



Groundwater Management Course in Dar es Salaam 16 to 20 November, 2009, hosted by the SADC Groundwater Management Project (GMP) for the Africa Groundwater Network (AGW-Net).

Groundwater Management is seen as a vital issue by both AGW-Net and SADC GMP. The materials used for this course were developed and tested by AGW-Net over the past year and included:

- The need for groundwater management;**
- Groundwater and Integrated Water Resources Management;**
- Characterization of Aquifer Systems from a Management Perspective;**
- Communication & Information Management;**
- Groundwater Legislation and Regulation;**
- Groundwater Allocation and Licensing;**
- Economic and Financial Instruments;**
- Stakeholder Participation;**
- Groundwater monitoring;**
- Groundwater Quality;**
- Groundwater and Climate Change;**
- Groundwater and Surface water integration.**

In addition, significant time was allocated to exercises, participant presentations and to a field trip, hosted by the Tanzanian Water Ministry.

Course facilitators included Dr Albert Tuinhof, a member of the World Bank GWMate team (Groundwater Management Advisory Team), Dr Willi Struckmeier, President of the International Association of Hydrogeologists, as well as Dr Daniel Nkhuwa (Zambia), Martin Euvie (Nigeria) and Richard Owen (Zimbabwe) from AGW-Net. Administration and management was ably handled by the SADC GMP secretariat staff.

There were 16 Participants (5 women) with the SADC GMP project steering committee, comprised of national groundwater managers, as a core group. Countries represented were Tanzania (2), Botswana (2), Swaziland, South Africa, Malawi (2), Lesotho, Mozambique, Uganda, Congo (2), Seychelles, Zambia, and the SADC secretariat.

Funding was provided by SADC, BGR, Cap-Net and World Bank (GWMate).

The course was held at the scenic White Sands Hotel on the outskirts of Dar es Salaam, and the participants, facilitators and organizers all enjoyed it and found the course very worthwhile.

This short report includes a list of participants and a group photo, the full course program and a summary of the participants' course evaluation.

The full list of participants is given below:

Botswana	Gaborone	Mr. I. Mannathoko
DRC	Kinshasa	Mr. Kibonge Yuma
Lesotho	Maseru	Mr. L. Maseru
Malawi	Lilongwe	Ms. M. Kanjaye
Malawi	Lilongwe	Mr. D. D. Kambuku
Mozambique	Maputo	Ms Arlete Lily Nomboro
Zambia	Lusaka	Mr. S. Kang'omba
Seychelles	Victoria	Mr. A. Alcindor
Swaziland	Matsapha	Mr. O. Ngwenya
Tanzania	Dar es Salaam	Ms Praxeda Kalugendo
Tanzania	Dar es Salaam	Ms Lydia Nomboro
Botswana	Gaborone	Mr. P. Beetlestone
Botswana	Gaborone	Ms. S. S. Hule (admin)
Botswana	Gaborone	Ms. T. Mekswe (admin)
Botswana	Dar es Salaam	Mr. N. Vyagusa
Botswana	Gaborone	Mr. C. Maheri
South Africa	Port Elizabeth	Mr. Raphael Tshimanga
South Africa	Port Elizabeth	Ms Jane Tanner
DRC	Kinshasa	Mr. Mulomba P. Mabila
Uganda	Kampala	Dr. Callist Tindimugaya
Zimbabwe	Harare	Dr. Richard Owen
Zambia	Lusaka	Dr. Daniel Nkhuwa
Nigeria	Kaduna	Dr. Martin Eduvie
The Netherlands	Amsterdam	Mr. Albert Tuinhof
Germany	Bonn	Dr. Willi Struckmeier
		facilitators



Outside the Workshop / Meeting Room on the beach at White Sands Hotel. This beautiful venue added a significant quality to the course.

GROUNDWATER MANAGEMENT: TRAINING FOR SADC PSC & AGW-NET MEMBERS

Date: 16 - 20 November, 2009; Venue: Dar es Salaam, White Sands Hotel.

Time	16 Nov, 2009 Monday	17 Nov, 2009 Tuesday	18 Nov 2009 Wednesday	18 Nov 2009 Thursday	20 Nov 2009 Friday
08:00-08:45	Registration	Module 4 & 5: Groundwater Legislation and Regulation & Groundwater Allocation and Licensing (Martin Eduvie) Case Histories and Exercises: Groundwater Legislation and Allocation Issues (Participants)	Field visit (Lydia Nomboro) Visit to deep artesian borehole in the sand aquifer in Dar. Visit other boreholes in the sand aquifer where salinization is taking place.	Module 8: Groundwater Quality (Daniel Nkhuwa) Case Histories and Exercises: Groundwater Quality (Participants)	SADC – GEF Groundwater Drought Management Project PSC Meeting
08:45-10:00	Introduction & Greetings (Richard Owen & Participants) Course introduction – the Need for Groundwater Management (Richard Owen)		Case Histories and Exercises: Groundwater Monitoring (Participants)	Field measurements for bacterial water quality at this site.	Module10: Groundwater and Climate Change. (Albert Tuinhof) Case Histories and Exercises: Groundwater & Climate Change (Participants)
10:00-10:15	Coffee Break	Coffee Break		Coffee Break	Coffee Break
10:15-12:30	Module 1: Groundwater and Integrated Water Resources Management (Daniel Nkhuwa) Case Histories & Exercises: Groundwater Management (Participants)	Module 9: Groundwater monitoring (Daniel Nkhuwa) Case Histories and Exercises: Groundwater Monitoring (Participants)		Module11: Groundwater and Surface water integration. (Richard Owen) Case Histories and Exercises: Groundwater and Surface water integration. (Participants).	
12:30-13:30	Lunch Break	Lunch Break		Lunch Break	Lunch Break
13:30-15:15	Module 2: Characterization of Aquifer Systems from a Management Perspective (Martin Eduvie) Case Histories & Exercises: Aquifer systems (Participants)	Module 6: Economic Instruments (Facilitator / Daniel Nkhuwa) Module 7: Stakeholder Participation (Martin Eduvie)		Module11: Groundwater and Surface water integration. (Richard Owen) Case Histories and Exercises: Groundwater and Surface water integration. (Participants).	
15:15-15:30	Coffee Break	Coffee Break		Coffee Break	Coffee Break
15:30-17:00	Module 3: Communication & Information Management (Albert Tuinhof) Case Histories and Exercises: Information Management (Participants)	Case Histories and Exercises: Economic Instruments and Stakeholder Participation (Participants)		Summary: Key Issues and Participants Feedback: (R Owen / A Tuinhof / All)	

Short Notes on Probable Facilitators:

Dr Daniel Nkhuwa – Senior Lecturer University of Zambia

Dr Martin Eduvie – Deputy Director, National Water Resources Institute, Nigeria. AGW-Net Steering Committee.

Dr Albert Tuinhof – World Bank / Acacia Water. Groundwater Management Advisory Team (GWMate)

Dr Willi Struckmeier - BGR Director / IAH President

Dr Richard Owen – AGW-Net Manager.

Course Evaluation: Groundwater Management Course: Dar es Salaam, Tanzania. 16 to 20 November 2009.

Participant Responses:

Relevance of the Course to your current work or function.

None	Low	Medium	High	Very High
			11111 (45%)	111111 (55%)

Extent to which you have acquired information / content that is new to you

None	Low	Medium	High	Very High
		111 (27%)	11111 (45%)	111 (27%)

Relevance of the newly acquired information / content for your work

None	Low	Medium	High	Very High
		11 (18%)	11111 (45%)	1111 (36%)

Did the course reach your expectations?

No	Little	Just enough	More than enough	Completely
		11 (18%)	111111 (55%)	111 (27%)

The presentation of the different sessions was:

Poor	Average	Good	Very Good	Excellent
		111 (27%)	111 (27%)	1111 (36%)

Participation possibilities during the course were:

Poor	Average	Good	Very Good	Excellent
	1 (9%)	1 (9%)	111 (27%)	111111 (55%)

Supporting materials for the different sessions were:

Poor	Average	Good	Very Good	Excellent
	11 (18%)	111 (27%)	111 (27%)	11 (18%)

What action will you take now to implement the knowledge gained from this course?

awareness raising & communication; advocacy for GW monitoring & management; distribute materials & implement some actions; will organize a GW management course at national level; improve networking; organize local short courses, revisit implementation strategies, improve communication; improve management practices; awareness raising; information dissemination & implementation; will implement knowledge in current project activities; will apply to train colleagues on data collection & analysis;

Comment on:

Course Content

vg; ok, but include isotope hydrology; g; vg; v broad & relevant; vg but should be longer; more on groundwater assessment; vg; v informative & v good; ok - broad; must follow up;

Facilitation

vg + allowed participation; ok; vg; vg; relaxed & encouraged participation; excellent, especially the exercises; more time for discussions; vg; vg; excellent; ok;

Support materials

ok; ok; g; vg; g but should provide these in advance; provide materials in advance; fail; vg; ok - need website addresses; ok;

Course organization

vg; ok; g but some weakness on communications; vg; excellent; topics should be ordered in the order in which groundwater activities are carried out; g; vg; vg - need more role plays; ok;