



Making a difference - One drop at a time.

A Note from the CWRR Director

I cannot believe that we are nearing the end of 2020. I have certainly found 2020 to have been a tumultuous and challenging year from many respects and I have found myself working harder than I can remember, but the year has also given perspective and opened new opportunities. I expect that many of you feel the same way and are also looking forward to a more "normal" year in 2021.

The CWRR MANCO has been active in trying to keep operations on track, over and above the increased workload many of us experienced as consequence of the COVID-19 pandemic. MANCO activities and some achievements by CWRR members are summarized in the Annual Report to the CWRR Board which will be available on the [CWRR website](#) shortly. I am pleased to report that this report was considered and accepted by the CWRR Board at a meeting held on 16 November 2020. The CWRR Board confirmed that we are on track and provided useful and challenging feedback on our current and future activities.

I would like to thank Dr Michele Toucher, Dr David Clark, Dr Alistair Clulow and Kershani Tinisha Chetty for serving on the CWRR MANCO during 2020, and also Marsha Chetty and Noluthando Mhlungu for their continued support while working under difficult conditions.

I trust you all manage to have good and relaxing break. Keep safe and all the best for 2021!

Jeff Smithers, CWRR Director

Book on eThekweni's Green and Ecological Infrastructure Policy Landscape

In September 2020, Springer published yet another highly relevant and timely book by CWRR Associate Dr Richard Meissner, CSIR. The book, titled "[eThekweni's Green and Ecological Infrastructure Policy Landscape: Towards a Deeper Understanding](#)". In this book, Dr Meissner utilizes the PULSE3 analytical framework to conduct an in-depth examination and to show how experts frame and implement the municipality's green and ecological infrastructure strategies and projects. Although the initial purpose of this book was to investigate the role of green and ecological infrastructures in eThekweni's water security aspirations, the author realised that climate change adaptation and mitigation play a more central role in motivating the municipality to develop and implement such science-driven projects. To be sure, science that is informed by a positivist paradigm, guides how, where and when the municipality should develop green and ecological infrastructures. Furthermore, a positivistic stance is generated in this policy landscape, where science and politics meet at a local government level, and the book offers an insight into the science-policy interface, as well as the normative and value orientations that positivism often ignores. The book also shows the usefulness of the PULSE3 framework and how it can assist scientists in all fields to gain a deeper understanding of the complications that are faced by humankind. This book fills a market gap by providing a view of how scientists think about problems and how to solve them by using established paradigms and theories.



Monday 30 November 2020

The CWRR Newsletter

Welcome to the sixth and last issue of the CWRR Newsletter 2020. The Newsletter carries news and updates of the achievements and endeavors of CWRR's members, staff, associates and students.

The Newsletter is also available online at CWRR.ukzn.ac.za. For suggestions and queries, please email HenrikssonR@ukzn.ac.za



Research on Tap Citizen Science Webinar

The CWRR is pleased to announce that our second Research on Tap Webinar is coming up this week. We welcome you to join in via Zoom to participate in the webinar titled "Citizen Science for Sustainable Development and Water Security". The webinar which will be jointly presented by CWRR Associate, Dr Jim Taylor and Prof Jaqui Goldin from the University of the Western Cape, will focus on highlighting recent developments in the CS arena, as well as providing an account of CS in action in the Limpopo Province.

We are looking forward to seeing you all online:

♦ **Wednesday 2 December 11am-12pm SAST.** [Click here to register](#) in advance for the webinar. After registering, you will receive a confirmation email containing information about how to join the meeting.

Field site visit for ARUA Water Centre of Excellence project

CWRR members Dr Rebecka Henriksson and Ntombiyenkosi Nxumalo went with project partners from the Institute of Natural Resources (INR) on a field site visit in the upper uMkhomazi catchment on 26 November. The purpose of the visit was to meet with local community leaders and other stakeholders to introduce the INR and Umgeni Water led project “uMkhomazi



upper catchment conservation and restoration project”.

This project is tackling degradation challenges in the catchment by implementing a series of interventions including grazing management, cropping practices, and slowing down run-off using brushpacks, ecologs/-mattresses and planting of Vetiver grass. The expected outcomes of the project is to build partnership with multiple stakeholders and increase awareness around sustainable land management innovations for reversing degradation, improved livelihoods and improved water quality downstream. The CWRR are partnering with the INR and Umgeni Water in this initiative through the ARUA Water Centre of Excellence project “Unlocking resilient benefits from African water resources” for which the CWRR is providing a learning site for other African Water CoE nodes. Prof Seifu Kebede Gurmessa, postdoc researcher Dr Henriksson and research assistant Nxumalo are engaged in research in the learning site to explore the impacts of such innovations to local communities and water users downstream. This will be done through monitoring of key biophysical variables using citizen science and participatory methods to explore perceived changes and benefits related to the innovations among stakeholders.



Latest Publications

- ◆ Competition for Land: The Water-Energy-Food Nexus and Coal Mining in Mpumalanga Province, South Africa. In: Achieving Water-Energy-Food Nexus Sustainability: a Science and Data Need or a Need for Integrated Public Policy? [Frontiers, 2020](#). GB Simpson, J Badenhorst, GPW Jewitt, M Berchner and E Davies.
- ◆ The Development of the Water-Energy-Food Nexus as a Framework for Achieving Resource Security: A Review. In: Achieving Water-Energy-Food Nexus Sustainability: a Science and Data Need or a Need for Integrated Public Policy? [Frontiers, 2020](#). GB Simpson and GPW Jewitt.
- ◆ An assessment of the ecological condition of a wetland on the Lions River floodplain based on soil and vegetation parameters, South Africa. [African Journal of Aquatic Science, 2020](#). H Ndlovu, DC Kotze, GPW Jewitt and CD Morris.
- ◆ Risk Assessment of Water Quantity and Quality Stressors to Balance the Use and Protection of Vulnerable Water Resources. [Integrated Environmental Assessment and Management, 2020](#). M Wade, GC O'Brien, V Wepener and G Jewitt.
- ◆ Biotic and abiotic connections on a granitic catena: Framework for multidisciplinary research. [Kodoe, 2020](#). BB Janecke, J van Tol, IPJ Smit, AC van Aardt, ES Riddell, MT Seaman, WJ Swart, PJ du Preez and PAL le Roux.
- ◆ Groundwater–surface water interactions in an ephemeral savanna catchment, Kruger National Park. [Kodoe, 2020](#). ES Riddell, J Nel, J van Tol, D Fundisi, F Jumbi, A van Niekerk and S Lorentz.
- ◆ Hydrological response in a savanna hillslope under different rainfall regimes. [Kodoe, 2020](#). S Julich, D Bouwer and ES Riddell.
- ◆ Assessment of satellite-derived rainfall and its use in the ACRU agro-hydrological model. [Water SA, 2020](#). S Suleman, KT Chetty, DJ Clark and E Kapangagaziwiri.
- ◆ Prediction of Wetland Hydrogeomorphic Type Using Morphometrics and Landscape Characteristics. [Frontiers in Environmental Science, 2020](#). NA Rivers-Moore, DC Kotze, N Job and S Mohanlal.
- ◆ Ecosystem services of high-altitude Afromontane palustrine wetlands in Lesotho. [Ecosystem Services, 2020](#). P Chatanga, DC Kotze, TW Okello and EJJ Sieben.