

# NEWSLETTER

06/19

Water Engineering and Development Centre



# Loughborough University



Loughborough is delighted that in the four primary national surveys of universities we are again in the top ten in the U.K. for 2020. In these league tables we rank between fourth (The Guardian University Guide) and eighth (the Complete University Guide) typically positioned immediately behind Oxford, Cambridge, Imperial and St Andrews.

This result is testament to the high regard in which our degree programmes are held nationally, and the unrivalled experience that our students have while they are here, as well as the excellent career prospects that a Loughborough degree represents.



# Learning and Teaching

## National University of Civil Engineering (NUCE) Visit

On Tuesday 28th May, the Water Group hosted a visiting delegation from Vietnam from the **National University of Civil Engineering (NUCE)**. This was quite a productive and informative day, where it soon became clear that there were numerous areas of overlap in both research interests and teaching activities between NUCE and the SABCE.

NUCE's research interests cover; high performance concrete, geopolymer concrete, 3D printing, sustainable building, construction management, disaster risk management, climate change, hazard chains, flooding and WASH to name a few. Joint research funding is possible under **GCRF**, **Newton-Vietnam fund** and **British Council**. A new round of funding (from 2019) under their 911 program will cover full costs of NUCE's students studying for their PhD at Loughborough. Separate funding

is also available under NUCE's **2395 call** to cover research visit costs for their faculty for periods of between 2 weeks to two years. Both of these will be followed up in the future.

On the teaching front, NUCE is particularly interested in setting up an undergraduate 2+2 arrangement: the first two years spent in Vietnam, followed by completion of our Parts B and C here, to receive a Loughborough degree. There is also a similar desire for the possibility of a 1+1 arrangement with our various MSc programs.

Clearly there are many possibilities for all to consider and we hope these ideas develop further. Everyone who attended felt that it was a positive day, which ended with the signing of an MoU between Loughborough and NUCE.



### Congratulations to...

*Mahroo Eftekhari* successfully achieved her **SFHEA qualification**.

*Dr Ksenia Chmutina* has been promoted to **Senior Lecturer in Sustainable and Resilient Urbanism**.

*Dr Oluwasola Afolabi (Sola)* has accepted the position of **Lecturer in Water and Environmental Engineering**.

SABCE **Student Department Committee** who achieved success at the **Loughborough Academic Awards**, held at the Annual Summer Ball, 21/5/19.

**Well done all!**

### PGT Programmes for 2019-20

- MSc Construction Management
- MSc Construction Project Management
- MSc Construction Project Management with Building Information Modelling
- MSc Sustainable Design and Construction
- MSc Low Energy Building Services Engineering
- MSc Water Management for Development

# Learning and Teaching

## MSF Learns How to Provide Crucial Water, Hygiene and Sanitation Interventions in Emergency Situations

Loughborough University has been praised by **Médecins Sans Frontières (MSF)** for the valuable training it provides that equips teams with skills to better assist communities in emergencies. Staff from MSF (<https://www.msf.org.uk>) – the world’s leading humanitarian medical non-governmental organisation, also known as Doctors Without Borders – travelled to **WEDC** from Bangladesh, Kenya, Uganda, Malawi, Yemen, France, Italy, Switzerland and Germany for the two-week training programme in April.

The group learned how to identify, plan, implement and monitor water supply, hygiene and sanitation interventions that are required for MSF’s charity healthcare projects around the world.

The two-week course consisted of presentations, discussions and practical work which saw attendees assess water quality using specialist kits, work and repair different types of pumps, measure water flow and more. The training aimed to strengthen the knowledge and skills of MSF’s key water, sanitation and logistics staff, who typically have to work in high pressured, emergency situations.

MSF has a long-standing partnership with WEDC, which has been delivering the ‘Water, Hygiene and Sanitation for Health’ course for more than 25 years. 250 MSF staff have been trained by WEDC in the last decade, which is testament to how highly valued the course is by the organisation.

*Biserka Pop Stefanija*, WatSan (Water and Sanitation) Advisor at MSF, commented:

*“The combination of training delivered by WEDC and MSF facilitators has shown to be rather educative for our field staff dealing with water and sanitation challenges in the projects they work in. This is based on follow-up of projects and staff performance after the training. We’d like to thank Loughborough University for delivering such an informative training course and we look forward to continuing working together in the future.”*

For the full story, visit: <https://www.lboro.ac.uk/media-centre/press-releases/2019/april/msf-training-with-wedc/>

**Course Director,  
Dr Lee Boshier, said:**

*We are delighted that MSF value the work of WEDC and the professional development of their fieldworkers by investing in this important training course. The training provided by WEDC helps MSF to improve the effectiveness of their responses to emergencies and disease outbreaks such as cholera, Ebola and malaria in some of the world’s most challenging humanitarian crises.*



Colleagues and participants of the MSF 2-week programme

# Learning and Teaching

## Water Management for Development – by Distance Learning

From September 2019, the WEDC *MSc programme Water Management for Development* will be delivered both at Loughborough and in parallel by distance learning. The distance learning programme shares the same title, aims, objectives and modules as the programme taught at Loughborough University. The only difference is that the distance learning programme will be delivered online, and for those studying remotely, where Internet connectivity is intermittent, from a USB pen drive.

As with all postgraduate programmes within the School, the distance learning programme comprises a collection of discrete modules. These are presented on a website portal which draws programme materials from *LEARN*, and where necessary, from external resources online. Access to the materials is dependent on registration for the programme and on enrolment and payment for a module.

Further information about the programme is available from the portal at:

<https://www.lboro.ac.uk/research/wedc/programmes/wmfd-portal/>

## Resources Development Group News

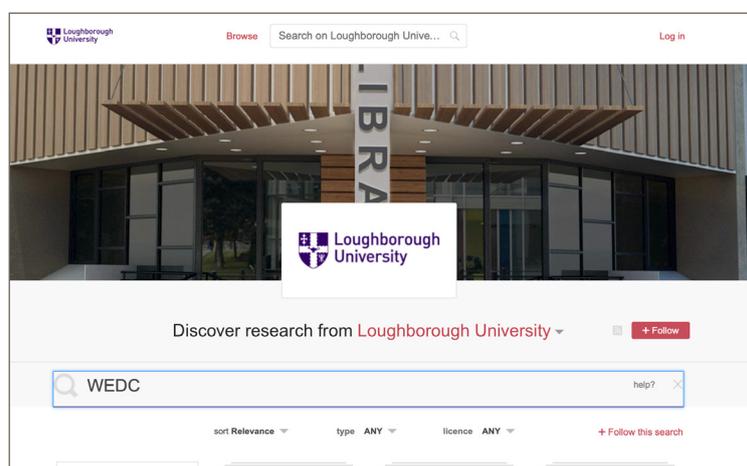
The **Resources Development Group (RDG)** have been busy disseminating **WEDC** material through the University's *Institutional Repository* and figshare account.

Papers from last year's conference, '*Transformation towards sustainable and resilient wash services*', held at **Egerton University**, Nakuru, Kenya, are now available on the Institutional Repository by searching for "*41st WEDC International Conference*".

WEDC Publications are now sold through **Practical Action Publishing** <https://practicalactionpublishing.org>. Visit [www.lboro.ac.uk/research/wedc/resources/pubs/books/](http://www.lboro.ac.uk/research/wedc/resources/pubs/books/) for information and follow the product links to purchase or for free download.

WEDC's collection of illustrations, diagrams and graphics used in teaching materials and publications are also now available on **figshare**, a repository where users can make all their research outputs available in a citable, shareable and discoverable manner. figshare allows users to upload any file format to be previewed in the browser so that any research output, from posters and presentations to datasets and code, can be disseminated in a way that the current scholarly publishing model does not allow.

To view and download the collection visit: <https://lboro.figshare.com> and search WEDC — or visit our website: [www.lboro.ac.uk/research/wedc/resources/](http://www.lboro.ac.uk/research/wedc/resources/) for all WEDC resources, including videos and learning materials.



# Learning and Teaching

## Alumnus Helps Those in Need in D.R. Congo

Alumnus *Tom Russell*, MSc in Water and Waste Engineering, 2007, currently works in Goma, Nord Kivu Province, Democratic Republic of the Congo, as a Water, Sanitation, and Hygiene (WASH) Advisor for international emergency relief and recovery organisation, **Medair**. Based in the D.R. Congo, Medair provides emergency water, sanitation and hygiene services to some of the country's most vulnerable people and to defeat some of the world's deadliest diseases. Tom joined Medair in Madagascar in 2012, after working with international organisations on water, sanitation and hygiene projects in Ecuador and Haiti.

Tom has always wanted to help people in need: *"Even before my studies began, I had a strong desire to use the knowledge gained through my Masters' curriculum to serve people in need. It's a real privilege to have access to such quality education and I wanted to make sure that what I learned would equip me to serve those who are less privileged."*

Despite D.R. Congo being home to over 50% of Africa's water reserves, around half of the 80 million people living in the country don't have access to a safe water source. Large-scale violence

Tom doesn't let challenging situations stop him from reaching out to those in need: Life-saving aid for the people of D.R. Congo is now more important than ever. We can't solve all their problems, but we can facilitate their survival and show them there is hope



and mass displacement in recent years, combined with unsanitary living conditions, have left many people vulnerable to outbreaks of deadly diseases such as malaria and cholera.

Medair was founded in 1989 and has worked in over 30 countries to provide humanitarian aid. As well as fighting malaria and cholera, the organisation is also battling a deadly outbreak of Ebola. This is the second worst outbreak of the disease in recorded history, after the 2014 outbreak in West Africa, which killed over 11,000 people.

To read more, visit: <https://bit.ly/2GGjg10>  
Find out more about Medair at: <https://uk.medair.org>

## Loughborough University Teaching Innovation Award

*Chris Keylock, Tim Marjoribanks* and colleagues in the **School of Architecture, Building and Civil Engineering** have won funding from the University to develop our rainfall simulator into a more generic facility to assist students gain a practical understanding of catchment management and the issues for water managers associated with climate change and increased urbanisation. The award will be presented to the team in July.



# Learning and Teaching

## Dissertation topics for current MSc students

Topic	Supervisor(s)	Student
An examination of resilient water/sanitation services	Bosher, Lee	Mwiti, Joan Karimi
Can onsite sanitation serve the needs of large refugee camps	Sohail, M.	Allen, Katie
Comparative evaluation of bioaerosols concentrations between vacuum and gravity toilets	Sohail, M.	Osei, Elizabeth Nyarkoa
Effect of heavy metals on anaerobic digestion and biogas generation	Radu, Tanja	Sylvester, Ruth Emily
Faecal Sludge Management: challenges and/or opportunities for improved services	Scott, Rebecca	Godfrey Evans, William
Multi-sectoral partnerships for rural WASH	Sansom, Kevin	Siima, Syson
Strategies for managing water services in IDP and refugee camps	Sansom, Kevin	Marcellus, Yves-Lyre
Sustainable management of a small town's water supply in China	Kayaga, Sam	Yin, Jiamin
The viability of using container based sanitation as an improved sanitation option in the informal settlements of Kenya	Scott, Rebecca	Waichungo, Jane Nyawira
Water demand management for the city of the future	Kayaga, Sam	Yang, Yongkai

# Research News

## NERC funded research project, Reducing Flood Risks in Vietnam

In Vietnam, low-lying coastal cities, particularly in river deltas, face increased flood risk and vulnerability due to rapid urban development and climate change. To reduce flood risk in urban areas, the last decade has seen increased appreciation of the potential of *Blue/Green Infrastructure (BGI)*, such as natural and man-made wetlands, vegetated river banks and restored floodplains, to reduce flood risk and provide additional benefits, such as controlling water pollutants, providing recreational opportunities, improving air quality and increasing

resilience to other stressors, such as heat waves and noise pollution. The **NERC** funded *ValBGI project* examines the role of BGI in short- and long-term urban development in the city of Can Tho, Vietnam. The project is being led by *Dr Tobias Borger* at **Stirling University** with the support of *Prof Qihua Liang, Dr Lee Boshier* and *Dr Ian Pattison*, from the **School of Architecture, Building and Civil Engineering**. In April, the project team attended the initial meeting with Vietnamese partners from **Can Tho University, Hue University** and the **Institute for Social and Environmental Transition**.



## NERC funded meeting, China

In May, *Prof Qihua Liang* and *Dr Lee Boshier* attended an inception meeting at **Nankai University** (Tianjin, China) for the **NERC** funded *“River basins as ‘living laboratories’ for achieving sustainable development goals across national and sub-national scales”* project.

The two year project, involving research in the Luanhe River basin, is being led by **Glasgow University** in partnership with **Nankai University**, the **Institute for Global Environmental Strategies** (Japan) and academics in **SABCE**, including *Dr Xilin Xia*.



# Research News

## New Grants

### Restoring soil quality through re-integration of leys sheep into arable rotations

Lead PI: Ian Pattison  
 Sponsor: BBSRC via Sheffield University  
 Project Value: £162,081  
 Period of Award: 01/04/2019 - 31/10/2022

### Towards a Sustainable Earth

Lead PI: Qiuhua Liang  
 Collaborator(s): Lee Boshier, Xilin Xia  
 Sponsor: NERC  
 Project Value: £129,548  
 Period of Award: 01/02/2019 - 31/01/2021

### SINATRA/TENDERLY

Lead PI: Qiuhua Liang  
 Sponsor: NERC via Newcastle University  
 Project Value: £32,434  
 Period of Award: 01/06/2018 - 30/11/2019

### Integrated production of biomethane fuel with carbon sequestration: combining biological and thermochemical biomass treatment

Lead PI: Tanja Radu  
 Sponsor: EPSRC via Aston University  
 Project Value: £89,920  
 Period of Award: 01/04/2019 - 31/12/2019

### Enhancing outreach and dissemination activities

Lead PI: Ksenia Chmutina  
 Sponsor: British Academy  
 Project Value: £5,120  
 Period of Award: 01/04/2019 - 15/10/2019

## Co-authored Contributing Paper

Ksenia Chmutina and Lee Boshier, together with Jason von Meding (University of Florida) have co-authored a contributing paper called 'Language matters: Dangers of the 'Natural Disasters' misnomer' to the UNDRR latest *Global Assessment Report*. The GAR is a key UNDRR report published twice a year; it presents a comprehensive review and analysis of disaster risk and risk management, highlighting what's new, spotting emerging trends, revealing disturbing patterns, examining behaviour and presenting progress in reducing risk.

## Latest Research Output

Oxfam/WEDC (2018). *Shining a Light: How lighting in or around sanitation facilities affects the risk of gender-based violence in camps*. Oxford, Oxfam GB

<https://oxfamlibrary.openrepository.com/bitstream/handle/10546/620605/gd-shining-light-sanitation-gender-211218-en.pdf>



Credit: Oxfam

## Loughborough work to understand flow dynamics through vegetation

Chris Keylock has been working recently with colleagues at Duke and MIT in the USA, and the University of Western Australia, to develop new insights into turbulence processes in stands of vegetation. This is important for understanding carbon dioxide exchange and for modelling flood resistance. This study is accepted in the journal, *Environmental Fluid Mechanics*, and combines a technique developed in Loughborough with experimental data from the hydraulic flumes at MIT and from the Duke forest experiment. Both were found to giving compatible results on the turbulence structure for water and atmospheric flows.

# Welcome to Andrew Longley

Julie Fisher interviewed Andrew Longley about joining the team



**JF:** What is your background and what have you done before coming to WEDC?

**AL:** I started my career as a geologist, I have a doctorate in geology and subsequently moved into water engineering. My first job was in the **Environment Agency** and then I moved into consultancy with **Atkins** and worked in the UK for 4 or 5 years before having the opportunity to work overseas. I thought I was going for a couple of years — and 15 years later I've finally moved back to the UK from Nicaragua. Initially I was working with an established organisation, but after they pulled out, I founded a new NGO – both a registered charity in the UK and in Nicaragua – and we worked on mostly rural development projects on infrastructure, especially water and sanitation and also agriculture and other aspects of engineering infrastructure for small rural communities, with a strong social focus in all of our work. The political situation in Nicaragua became quite difficult and in the middle of last year, around the time when I'd already started a handover process to national leadership, and we moved back to the UK.

**JF:** We're really pleased to have you join us at WEDC. Are you excited by the prospect?

**AL:** I've been working for the last year with **AECOM** and I'm now very pleased to have this opportunity to move into academia; it's the first time in 25 years that I've been in academia, so it's going to be a challenge I'm sure, but I'm very excited to be here and back in the development field again and I'm hoping that my experience in the developing world will be something I can draw on a lot more here in WEDC.

**JF:** What in particular do you think you can bring to WEDC?

**AL:** I feel like I've been teaching for a long time but have never actually been employed as a teacher, so doing it as a job will be an interesting challenge for me. It's a subject I'm very passionate about and I think I'll really enjoy communicating some of that, and hopefully some of my real work experience. I think I straddle both parts of the recently integrated parts of WEDC; I've worked in the UK water industry and for the **EA**, I've worked on flood-related projects, on big infrastructure projects, and lots of modelling work, so I do know the consultancy end, the UK industry side of the business. I also have a passion for the nuts and bolts implementation in the messy reality of the developing world. So I think there are many opportunities to integrate these, and I hope maybe I can become a bit of a catalyst in that.

**JF:** What do you see as some of key issues facing us now?

**AL:** There are some emerging topics which do have huge potential. One of my particular areas of interest is climate change. I don't have a strong research background in climate change but on one level I've been looking at the reality on the ground for a country that's been significantly affected by climatic extremes and what that means for adaptation in reality for rural, remote and marginalised communities and how they're pushed even further to the margins by some of these climatic events – So I think that's one emerging theme that I will be bringing forward with me. Another area of interest too from my work in Nicaragua, is arsenic contamination, so there is plenty of work to do.

# Other News

## Talk at Claudia Parsons Lecture

Amita Bhakta delivered her presentation called '*Perimenopausal women's hygiene in urban Ghana*,' as part of the Claudia Parsons Research showcase on 15th May.

The Claudia Parsons Memorial Lecture was held in the West Park Teaching Hub, where *Dr Suzanne Imber*, **University of Leicester**, talked about her journey of becoming a space scientist.



Amita Bhakta presenting and pictured above with Dr Suzanne Imber from the University of Leicester



## Latest Publication

Bhakta, A. Fisher, J. and Reed B. (2019) '*Unveiling hidden knowledge: discovering the hygiene needs of perimenopausal women*' International Development Planning Review 41(2), pp. 149-171

<https://online.liverpooluniversitypress.co.uk/toc/idpr/current>



## Youlgreave well dressings

WEDC staff and students enjoyed a visit to the Peak District National Park on Saturday 22nd June to view the spectacular Youlgreave Well dressings. The Well dressing tradition dates back to pagan times when villagers suspected that their health was somehow linked to the water supply. Wells were decorated and blessed to try to ensure continued good health in the forthcoming year.

We joined the processions and blessings ceremony after a picnic lunch and finished up sampling a variety of homemade cakes with tea.

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