



INSTITUTE FOR WATER RESEARCH

Rhodes University
PO Box 94
GRAHAMSTOWN
6140 SOUTH AFRICA

Nominated Organisation:

Institute for Water Research, Rhodes University (representing the Sub-Saharan Africa Water Resources network including Eduardo Mondlane University, Mozambique, Okavango Research Institute, Botswana University and Makerere University, Uganda)

Contact details:

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Mission of the IWR:

The mission of the IWR is to contribute to sustainable water resource management in southern Africa, which is achieved through scientific research into the structure and function of aquatic ecosystems, the application of research through consultancy services, tertiary level teaching and training, community engagement and service on national and international policy-making committees.

Motivation:

The IWR was created in 1991 as an amalgamation of two previous research groups, one focused on hydrology research, the other on aquatic ecology. The engagement of the IWR with research and postgraduate training in the broader region of southern Africa began in 1994 with participation in the UNESCO IHP (International Hydrological Programme) Southern Africa FRIEND (Flow Regimes from International Experimental Network Data) programme. The first phase of this programme (1992 to 1997) was designed to establish regional cooperation in hydrological research and data sharing but also involved several capacity building and training initiatives, mainly through short courses on specific topics, but including some research exchange visits. The second phase (2000 – 2003) was more explicitly concerned with developing capacity through the participation in the research of postgraduate students. The students who graduated with degrees from Rhodes University during the FRIEND programme were Mr W. Metzler (BSc Hons. in Hydrology) from Namibia, Mrs E. Mwelwa (MSc with Distinction in Hydrology) from Zambia and Dr P. Valimba (PhD in Hydrology) from Tanzania. The research results were published in 2 UNESCO reports, a Water Research Commission (South Africa) report, 5 refereed papers and more than 5 conference presentations.

One of the related outcomes of the SA FRIEND programme was the submission to the SADC (Southern Africa Development Community) Water Sector Co-ordinating Unit of a detailed terms-of-reference for a proposed water resources assessment project that would cover the whole region. This proposed project was designed to not only quantify the regions available water



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resources in an integrated manner, but was also designed to increase regional capacity in hydrological and water resources analysis expertise. Unfortunately, the SADC water sector did not manage to attract funding for this rather large and ambitious project and it became clear that large scale funding for postgraduate training and mentorship of young emerging researchers and professionals was difficult to find.

The IWR therefore decided that it would have to continue with its own largely ad hoc programme of supporting individual postgraduates when there were sufficient funds available from consultancy income or contract research projects. During this period two Zimbabwean students funded by the IWR were successful in obtaining degrees from Rhodes University (Dr E. Kapangaziwiri, MSc in 2008, PhD in 2011 and Dr T. Sawunyama, PhD in 2009). The opportunity to apply to the Carnegie Foundation of New York for funding to establish the Sub-Saharan Africa Water Resources Network (SSAWRN) as part of the RISE (Regional Initiative in Science Education) initiative provided the incentive necessary to resurrect the dream of a regionally integrated programme of postgraduate development and research training. In 2008, the SSAWRN was chosen as one of the five networks to be funded through the RISE programme. The first call for students to apply for bursaries was sent out during November 2008 and 35 applications for MSc or MPhil studies together with 49 for PhD studies were received. The applications came from all over sub-Saharan Africa and during 2009, 8 MSc and 8 PhD bursaries were awarded (plus 2 post doctoral fellowships). These students were divided across the four partner institutions in the network. Towards the end of 2010 Carnegie RISE made the very welcome decision to renew the funding until the end of 2013 and a further call for student applications met with a similar response (65 MSc and 55 PhD applications). As many of the first round students were still engaged in their studies, SSAWRN were only able to accept a further 11 students. The number of applications for a limited number of bursaries is indicative of the urgent need for postgraduate training within the region, while at the same time there is very limited capacity in terms of bursary funding and supervisory capacity. Most of the students come from backgrounds that include very little training in research skills and yet they have made remarkable progress, as evidenced by the number of papers that have been presented at local and international conferences and accepted for publication in peer reviewed journals.

While the programme is relatively young and so far only 1 Msc student has graduated (with 1 PhD currently being examined), the end of 2011 will see the submission of many more research theses. After graduation some of the students will become professional water resource scientists, while others are expected to become faculty members of several universities within the region, thereby contributing to enhancing the water resources research capacity of sub-Saharan Africa as a whole. Some of the students have attended international conferences and are starting to build up personal networks that include internationally renowned scientists. SSAWRN represents a substantial financial investment in water resources education in the region by the Carnegie Foundation, but it also represents an investment in time and supervisory resources by the staff of the four participating partners. Many of the students have also suspended their working careers and family lives to invest time in their own futures and have also been successful in attracting co-funding from other sources that has extended their research capabilities. It is this combined level of commitment that should ensure the success of the programme into the future.

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Two of the major constraints to postgraduate student development have always been the lack of suitably experienced supervisors within the regions universities and the lack of funds to support the students' bursaries and research activities. The SSAWRN programme should therefore act as a blueprint to attract further resources both from within the region as well as from outside, so that the opportunity for postgraduate studies can be extended to many more students who have the potential to contribute to both the science and practice of sustaining sub-Saharan African water resources. For too long the region has been dependent upon expertise from outside Africa to solve many of its problems and it is high time that it developed its own capacity. The SSAWRN Carnegie RISE initiative has already been successful in contributing, but there is a long way to go. The IWR, on behalf of the SSAWRN network, are committed to searching for all possible opportunities that will improve the sustainability of this important regional development in high level education and training. Should the nomination of the IWR/SSAWRN for the prestigious King Hassan II Prize be successful, the funds will be used to further advance the network either through funding additional bursaries or increasing the supervisory capacity of the SSAWRN (acknowledging the contribution of the King Hassan II Prize).

One of the outcomes of the involvement of the IWR with the development of hydrological sciences in the region was the election of Prof Hughes as a Vice-President of the International Association of Hydrological Sciences during 2011. This outcome was largely an acknowledgement of the need to involve hydrologists actively working in Africa in the international organization of the science of hydrology.

List of SSAWRN students funded by the RISE programme:

Name	Institutions of study	Nationality	Gender	Degree
Agostinho Vilanculos	EMU / Rhodes	Mozambique	M	PhD
Egidio Govate	Eduardo Mondlane University (EMU)	Mozambique	M	MSc
Alcino Luis Nhacume	Eduardo Mondlane University	Mozambique	M	MSc
Pedro Timba	Eduardo Mondlane University	Mozambique	M	MSc
Venâncio Taimo	Eduardo Mondlane University	Mozambique	M	MSc
Joseph Erume	Makerere University	Uganda	M	Postdoc
Irene Naigaga	Makerere University	Uganda	F	Postdoc
Irene Naigaga	Makerere / Rhodes	Uganda	F	PhD (submitted)
Sehnte Celsus	Makerere University	Uganda	M	PhD
Elias Kaburuku	Makerere University	Uganda	M	MSc
Justin Ekou	Makerere University	Uganda	M	MSc
Moseki Motsholapheko	Okavango Research Institute	Botswana	M	PhD



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Siziba Nqobizitha	Okavango Research Institute	Zimbabwe	M	PhD
Krasposy Kujinga	Okavango Research Institute	Zimbabwe	M	PhD
Richard Mazebedi	Okavango Research Institute	Botswana	M	PhD
Amutenya Kondja	Okavango Research Institute	Namibia	M	MPhil
Gaolathe Tsheboeng	Okavango Research Institute	Botswana	M	MPhil
Kelebogile Cole	Okavango Research Institute	Botswana	F	Mphil
Gosaitse Tubasi	Okavango Research Institute	Botswana	F	MPhil
Kudzanai Chipiso	Okavango Research Institute	Zimbabwe	M	MPhil
Francis O. Arimoro	Rhodes University	Nigeria	M	Postdoc
Boluwaji Onabolu	Rhodes University	Nigeria	F	PhD
Ogenekaro N. Odume	Rhodes University	Nigeria	M	PhD
Paul K. Mensah	Rhodes University	Ghana	M	PhD
Raphael Tshimanga	Rhodes University	DRC	M	PhD
Sithabile Tirivarombo	Rhodes University	Zimbabwe	F	PhD
Thabiso Mohobane	Rhodes University	Lesotho	M	PhD
Jane Tanner	Rhodes University	South Africa	F	MSc / PhD
Ogenekaro Odume	Rhodes University	Nigeria	M	MSc (graduated)
Sbongiseni Mazibuko	Rhodes University	South Africa	M	MSc

Selected publications of the IWR staff and students prior to SSAWRN:

- Bullock, A, Andrews, AJ, Mkhandi, S, Mngodo, R and Hughes, DA (1997) Southern African FRIEND - international collaboration in the hydrological science of flow regimes. In: Sustainability of Water Resources under Increasing Uncertainty (Eds. D Rosbjerg, N-E Boutayeb, A Gustard, Z Kundzewicz & P Rasmussen), IAHS Publ. 240, 133-143.
- Hughes, DA (1997) Southern African FRIEND - The application of rainfall-runoff models in the SADC region. Water Research Commission, Report No. 235/1/97, Pretoria.
- Hughes, DA and Metzler, W (1998) Assessment of three monthly rainfall-runoff models for estimating the water resource yield of semi-arid catchments in Namibia. Hydrol. Sci. Journ., 43(2), 283-297.
- Hughes, DA, Görgens, A, Middleton, B & Hollingworth, B (2002) Regional water resource assessments in the SADC region. Proc. of the 4th International Conference on FRIEND. IAHS Publ. No. 274, 11-18.