UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI
Centre for Water Resources Research
Making a difference - One drop at a time.

Newsletter February 2018

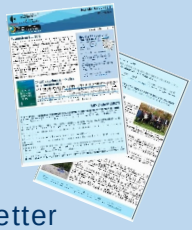
Issue No. 1

Monday 5 February 2018

Research on Tap 2018

Following the success of the CWRR's seminar series Research on Tap 2017, the planning of seminars is under way for 2018. Feel free to send us any suggestions for topics, themes and speakers to invite. Research on Tap comes in two different forms: as internal events where Centre members are invited, or as external events where we advertise broadly for anyone to join in. Two of the planned topics for the external seminars this year are a follow-up seminar on the intriguing topic the Water-Energy-Food Nexus, as well as a seminar hosting collaborators from the South African Weather Service, Umgeni Water, the Agricultural Research Council's Institute for Soil, Climate and Water, and the University of Cape Town. This seminar will focus on how to strengthen the new partnerships between the institutions and developing collaborative research. Research on Tap is open for anyone who wants to host a seminar related to the work of the CWRR. Contact MalingaR@ukzn.ac.za if you want to plan a session and the Research on Tap Seminar committee will help with the facilitation!

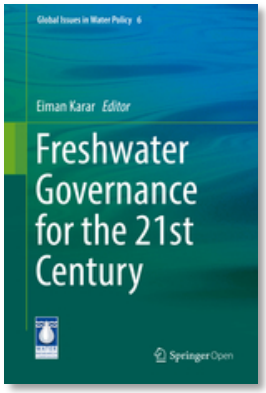
The CWRR Newsletter



Welcome back! It's a brand new year, which means a brand new volume of CWRR's Newsletter.

Your input to the Newsletter is more than welcome! Please send stories and photos of your fieldtrips, information on new projects, interesting courses or conferences, links to publications, and more, to MalingaR@ukzn.ac.za

The Newsletter is also available online at CWRR.ukzn.ac.za



27 300 downloads: in the top list at Springer 2017

CWRR members have authored a chapter in one of Springer's most downloaded books in 2017. The open source book Freshwater Governance for the 21st Century (Ed. E. Karar) has already been downloaded more than 27 300 times. Centre researchers Zakariya Nakhooda, Dr Sabine Stuart-Hill and Dr. Richard Meissner are the authors of the chapter "The Establishment of Catchment Management Agencies in South Africa with Reference to the Flussgebietsgemeinschaft Elbe: Some Practical Considerations" (Chapter 2, 2130 downloads). We congratulate the three authors for their success!

NEW CWRR PROJECTS

The project titled **"The expansion of knowledge on evapotranspiration and stream flow reduction of different clones/hybrids to improve the water use estimation of SFRA species"** has received funding from the Water Research Commission. The project will run over four years starting 1 January 2018 and will be led by Dr. Michele Toucher.

The overall aim of the project is to improve the estimates of streamflow reduction (SFR) impacts of relevant Pine, Eucalypt and Wattle clones and hybrids. The project specifically aims at the following:

- To expand the knowledge of the estimates of water use of different clones and hybrids of eucalypt, wattle and pine species.
- To expand the knowledge on the water use of different stand densities.
- To address shortcomings in the availability of leaf area index information for different SFRA species, clones and hybrids.
- To improve existing tools used for the estimation of the impacts of SFRA through the inclusion of improved soils data and baseline land cover data, as well as the inclusion of the latest process results related to water use (i.e. evapotranspiration) of SFRA clones, hybrids and species.

The project team members at this stage are: Prof. Graham Jewitt, Prof. Colin Everson, Dr. Alistair Clulow, Richard Kunz, Sean Thornton-Dibb and Mark Horan. Robyn Horan will be undertaking her MSc on the project.

Latest publications – journal articles

- Assessing impacts of land use changes on the hydrology of a lowland rainforest catchment in Ghana, West Africa. *Water* 2018. Michael Aduah, Graham Jewitt and Michele Toucher.

- Evaluation of uncertainty in capturing the spatial variability and magnitudes of extreme hydrological events for the uMngeni catchment, South Africa. *Journal of Hydrology* 2018. Samuel Kusangaya, Michele L. Warburton, and Emma Archer van Garderen.

- Tree legumes-temperate grass agroforestry system effects on inorganic soil nitrogen as ecosystem services provision for smallholder farming systems in South Africa. *Journal of Crop Improvement* 2018. Bonginkosi Mthembu, Colin Everson, and Terry Everson.

Learning for sustainable development

Dr. Sabine Stuart-Hill: When I received the invitation from Claudia (Prof. Pahl-Wostl, University of Osnabrück, Germany) on Transformational-Learning I thought "What on earth is that?" Well, after chatting to her I decided to do this trip to my old home country. In the last week of October 2017 we as a group of 23 academics from a variety of disciplines at the Universities of Osnabrück, KwaZulu-Natal, Cape Town, Stellenbosch and Rhodes, met. The workshop was organised through the initiative of the Human-Environment Profile of the University's Strategic Plan and financed by the federal state of Lower-Saxony. Meeting in the beautiful Botanical Gardens we shared our experiences with concepts, methods, applied science approaches, and engaging with 'real' people outside our ivory towers of tertiary education. All of us trying to solve day-to-day challenges of sustainable development from local livelihood levels to national policy making.

Drawing on our diverse experience in educational research, environmental psychology, social learning and resource management, we started an amazing journey of learning ourselves. The applied research of those involved covered fields ranging from climate change adaptation and water management to biodiversity and sustainable food consumption. Experiences and cases discussed ranged from South America, Southern Africa, and Europe to the Asian continent. In three really powerful days we developed a better understanding of transformative learning at the individual, group and societal levels.

By the third day, we all realised not only that we had started breaking new grounds in research, but that we were a group representing a promising mix of conceptual, critical and practical thinkers, offering deep experiences in practice and implementation. No wonder we are all keen to pursue this work. So later this year we will reconvene at Rhodes University carrying on this amazing journey!

The eel mystery of KZN

Céline Hanzen is a senior researcher and PhD student supervised by Dr. Gordon O'Brien. Her project aims at a better understanding of unique migratory fish, the tropical freshwater eels, Anguilla spp. She is focusing on their diversity, population wellbeing and spatial ecology in KwaZulu-Natal. These secretive fish have been particularly difficult to find: in a year and a half, only about 70 individuals have been caught in the main rivers of the Province. Sampling was conducted using overnight fyke netting in farm dams and rivers in the Mzimkhulu, Mtamvuna and Thukela catchments. These catchments are fortunately still mainly free-flowing and sites were recommended via local conservancies. Fyke netting in the Thukela was particularly thrilling and involved a bit of rafting within Zingela River Safari Estate! This field trip was particularly successful: Hanzen collected 8 individuals and 3 species. The biggest one was the Giant Mottled Eel, Anguilla marmorata, 120 cm and about 3,5 kg! With these data she hopes to help decipher their distribution and genetic diversity in KwaZulu-Natal.

Centre for Water Resources Research, University of KwaZulu-Natal, Pietermaritzburg, South Africa
Contact, tips and enquiries: phone +27(0)33 260 5678, or e-mail CWRR@ukzn.ac.za cwrr.ukzn.ac.za