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OFFICE OF THE DEPUTY VICE-CHANCELLOR: RESEARCH AND DEVELOPMENT

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**VICE-CHANCELLOR'S DISTINGUISHED SENIOR
RESEARCH MEDAL**

Mr Chancellor, I have the honour of presenting to you
Denis Arthur Hughes,
Professor and Director
of the Institute for Water Research,

for the award of the Vice-Chancellor's Distinguished Senior Research Medal.

Professor Hughes is widely regarded as one of South Africa's most distinguished Research Hydrologists, and as a senior member of the top cohort of Surface Hydrology Researchers globally.

His peers on the selection committee for this award were particularly persuaded by the international influence of his scholarly activities over a sustained period. Reviewers describe his research as having "led to seminal insights into the management of uncertainty in rainfall-runoff catchment models, and into the quantification of ecological water requirements at catchment scale". Moreover, he has a reputation for being able to convert science into practical application in support of South Africa's water resources management and the National Water Act.

Professor Hughes obtained his BSc (Hons) degree (1973) in Geography at the University College of Wales, Aberystwyth, and his PhD degree (1976) at the same institution on geomorphological and hydrological aspects of floodplains.

His long and productive career at Rhodes University began in 1979 when he joined the Hydrological Research Unit as a Research Officer. He received *ad hominem* promotions to Senior Researcher in 1984, Associate Professor in 1988, and Professor in 2003. When the Institute for Water Research (IWR) was formed in July 1991 as an amalgamation of the former Hydrological Research Unit and Institute for Freshwater Studies, Professor Hughes served as its first director, and, after two rotating terms, has served as its permanent director since 2004. The IWR exists to carry out fundamental and applied research for private and state agencies, as well as to provide training to students in the fields of Hydrology (surface and groundwater), Water Resources Management, Freshwater Ecology, and Ecotoxicology.

Professor Hughes's personal research record has focused on the development and

application of a range of catchment rainfall-runoff and water resource models. His development of the highly regarded HYMAS integrated modelling software system was one of the earlier landmark achievements of his career, which has been used in a range of notable research engagements including the UNESCO Southern African FRIEND project, several Water Research Commission studies, and rainfall-runoff modelling studies in Zambia and the Okavango River. The system has undergone a number of adaptations as new technologies have become available, and is in productive use by researchers across the globe in a newer version known as SPATSIM.

His current rainfall-runoff modelling research directions are built upon the success of previous projects during which HYMAS and SPATSIM were developed, and have moved in the direction of the practical application of hydrological models, and include collaboration with several other organisations across continents under the auspices of the International Association of Hydrological Sciences (IAHS).

Amongst many working groups and advisory bodies that Professor Hughes has served on, are the South African National Committee for the International Association of Hydrological Sciences (SANCIAHS) and a Ministerial appointment to the SA Committee of the International Hydrological Programme (IHP) of UNESCO. In 2000 he was appointed as the Chairman and National Representative of SANCIAHS. In 2011 he retired from this position to assume the responsibility of chairperson of the Professional Advisory Committee to the South African National Council for Natural Scientific Professions (SACNASP) for the Water Resources Science field of practice.

In 2003 Prof Hughs was elected as a Vice-President of the International Association of Hydrological Sciences (IAHS) International Commission on Surface Water, and in 2007 became Vice-President of International Association of Hydrological Sciences (IAHS) with special responsibilities for developing countries. He continues to serve in this capacity, playing a strong role in setting the future direction of this international organisation that is critical to the welfare of our planet.

Also in 2007, he was appointed as the regional representative of the UNESCO Southern African FRIEND programme, and as a chapter facilitator for the UNESCO World Water Development Report.

Professor Hughes's publication record is outstanding. Among his publications are 110 refereed outputs, the majority in top international hydrological journals. He has also published a large number of consultancy reports, and conference, symposia, and workshop presentations. He has served as an Associate Editor of the Journal of Hydrology, and is currently an Associate Editor for the journals Hydrology Research, Hydrological Processes, and the Hydrological Sciences Journal.

Known particularly as a strong supervisor of postgraduate theses, Professor Hughes has not only produced his own masters and PhD graduates, but has grown capacity in his field across sub-Saharan Africa through his successful bid for support from the Carnegie Foundation of New York as part of the Regional Initiative in Science Education (RISE).

This enabled him to establish the Sub-Saharan Africa Water Resources Network partnering with universities across the region, for which he serves as academic director.

Mr Chancellor, I request you to award the **2012 Vice-Chancellor's Distinguished Senior Research Medal** to **Professor Denis Arthur Hughes**.