pathogen spreading via flies, etc. are of similar importance. But these other factors are often neglected, even in campaigns or in indicators for success of interventions. Examples were given on how to make the use of toilets/latrines more attractive by design (especially for children) ; this includes further improvement of VIP latrines to reduce fly nuisance and to facilitate maintenance and cleaning with small amounts of water and to avoid darkness. Novel research contributes to better understanding of also past, serious epidemic events, such as the Cholera outbreak in Copenhagen in 1853. The Faculty of Health and Medical Sciences also offers courses in Water Supply and Sanitation in Emergencies and in Disaster Management.

Erik Thorbjørn Nørremark (EWB-DK) explained and promoted simple, locally producible and low cost WASH facilities to be affordable and enabling a decoupling from the donor-based economy. Examples on how to build stable, relatively large latrine pits using trapezoidal modules as building blocks and with reduced cement requirements was illustrated both in the platform presentation and *in situ* next to the

[1] http://www.worldtoiletday.info/wtd2018/
[2] https://iug.dk/en/
[3] http://www.water.dtu.dk/

meeting room. Also latrine slaps could be constructed locally, using a simple moulding form. Examples were based on 25 years' experience with implementation in Eastern Africa.

Troels Kolster (NIRAS) introduced a wide variety of projects conducted by NIRAS in a number of developing countries. He also outlined what qualifications of young water professionals are needed, as seen from a large consultant company perspective, to become a good employee. Not only technical skills based on engineering study, but personal skills, e.g., good in communication, team work, out-of-the box thinking, experiences from abroad, and being passionate about the work are important. As a part of development of personal skills, a 2-year trainee programme "NIRAS Young Professional Academy" offers an opportunity to get experience in international cooperations.

Alessio Boldrin (DTU Environment) described the content of a specialised 3* 1 week course modules offered at DTU related to environmental engineering in developing countries. The 3 modules cover water supply, sanitation, and waste management, respectively. The water supply module include coupling to human health, diseases, and hygiene as well as treatment techniques at centralised, water kiosk or household levels, respectively. The sanitation module includes stakeholder analyses, community-led urban environmental sanitation planning (CLUES) as well as technologies, separation toilets. The waste management module includes waste characterisation, policy and legislation, economy and financing, technologies and overview of the performance of big cities. Teachers are from DTU Environment, EAWAG (CH), Copenhagen University, large consultant and manufacturer companies.

Berit Godskesen (DTU Environment) presented an example of savings on freshwater resources by installation of saltwater flushing of toilets in a coastal new settlement in Copenhagen. Based on 6 months experiences from a pilot-scale installation serving a residential building complex with salty groundwater, an evaluation showed i)some pro's: high customer satisfaction and less freshwater consumption, ii)some con's: higher energy consumption compared to utility water supply and higher price for the consumer, and iii) some neutrals: no impact on human health or microbial risk and no impact on the centralised wastewater treatment. A detailed Life Cycle Assessment (LCA) quantified the pro's and con's. In perspective for similar applications in other geographical areas, the technique may be attractive in coastal cities subject to high stress on freshwater resources or having a reference situation with higher carbon footprint in the local provision of water supply, e.g. by desalination.

Thorkil Boisen (EWB-DK) introduced for the final panel discussion, that the estimated number of about 1.5 million children deaths per year due to poor WASH conditions actually would correspond to the number of casualties in case that 8 jumbo jets crashed per day. But that would, in contrast, create news headlines - at least in the beginning. During the final panel discussion, several questions related to opportunities for students / young water professionals to take part in projects implemented in developing countries. This would be a contribution to improve living conditions for poor, marginalised groups and at the same time get own experiences during work abroad.