

NEWRIupdate

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NEWRI UPDATE

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NEWRIComm



NEWRI Tech



N.PhD

Dear Colleagues & Friends:

May 2013 has been exciting for NEWRI as we officially declared our move to and presence at the CleanTech Park. The CleanTech Park, located just outside of the Nanyang Technological University Jurong campus is Singapore's first business park dedicated to the clean technology industry and includes the environmental domain which NEWRI is in. This NEWRI Newsletter is sent to you to provide you with an update of NEWRI activities since the February 2013 newsletter.

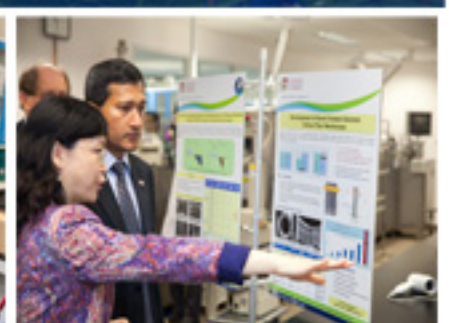
1. NEWRI AT THE CLEANTECH PARK

NEWRI had to move one of its key components (AEBC) out of NTU ahead of schedule in May 2012 to make way for another unit which needed the space. Since May 2012 and till June 2013, NEWRI had progressively relocated its people and shifted/set-up its laboratory facilities to the 6th and 5th levels of Building CT-1 at CTP. On May 3rd 2013, NEWRI was fortunate to have the Minister for Environment and Water Resources, Dr Vivian Balakrishnan officially declare open NEWRI's facilities at CT-1. The occasion also brought NTU President - Prof Bertil Andersson, Provost – Prof Freddy Boey, NTU colleagues, and many of NEWRI's partners and friends to NEWRI. Thank you for spending time to witness the launch of NEWRI at its new CTP home. Your presence contributed much to the event's success. For those who could not join us, I am pleased to provide photographs of the occasion including the tours around NEWRI's laboratories and a photo exhibition of NEWRI projects.





The Official Opening Of NEWRI's New Home at CleanTech One



2. NEWRI COMMUNITY IN BHUTAN



NEWRI Community (NEWRIComm) was recently in Bhutan to investigate sanitation issues, with an emphasis on landfills and composting. Such activities undertaken, aside from helping the host communities, provide invaluable opportunities to NEWRI's researchers and students to get involved in project implementation at locations outside Singapore. These experiences can be very useful to these researchers and students who will go on to develop careers after their stay at NEWRI. This visit to Bhutan was intended to help scope projects which NEWRI can support. For more information on NEWRIComm, please email to ee.newri@ntu.edu.sg. A photo-essay on the trip is attached herewith for your information.

3. U WATERLOO TEAM VISITS NEWRI

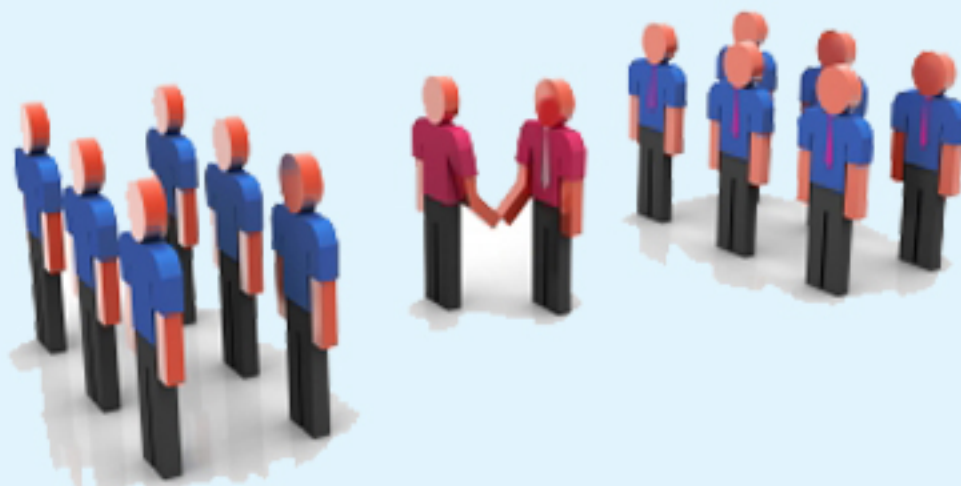


Image courtesy of cooldesign / FreeDigitalPhotos.net

A delegation from the University of Waterloo, Canada led by Prof Pearl Sullivan visited NEWRI on 29 & 30 April 2013. U Waterloo has strengths and interests in environmental engineering R&D which have overlaps with NEWRI's R&D interests. Such overlaps where complementary are important as these offer opportunities for collaboration. NEWRI is exploring such collaboration with U Waterloo and possibilities of jointly competing for R&D funding. NEWRI is also keen to work with U Waterloo colleagues for interaction with members of the Canadian environmental industry. Our researchers exchanged information on research interests on environmental biotechnology, membrane & advanced oxidation technologies, environmental modeling & monitoring, and resource reuse & reclamation.

4. RANKING OF NEWRI COLLEAGUES IN THE WORLD

NEWRI is unusual among R&D organizations in that it actively seeks to realise the contiguous value chain of research-translation-development-application. Evidence of where NEWRI stands with respect to "development-application" may be seen in the IPs generated and industry relationships forged. Evidence of where we are in "research-translation" may be seen in the rankings informed us by learned societies and publications in relation to our colleagues' research work.



Prof Anthony G Fane



Prof Wang Rong



Prof David C Stuckey



Prof Liu Yu

In the membrane space, SMTC-NEWRI has two colleagues in the top 10 – Profs Anthony G Fane and Wang Rong and in the bioprocess space, AEBC-NEWRI also has two colleagues in the top 10 – Profs David C Stuckey and Liu Yu. In Lux Research's report - "Top academics and institutions in water research 2013", three of NEWRI's senior members - Profs Anthony G Fane, Wang Rong, and Ng Wun Jern - have been identified as being among the top 30 thought leaders globally. NEWRI itself as an organization had been identified as being among the 9 notable research organizations globally.

5. NEWRI CONNECTS WITH SMES



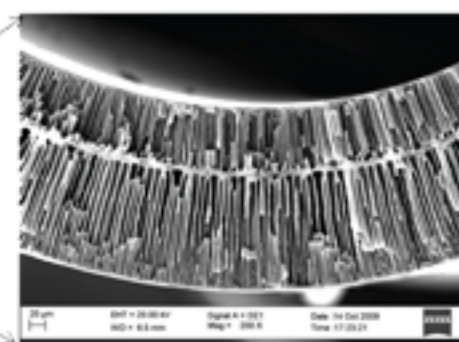
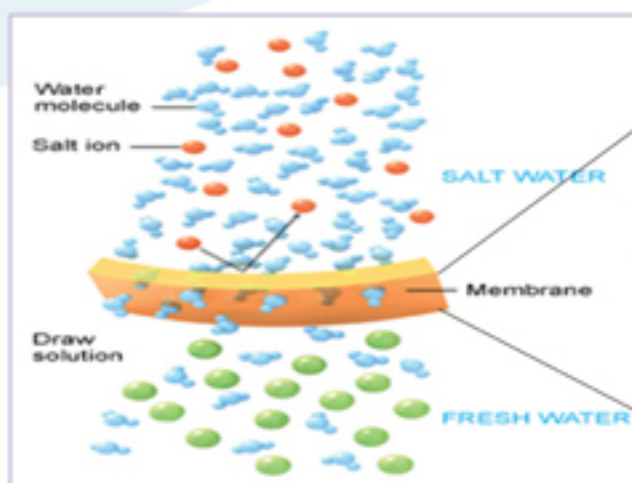
NEWRI works towards establishing presence in both the scientific and industry worlds. Consequently while publication of scientific outcomes in journals and other learned publications are actively pursued, it is not considered sufficient. All NEWRI research, translation and development units pursue IP protection and thereafter pursue industry applications. In an April 2013 IP Showing session to Singapore SMEs, 8 IPs were identified for further work to productivise the technologies.

The IPs cover interests in sludge pretreatment and anaerobic digestion, wastewater pretreatment and treatment, food wastes treatment, and microbial augmentation.

6. View Point: "Forward Osmosis" – Prof Wang Rong (SMTC-NEWRI)

"In recent years, there has been a resurgence of interest in forward osmosis (FO) and pressure retarded osmosis (PRO)-based membrane processes because of their potential to either reduce energy consumption for seawater desalination and water reclamation, or produce energy from salinity gradient sources."

~ Prof Wang Rong (Director, SMTC-NEWRI)



SMTC FO membranes

SMTC-NEWRI has devoted great efforts to fundamental and applied research in the FO/PRO domain and has made significant achievements, evidenced by the 10 patents/technology disclosures and 45 journal publications generated within 4 years. These works have received international attention from the membrane community and water industry. SMTC-NEWRI is positioned at the forefront of FO/PRO research in the world.



7. View Point: "Sludge Treatment" – Prof Wang Jing Yuan (R3C-NEWRI)

Sludge treatment in urban areas is a global issue that needs to be addressed urgently due to the limited land space. Presently thermal treatment offers an alternative solution to sludge management by reducing the volume of sludge while utilizing its calorific value. However, as the moisture content of raw sludge can be as high as 95-98%, appropriate dewatering and drying processes are required as pretreatment. Current mechanical dewatering processes, eg centrifugation and presses, can only reduce the moisture to 70-85%.



"Our studies showed that nano-particles can enhance mechanical dewatering, and our electrokinetic technology can be used to dewater and remove heavy metals simultaneously."

~ Prof Wang Jing Yuan (Director, R3C-NEWRI)

**NEWRICOMM SHARES
SANITATION AND WASTE MANAGEMENT TECHNOLOGIES IN BHUTAN**

About NEWRI Community

NEWRIComm strives for a better shared future in Asia, by implementing innovations in the areas of water, sanitation, waste and wastewater management, and renewable energy. Our network of local stakeholders ensures sustainable solutions through ownership and technical knowledge diffusion.



As Bhutan opens its doors to foreign investors, the core pillars of its Gross National Happiness index stand strong, such as promoting sustainable development and conserving the natural environment.



All proposed policies in the Thunder Dragon Kingdom must pass a Gross National Happiness review based on potential environmental and socio-cultural impacts.

**NEWRICOMM SHARES
SANITATION AND WASTE MANAGEMENT TECHNOLOGIES IN BHUTAN**



As landfills fill up fast with urbanisation, the lack of local expertise in areas such as landfill design and leachate treatment, poses a challenge to sustainable waste management.



Ms Pema Choden from the Sherubtse College aims to look into this issue in Tashigang province, East Bhutan. NEWRIComm met Mr Dorji Sangay, Deputy Governor of Tashigang District, who is supportive of the efforts. Associate Professor Wang Jing-Yuan, Co-Director of NEWRI's Residues and Resource Reclamation Centre (R3C) took the opportunity to share the concept, "Waste is not waste, it is misplaced resources".

**NEWRICOMM SHARES
SANITATION AND WASTE MANAGEMENT TECHNOLOGIES IN BHUTAN**



Tourists to the kingdom have expressed concerns over the potential environmental impact of inappropriate disposal of solid wastes.



Currently, recycling start-ups are allowed to collect waste from the landfills instead of at source.

**NEWRICOMM SHARES
SANITATION AND WASTE MANAGEMENT TECHNOLOGIES IN BHUTAN**



A farmer in Kanglung Town is keen to learn how to improve the quality and quantity of compost.



Through our 3P (People, Private and Public) partnership, NEWRIComm's technological solutions will be complemented by public education, data collection and a feedback channel for holistic implementation.