Carnegie Rise
SSAWRN

Sub-Saharan Africa Water Resources Network

Denis Hughes
Institute for Water Research
Rhodes University
Components of SSAWRN:

- **Makerere University, Uganda:**
  - Faculty of Veterinary Sciences & Makerere Water Network.

- **University of Botswana:**
  - Harry Oppenheimer Okavango Research Centre (HOORC).

- **Eduardo Mondlane University, Mozambique:**
  - Department of Geology

- **Rhodes University, South Africa:**
  - Institute for Water Research
Students from:

• **Node countries:**
  - Botswana, Mozambique, South Africa & Uganda.

• **Non-Node countries:**
Primary Objectives of SSAWRN

• Build research capacity in water resources science within Sub-Saharan Africa.
• Focus on the development of post-graduate students.
• Retain research capacity within the region.
• Encourage trans-disciplinary understanding within water resources science.
• Ultimately contribute to improved capacity for water management in the region.
Water Resources Science

• Diverse subject including:
  - Physical sciences.
  - Biological and Ecological sciences.
  - Human sciences.
  - Health sciences.

• Success of water resources management depends on trans-disciplinary understanding.
Water Resources Science

- Surface & Groundwater
- Water quantity & quality
- Climate & Hydrology
- Health & Society
- Water Supply
- Sanitation
- Beneficial use
- Resource use & protection
- Ecology & Environment
- Engineering & Design
- Biomonitoring
SSAWRN – Projects:

- **Hydrology:**
  - Congo River Basin: Quantifying resources (now and into the future) in a data deficient region.
  - Zambesi River Basin: dealing with climate variability and change.
  - Zambesi River: Improved multi-reservoir operations through hydrological modelling.
  - Surface – Groundwater interactions: Understanding the components of the natural resource as a whole.
  - Mozambique: Improved management of groundwater resources.
SSAWRN – Projects:

• Ecology and Environment:
  - Biomonitoring: Various projects on the use of biological indicators to assess aquatic environmental contamination.
  - Aquatic toxicology: Determining the sensitivity of aquatic organisms to water quality variations and pollutants.
  - Okavango Delta: Seasonal flooding and food chains.
  - Okavango Delta: Flooding and the spatial distribution of soil nutrients.
  - Okavango Delta: Habitat partitioning & biological variability.
SSAWRN – Projects:

• Water and Health/Society
  - Lake Victoria: Sources of water borne diseases.
  - Molecular epidemiology of water contaminants.
  - Options for improving household water quality in rural communities in southern Africa.
  - Okavango Delta: Rural livelihoods and droughts.
Key Achievements:

- All student projects are progressing satisfactorily.
- Students attended a thesis writing course during 2010 – very positive feedback.
- Some students have managed to attract co-funding from a variety of sources.
- Student attendance at conferences (including):
  - SANCIAHS, 2009: Special session for SSAWRN students to present their proposals.
  - WATERNET, 2010: All students presenting papers at this major regional conference.
  - Opportunities for scientific networking.
Challenges:

• **Language skills:**
  - Many of the students' 1st language is not English.
  - Impacts on their writing skills.

• **Diversity of topics within SSAWRN:**
  - This is the reality in water resources science research.
  - However, constrains interactions and networking between students within SSAWRN.
  - We are encouraging trans-disciplinary thinking.

• **Travel distances and costs:**
  - Sub-Saharan Africa is a large region and travel costs are high.
Addressing the challenges:

- Encourage co-supervision and trans-disciplinary research.
  - Use post-docs and senior students as mentors to prove additional supervision.

- Encourage engagement between students (within and outside SSAWRN) from different disciplines.
  - WaterNet conference in Victoria Falls (Oct. 2010).

- Encourage students to write and self-criticize their own work:
  - Provide on-going courses and support to develop writing skills.
Priorities:

• **Develop trained water resources scientists.**
• **First step is the completion of their post-graduate degree programmes:**
  – This is our highest priority!
• **Ensure that the students can communicate their science:**
  – Scientific papers and report writing.
  – Develop presentation skills.
Future career paths:

- Objective is to retain students as faculty members or research staff:
  - Need job opportunities and some are clearly available.
  - Need funding opportunities and skills/knowledge to access those opportunities.
  - Need to assist the students to develop links with international partners.
  - Need exposure to, and participation in regional and international cooperative projects.