

## Welcome Note

Ten months into 2014; it's a time to reflect on progress made towards goals and targets set for the year. WaterNet wishes to thank all partners, members and stakeholders who have contributed to the success of the network thus far.

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## Theme - IWRM for harnessing socio economic development in Eastern and Southern Africa

Sogecoa Golden Peacock Hotel  
Lilongwe, Malawi

29<sup>th</sup> - 31<sup>st</sup> October 2014

Preparations for the 15<sup>th</sup> WaterNet/WARFSA/GWP-SA Symposium are underway. The WaterNet/WARFSA/GWP-SA Symposia have been held annually in the Eastern and Southern African regions for the past fourteen years. The series of Symposia have helped to forge a regional family of water professionals concerned with the wise use of water and has become the key annual event in water research in East and Southern Africa. To date, 14 Symposia have been organised attracting on average 400 water professionals.

The 15<sup>th</sup> symposium will be held at the Sogecoa Golden Peacock hotel in Lilongwe, Malawifrom the 29<sup>th</sup> to the 31<sup>st</sup> of October 2014.

The Second Call for the 15<sup>th</sup> Symposium can be downloaded from <http://www.waternetonline.org/documents/15th%20SECOND%20Call%20for%20full%20papers.pdf>.

Registration for participants for the 15<sup>th</sup> WaterNet/WARFSA/GWP-SA can be done online on [http://hikm.ihe.nl/waternet/symposium\\_waternet/index.php/registration.html](http://hikm.ihe.nl/waternet/symposium_waternet/index.php/registration.html)

The conference will be hosted by the University of Malawi and Mzuzu University under the leadership of Prof Cosmo Ngongondo of Chancellor College. The Symposium is a platform for water professionals to share advances in research and education related to Integrated Water Resources Management. This year's programme consists of scientific presentation highlighting the latest research achievements as well as more general conceptual papers and special sessions.

## 15<sup>th</sup> WaterNet/WARFSA/GWP-SA Symposium



The University of Malawi is the lead host of the 15<sup>th</sup> Symposium. The University of Malawi is one of the largest, multi-campus universities in Malawi.

Registration has opened; visit the Symposium website to access the registration form. All registration enquiries should be addressed to Ms Joana Phiri; the Symposium Secretary at: [jsphiri@yahoo.com](mailto:jsphiri@yahoo.com)



Early Bird Registration	300 USD	2 September 2014
Student Registration	250 USD	24 September 2014
Late Registration	400 USD	20 September 2014
Onsite Registration	500 USD	29 October 2014

## Physics and Chemistry of the Earth Journal

Papers that are presented at the WaterNet/WARFSA/GWP-SA Symposium are automatically invited for submission for peer review and subsequent publication in the special issue of the Journal of Physics and Chemistry of the Earth. Papers in the series of Special Issues of the journal are usually spread over the following themes: Hydrology, Water & Environment, Water & Land, Water & Society, Water Supply & Sanitation and Water Resources Management.

This Special Issue series from the annual WaterNet/WARFSA/GWP-SA symposia has continued to publish high quality and relevant research mainly for the Eastern and Southern Africa regions. The growing interest from authors beyond this region shows the recognition given to the wide range of IWRM research issues that are contained in this journal. Obviously these contributions are playing a part to influence policy as evidenced by the increase in momentum towards water sector reforms, particularly, in the SADC region.

Most papers in the JPCE deal with individual topics related to IWRM (e.g. drinking water supply, hydrology, agriculture, etc.) and do not address more than two topics in a paper, shows that even for scientists, the concept of integration and how to implement this has not been fully embraced.

However it is noted with concern that the aspect of integration has not been coming out clearly in almost all the papers submitted after previous symposia. Relatively few papers have attempted to integrate the different aspects of IWRM. Thus the 15<sup>th</sup> Symposium shall be used as a platform to encourage authors for next year's special issue to tackle the issue of integrating the various components of IWRM at regional and national level.



## Meet the LOC Organising team for the 15th Symposium



The 15th Symposium is being organized by Local Organising Committee (LOC), chaired by Prof. Cosmo Ngongondo (Left), Head of Department of Geography and Earth Sciences, University of Malawi, Chancellor College. We caught up with Prof. Ngongondo recently and he had the following to say:

“On behalf of the Local Organizing Committee, 15<sup>th</sup> WaterNet/WARFSA/GWP-SA, I am delighted to welcome you to the Symposium and to Malawi, the Warm Heart of Africa. To those visiting Malawi for the first time, feel at home and those who have been here before, welcome back home. We are pleased and honoured to organize this important annual gathering. We hope and trust that you will enjoy your visit to the City of Lilongwe. This year’s symposium theme: **“IWRM for harnessing socio economic development in Eastern and Southern Africa”** promises to be an exciting and intellectually rewarding symposium as this is directly in line with the regional development agenda. What a better place to explore such an interesting theme than Malawi where our economy is largely agro-based! We have received over 100 abstracts for the sub-themes covering different aspects of Integrated Water Resources management. We also encourage delegates to maximize interaction during the symposium and explore networking opportunities for research collaboration.

The Local Organising Committee is composed of a diverse range of expertise from Government, Private Sector and NGOs. These are highly dedicated and will endeavor that your stay in Malawi is very enjoyable. Let me introduce you to the LOC members:



**Wapu Mulwafu**- Professor of Environmental History & Professorial Chair, University of Malawi, Chancellor College. He is working as Secretary for the LOC and also in the Transport and Accommodation Subcommittee



**Joan Phiri**- Secretary, Natural Resources and Environment Centre, Chancellor College. She is working as Symposium Admin Assistant



**Fredrick Munthali**- Chief Research Services Officer, National Commission of Science and Technology. He is working in the Finance and Fundraising Subcommittee.



**Elijah Wanda**-Senior Lecturer in Chemistry at Mzuzu University. Currently pursuing PhD in Chemistry at University of Johannesburg. He is working in the Communication and Protocol Subcommittee.



**Theresa Mkandawire**- Associate Professor of Civil Engineering and Dean of Engineering, University of Malawi, the Polytechnic. She is chairing the Finance and Fundraising Subcommittee



**Russel Chidya**- Lecturer in Waste Water, Mzuzu University. He is working in the Transport and Accommodation Subcommittee



**Mac Pherson Nkhata**- Chief Groundwater Research Officer, Ministry of Water Development and Irrigation. He is working in the Protocol and Communication Subcommittee.



**Petros Zuzani**- Lecturer in Civil Engineering, Deputy Dean of Engineering, University of Malawi, the Polytechnic. He is Chair of the Transport



**Samson Sajidu**- Associate Professor of Chemistry and Dean of Science, University of Malawi, Chancellor College. He is working in the Finance and Fundraising Subcommittee



**James Kushe**- Lecturer in Geography, Mzuzu University. He is working in the Finance and Fundraising Subcommittee



**Samuel Bota**-Chair of Malawi Water Partnership, He is working in the Finance and Fundraising Subcommittee



**Benedict Chakhame**- Executive Director, Water Services Association of Malawi, He is working in the Finance and Fundraising Subcommittee

We hope that you will find the symposium both enjoyable and valuable. We look forward to seeing you in Lilongwe, Malawi, the warm heart of Africa”.

## Masters in Integrated Water Resources Management

The IWRM Masters programme remains the flagship of WaterNet. Demand for the programme continue to increase. For the 2015/16 intake a total of 339 applications were received from across the region. WaterNet can only afford a maximum of 35 scholarship. More applications continue to come from Malawi (28%), followed by Tanzania (18%) and Zimbabwe (13%). It is disheartening that there are still more males (72%) than females (28%) applying to be admitted in the programme. Countries which include Angola, Mauritius and Seychelles continue not to have applicants interested in doing the Masters in IWRM programme.

The class of 2014-2015 has completed their core modules and are at six host institutions for their specialisations. The Masters in IWRM 2012 - 2013 from the University of Zimbabwe finally graduated on 12 September 2014.

MSc in IWRM 2012/13 Intake Research Topics University of Dar -es- Salaam	MSc in IWRM 2012/123Intake Research Topics– University of Zimbabwe
<ul style="list-style-type: none"> <li>⇒ Evaporative water use on different land use/land covers using Remote Sensing and GIS techniques</li> <li>⇒ Comparative study of estimating Evapotranspiration using remote sensing: A case study of South Phuthi-atsana river basin in Lesotho</li> <li>⇒ Assessment of the impacts of landuse/cover changes in stream flow. A case study of Ndjili river basin– DRC</li> <li>⇒ Impacts of artisanal mining activities on the Upper Ruvu sub-catchment in Matombo Morogoro rural, Tanzania</li> <li>⇒ The challenges of water supply in urban centres in Malawi. A case study of Blantyre</li> <li>⇒ Assessment of river health. A case study of the Orange river in Namibia</li> <li>⇒ Impact of climate change/variability on agricultural production in Uganda</li> <li>⇒ Floods and their impact on rural household food security in eastern Caprivi, Namibia.</li> <li>⇒ Challenges of water supply projects in rural community – Tanzania. A case of Mvomero district</li> <li>⇒ Opportunities &amp; limitations to adoption of rainwater harvesting in semi-arid Mwala division, Kenya.</li> <li>⇒ Assessing sustainability of rural water supply in Malawi. A case study of Lizulu gravity fed scheme in Ntcheu district</li> <li>⇒ Sustainability of donor funded rural water supply and sanitation prprojects in the Mbire districc, Zimbabwe</li> <li>⇒ Challenges of sanitation Services in Hilly-Rocky Unplanned Settlements. The Case of Mabatini, Mwanza, Tanzania</li> <li>⇒ Assessment of water allocations scenarios. A case of Kagera river basin</li> <li>⇒ Management of rainwater as a strategy to improve water access in Dar es Salaam</li> <li>⇒ Assessment of Interaction between surface and ground water using isotopes</li> <li>⇒ Policy and institutional changes in the water sector on prevalence of Cholera out break in Dar es Salaam</li> <li>⇒ Soil Erosion and sediment analysis. A case study of Mbwemkuru catchmen</li> <li>⇒ Virtual Water Trade in Tanzania</li> <li>⇒ Analysis of surface water allocation in great Ruaha basin</li> </ul>	<ul style="list-style-type: none"> <li>⇒ The role of indigenous knowledge system in coping with food security and other climate challenges in the Mbire District, Zimbabwe</li> <li>⇒ Understanding soil moisture dynamics due to flood recession farming in Mbire District, Zimbabwe</li> <li>⇒ The role of indigenous knowledge system in coping with food security and other climate challenges in the Mbire District, Zimbabwe</li> <li>⇒ The spatio-temporal soil moisture variation along the major tributaries of Zambezi river in the Mbire District, Zimbabwe</li> <li>⇒ Willingness to pay for improved water supply services in Phaleng Ward, Shoshon, Botswana: Application of Contingent Valuation Method (CVM)</li> <li>⇒ Assessment of Land use Dynamics of the N'Djili Catchment in DRC: Implication for Catchment Planning</li> <li>⇒ Measuring the Economic Value of Wetland Ecosystem Services in Malawi: A case Study of Lake Chiuta Wetland</li> <li>⇒ An understanding of variations in the area extent of Lake Lyambezi: Perspective for Water Resources Management</li> <li>⇒ Technical Efficiency of sprinkler irrigation in Swaziland: A case study of the Lusip Phase 1 in Lubovane area</li> <li>⇒ The relationship between production performance and governance in smallholder irrigation schemes in Swaziland</li> <li>⇒ Assessment of spatial and temporal soil loss in and out of Lesotho using Rusle Model and GIS</li> <li>⇒ Impact of Pumbing on Groundwater Resources - An Assessment through steady state Modelling: Opapa Wellfield 7, Central Botswana</li> </ul>

## Graduation for the 2012/13 UZ MSc in IWRM Intake

On the 12<sup>th</sup> of September 2014, 16 students from the 2012/13 University of Zimbabwe class, received their degrees which were conferred on them by the Chancellor of UZ, His Excellence the President of the Republic of Zimbabwe Robert Gabriel Mugabe. The graduands later received their certificates which were handed to them at a colourful ceremony attended by faculty staff, representatives of industry and parents. After the presentation of certificates some of the graduates had an opportunity to reflect and comment on the programme as well as their graduation.

The WaterNet Manager (extreme left) Dr Jean-Marie Kileshye-Onema and the Chairperson of the Civil Engineering Department Dr Hodson Makurira (middle) with MSc in IWRM 201/13 graduands



### What they said on graduation day

*“Many thanks to WaterNet and the Civil Engineering Department for the Support through the entire programme”.* (Blessing Dzimiri-Zimbabwe)

*“I thank WaterNet for the opportunity it granted to me, even though the start was challenging but in the end it worked well in the end. The delay we experienced made us graduate with the Vice President of the country”.* (Mamabitsa Makara-Lesotho)

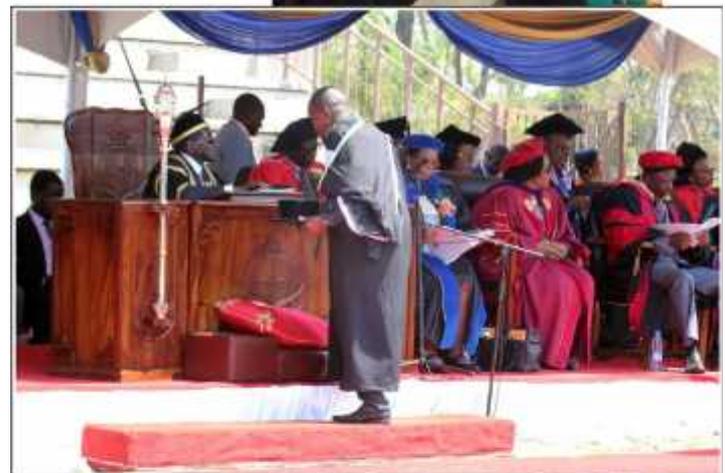
*“Many thanks for the support you gave us, it was an eye opener for me as I had the opportunity to interact with students from other countries. I hope this qualification will help me in my future endeavours and that I will be able to put it to good use”.* (Keneliwe-Botswana)

*“Many thanks to WaterNet. Apart from the challenges experienced, the academic journey was worthwhile”.* (Kago Kadisa Botswana)

*“Thank you WaterNet for blessing me with life”.* (Isaach Makandwa – Zimbabwe)

*“Thank you WaterNet for sponsoring my studies”* (Isabella. M Mushuku –Zimbabwe)

*“I greatly appreciate WaterNet’s efforts. Thank you”.* (Blessing, Jahure-Zimbabwe)





## WaterNet Alumni's contribution to the region

A significant number of fellowships for studying the MSc in Integrated Water Resources Management (IWRM) have been awarded to deserving candidates from Southern Africa as well as a few from Eastern Africa. Those who successfully completed the programme since its launch at the turn of the Century automatically become members of the WaterNet Alumni Association which was launched in November 2007. Besides being active in WaterNet activities, the association and its members continue to make an impact in the region by applying the knowledge and skills which they acquired during the programme. We carry stories of to members of the association who are making a positive contribution in different parts of the SADC region.

### Botlhe Phuthologo (Botswana)



My name is Botlhe Phuthologo. I graduated from University of Dar es Salaam with a Masters in Integrated Water Resources Management in October 2011.

I got hired as a Geographic Information System (GIS) Technician by the ESRI-Partner, GIMS Botswana the same month I graduated. The Master of IWRM that I have and the Remote Sensing and Geographic Information System module that we did during the program are the main reason why GIMS Botswana hired me as they were engaged in GIS water related projects. I worked for GIMS Botswana from October 2011 until June 2013. During which I was attached to the Land Use Conflict Identification Strategy for the Okavango River Basin, the Participatory Integrated Land Use Management Plan in the Okavango River Basin Project and the Inte-

grated Water Quality Management Model Project. I was also exposed to extensive GIS skills mainly on spatial analysis. The GIS skills acquired from GIMS Botswana made me the best candidate for my current position, GIS Technician at the University of Botswana, where I am mainly teaching GIS.

In 2012, I upgrade my GIS skills by taking 5 key GIS courses; Getting started with GIS, Tools and Functionality, GIS Workflows and Analysis, Building Geodatabases and Working for Spatial Analyst. In 2013 I continued to advance my GIS skills by taking the Integrated Data Management regarding Water Resource with focus on GIS course which was jointly implemented by Botswana Department of Water Affairs and Stockholm International Water Institute (SIWI). I also did the TIGER Africa, Cap-Net and WaterNet Regional Training of Trainers for Land Cover Mapping in Water Resources management in Pretoria.

The IWRM program has given me a master's degree, a job and extra qualifications. It has also given me traveling opportunities. I have been to Tanzania, Kenya, Mozambique, South Africa and Namibia through the program and the opportunities it has opened. I have also built long lasting relationships throughout East and Southern Africa. It has also given me an opportunity to learn and speak Swahili.

### Kufasi Shela (Malawi)



I graduated with an MSc in IWRM from the University of Zimbabwe in 2010. I work in the Land Resources Conservation Department in the Ministry of Agriculture and Food Security, Malawi. After my studies, I attended promotion interviews, and got promoted to Chief Land Resources Conservation Officer. While in Lilongwe I briefly took part in the development of the Shire Basin Development project

for the southern part of the country. The project transcends across 6 administrative districts within the country and aims at sustainable management and utilization of the resources within the Shire river basin.

In 2012 I changed offices from the Director of Land Resources Headquarters to Karonga Agricultural Development Division which is >>>>



## WaterNet Alumni's contribution to the region

an agro-ecological zone in the northern part of Malawi bordering with Tanzania. The division is made up of two districts: Karonga which borders with Tanzania and Chitipa which borders with Tanzania and Zambia.

I have since 2012 been working with farmers in various sustainable land management activities. Of importance has been the conservation of river catchments for irrigation schemes in the two districts of my jurisdiction. Having noted issues of siltation, river bank erosion and reduced irrigation schemes performance, we have been working with farmers to help them conserve the source of water for their schemes. The approach has been to follow Prof Pieter van der Zaag "leaf" and identify hot spots of degradation within that leaf and concentrate on conservation works.

This approach has had mixed success stories. In some areas farmers would cooperate and come together to work, while in some areas it has been tough. One such area has been a place where a river stretches some 10 or so kilometers and 4 villages have shared responsibility of protecting sections of the river. The 4 villages do not have a shared conservation plan for the river, hence some parts are well taken care of while others are not. Efforts are underway to facilitate production of a master conservation plan for the entire river.

Recently I am promoting a group of young entrepreneurs who are trading under the name Karonga Young Entrepreneurs; in making fire briquettes from waste paper and rice husks. Issues of alternative energy sources are very critical for our local communities in Karonga district. There is high demand for fuel wood, much of which is being cut from catchments of the major rivers, thereby increasing rates of deforestation and contributing to flooding along the lakeshores. Promotion of the briquettes feeds in well in the circle or reducing deforestation, though it denies those that are engaging in firewood and charcoal sale as their source of livelihood.

### Sharon Murinda Shupikai (Zimbabwe)



My name is Sharon Murinda Shupikai. Working for the Institute of Water and Sanitation Development (IWSD) as a Research Officer, was the starting point of my professional life. I applied for the WaterNet's MSc in IWRM Scholarship to enhance my studies in the field of IWRM. I was offered the fellowship which I gladly accepted.

Learning this programme gave me a new dimension not only academically and professionally but also socially. Completing the MSc in IWRM with a Merit was a dream come true for me. Soon after completing my studies, I returned to IWSD, I was promoted to the position of Research and Projects Department Manager. Being young and enthusiastic, and also a woman in a sector mostly dominated by males, I took this as a challenge and my desire was to bring change to the organization and the Zimbabwe Sector at large. I managed to successfully design bankable projects for the organization. I contributed to development of Standards and Definitions Booklet for the WASH sector in Zimbabwe, I was the initial author of the Zimbabwe Urban Hygiene Promotion guidelines and the National Sanitation and Hygiene Strategy for Zimbabwe, among many other published documents.

I got the Best young scientist award during the WaterNet/GWP-SA Symposium in Entebbe in 2010 and was availed the opportunity to present my paper in Stockholm during the World Water Week.

In 2013, I was successfully recruited by the Swiss Agency for Development and Cooperation under the Embassy of Switzerland in Zimbabwe to work as a National Programme Officer. My overall mandate is that of managing all the WASH projects funded by the Swiss Government in Zimbabwe. Thus is a challenging job, but I am managing and enjoying it. To date, I have acquired more than 10 international professional certificates in the various aspects of IWRM. I intend to start my PhD with the University of Western Cape in 2015. I have already expressed interest to my potential supervisor.

IWSD was the first step and now the Swiss Embassy is the second step and my ladder has 20 steps to get to the highest point before I reach retirement age. *With MSc in IWRM you can reach greater heights!*

## Professional short training courses

### IWRM ToolBox training for MSc. Students. 15 - 17 June 2014, Kariba Zimbabwe



The IWRM ToolBox training, held in Kariba, Zimbabwe on the 16<sup>th</sup> of June 2014, was a collaboration between Global Water Partnership-Southern Africa (GWPSA) based in Pretoria (South Africa) and WaterNet based in Harare (Zimbabwe). The training was an outcome of GWP-SA and WaterNet's shared strategic goal to develop capacity in the Southern Africa Development Community (SADC) region aimed to expose Masters students of the IWRM and Water Resources Engineering and Management (WREM) programmes to the IWRM ToolBox. It is expected that the students will further familiarise themselves with the Integrated Water Resources Management (IWRM) ToolBox, use it in their daily work, and share their experiences with other professionals involved in water resources management by submitting case studies and references. The training was attended by 19 students from five SADC countries: Malawi (3), Namibia (1), The United Republic of Tanzania (1), Zambia and Zimbabwe (12).

Students who attended the training highlighted that the training gave them an opportunity to be acquainted with the use IWRM ToolBox which is a collection of good practice within the Integrated Water Resources Management approach. They saw the ToolBox as a vehicle for exchange of knowledge based on real-life experiences and lessons learned through an interactive dynamic and growing resource that are available in the Toolbox.

Some of the students who attended the training said that the training expanded the use of IWRM Toolbox in their research work and IWRM implementation beyond the academic work that they are currently engaged in. Students appreciated learning the features of the GWP Toolbox that act as guidelines on implementing IWRM; case studies that illustrate how the tools work in practice and references such as supporting documents, manuals, papers and external IWRM knowledge databases.

Apart from learning how to use the ToolBox, students also learnt about trans-boundary water issues, a case of the Zambezi River Authority where they looked at issues of policies, laws and institutions. >>>



Students had the opportunity to do presentations on IWRM from their previous workplaces. The focus of the presentations were also on how their previous organisations could benefit from the IWRM Toolbox in the services they offer. It became apparent to the students that most institutions already have well established programmes on water and IWRM. The inclusion of the IWRM Toolbox will therefore be useful and well accepted.

Dr. Jean-Marc Mwenge Kahinda presented the IWRM Toolbox case studies, from Southern Africa and globally. This was followed by a group discussions on how to prepare proposals for new case studies. Each group prepared 3 - 4 case study proposals for future inclusion in IWRM Toolbox.

Learning about 59 tools presented in the ToolBox and spread across the three pillars of IWRM, the characteristic of each tool being described permits the selection of a suitable mix and sequence of tools that would work in a given country, context and situation. The ToolBox provides a range of tools, which users can select and modify according to the needs of a particular problem thus, allows integration of approaches in addressing water managements issues faced per country, context and situation.

The ToolBox training increases knowledge on IWRM and improve network of contacts as it provides a platform to share experiences with other water practitioners and at the same time, the case studies provide practical experience on how to address water issues in different contexts and regions, at the same time help one in implementing ideas and solutions for water related problems.

The IWRM ToolBox can be seen as a guide for IWRM planning, implementation and monitoring achievements giving hints on water governance problems and provides for comprehensive summary on a mix of tools to be considered when carrying water projects and provide references to enlarge on-line IWRM library.

Although the Toolbox aims to be a key reference instrument for the practical application of IWRM, it is neither a sacred text, where all truth can be found, nor a manual, from where an answer for any problem at hand can be lifted. Even though the ToolBox provides the instructions on how many pages a case study should be, it does not provide guidelines on case study content (case study template), approach to use, because cases vary from field to field hence there is need for those steps to be made available on the web-site.

## Promoting Integrity and Accountability in The Water Sector for Anti-Corruption Commission Regional Training Workshop 30 June- 4 July 2014– Pretoria, South Africa.

The Water Integrity training for Anti-Corruption Agencies in the Southern Africa Development Community (SADC) region on promoting integrity and accountability in the water sector was held between the 30<sup>th</sup> of June and the 4<sup>th</sup> of July 2014 in South Africa. The training was attended by 23 participants drawn from 9 Southern African countries. This course was one of a series rolled out until June 2014, targeting water sector stakeholders at regional and national levels. The course was implemented by SADC Water Division with funding from the Stockholm International Water Institute (SIWI) UNDP while CapNet and WaterNet being the executing agencies. The aim of the training was to create awareness and to familiarise participants with the Water Integrity Training Manual, its tools, mechanisms and approaches to strengthen integrity, accountability and transparency in the water sector.



Dr. Kenneth Msibi the Water Policy & Strategy Expert at SADC Secretariat officially opened the training workshop. In his remarks, Dr. Msibi expressed the SADC region commitment towards water integrity and thanked anti-corruption agencies in the region for participating in the training.

The seven topics in the manual that were presented and discussed were as follows;

1. Introduction to Water Governance and Institutions
  2. Corruption in the Water Sector
  3. Identifying Corruption Risks
  4. Anti-corruption Laws, Institutions and Instruments
  5. Transparency and Access to Information
  6. Accountability in the Water Sector
- Integrity in Integrated Water Resources Management



### Testimonial from the training

By **Muyaradzi Magiga, Muchineripi and Nyaude**

#### Zimbabwe Anti-Corruption Commission

##### *The concept Integrity in the water sector*

This is an area where the course addressed specific corruption prone areas in the water sector and provided possible mitigatory measures to curb corruption. The concept also covered the stakeholders involved in the sector and justified how the values of transparency and accountability are key in the prevention of real and perceived corruption. The course went on to expose how Anti-Corruption Commissions can invigorate their efforts through collaborations and partnerships with relevantly placed institutions and organisations in the fight against corruption in the water sector. The following groups of people or institutions were very critical in this regard; Political parties, National Governments, Media, Private sector organisations, Civil Society Organisations, Research and Training and Communities in general.

##### **Anti- Corruption legislation and Institutions**

The training effectively equipped the participants with the expertise to audit the enabling laws and acts that establish and operationalize Anti-Corruption Commissions. The examination of country Constitutions, Acts of Parliament and other related laws related to integrity in the water sector gave the participants a holistic approach in understanding and tackling corruption since these provided a broader understanding of national and institutional requirements in addressing corruption in the sector. The workshop also discussed the SADC Protocol Against Corruption, the African Union Convention and The United Nations Convention Against Corruption as regional and international agreements which make it obligatory for Anti-Corruption Commissions in SADC to fight all forms of corruption.

## Promoting Water Integrity in Zimbabwe

By  
Andrew Dzane



Water Integrity is a new concept in the Zimbabwean vocabulary. While Zimbabwe has made significant strides towards IWRM, there is a missing link to achieving equal access to portable water.

This article serves to explain my experiences as a Water Integrity Ambassador for SADC, focusing on the work I have done, the challenges I have faced and the opportunities for partnership I have found in working with communities to address their water problems.

I come from mechanical engineering background and enjoy working with communities in development projects. I have worked with Water projects before but my participation in the Water Integrity Training course for civil society participants, facilitated by Water-Net and other partners opened my new awareness of water as a key determinant factor for economic development and poverty alleviation. Prior to attending the water governance course we were mapping water needs with a colleague Nigel Lowe, who was based in South Africa. The idea was to understand the water needs of communities so as to come up with solutions to those problems starting with Chitungwiza. We were keen to see communities leading in their own water management processes.

Reflecting on the three fundamental principles of good governance, which are transparency, participation, and accountability. Transparency meaning information on government water programs and transactions are readily available, accessible, and understandable to the public. Participation involves active involvement of citizens in government processes and decision-making. Accountability means that government representatives and bodies are responsive and answerable to the public from which their authority is derived.

Zimbabwe has made significant progress towards achieving good water governance through the enactment of the 1998 Water Act, the Water Policy of 2013 as well as through the establishment of stakeholder water institutions which include catchment and sub-catchment councils. Principles of IWRM are upheld in the water legislation, policy as well as water management institutions that have been established.

However, there is lack of effective mechanisms to involve stakeholders in water management issues leading to lack of transparency. As a result, stakeholders fail to hold public officers accountable. For example, Chitungwiza Administration is still perceived by residence as corrupt despite their effort to fight the scourge. The Chairman of Chitungwiza Residents and Rate Payers Association (CHIRRA), described their relationship with the council and residents as “a horse-rider relationship”. Residents feel exploited because they lack adequate information about how council is run.



Together with other water experts, we have managed to facilitate an Integrity, Accountability and Transparency workshop for the Chitungwiza local authority in Zimbabwe which is perceived by the public as one of the most corrupt and with a history of gross mismanagement.

The workshop which was held in June 2014, raised awareness on integrity, accountability and transparency among the leaders. The facilitators allowed participants to interact with learning materials and choose tools to apply to the several of their institutions. Tensions between management and councilors were diffused as both parties agreed to improve transparency, integrity and accountability such that they emerged as a unified team ready to improve the integrity of the municipality. There is need for follow up trainings to help them fully implement the integrity change process. The Municipality needs funding partners to come up with a strategic, operational plans as well as a management system to improve efficiency in service delivery.

It was noted during the workshop that it would be vital to train other stakeholder of Chitungwiza Municipality in integrity and accountability issues. These include CBOs, NGOs, Zimbabwe Republic Police, Leaders of Major Hospitals, District Education Leaders, and Residents Associations. These stakeholders have already expressed interest in participating. The Zimbabwe Anti-Corruption Commission (ZACC), Urban Council Association (UCAZ), and Zimbabwe Local Government Association (ZILGA), Ministry of Environment, Water and Climate Change welcomed the Integrity Accountability and Transparency program saying it is the missing link as parastatals, Catchment Councils, ZINWA and EMA are failing to account for revenue.

## Regional training of trainers of trainers on IWRM Approach to Climate Change impacts and Adaptation Measures, 12-16 May 2014, Kinshasa, DRC

The Regional Training of Trainers workshop on IWRM Approach to Climate Change Impacts and Adaptation Measures was held from 12<sup>th</sup> to the 16<sup>th</sup> of May 2014 at Venus Hotel, in Kinshasa, Democratic Republic of Congo (DRC). The training was a cooperative effort between CB-HYDRONET, WATERNET, Cap-Net, GWP Central Africa and GWP Southern Africa, UNDP/DRC and the University of Kinshasa. The overall planning and coordination of the training was assured jointly by the regional secretariat of CB-HYDRONET, WaterNet and GWP-WACDEP Central Africa.



The official opening ceremony was attended by officials who included Prof Kacha Sudi, the Dean of the Faculty of Agriculture from the University of Kinshasa, representative from the Ministry of Environment and Prof Raphael Tshimanga from CB-Hydronet. Prof Kacha Sudi highlighted that it was a pleasure for the University of Kinshasa to be hosting CB-Hydronet and also appreciated the training initiative. He stressed that the Congo basin has a lot of water resources that are affected by poor management, thus the training would play an important role in strengthening capacity in the basin. This was also supported by the representative from the Ministry of Environment who highlighted the need for capacity building in the water sector, particularly in the DRC. He mentioned that it was a pleasure that the training was taking place in the DRC, mobilizing participants and resource persons from the 13 countries. The CB-Hydronet representative, Prof. Rapahel Tshimanga, acknowledged the partners that made the training possible and outlined the main objective the training course.

The overall objective of the training course was to develop capacity of stakeholders towards a better appreciation of climate change impacts in water resources and the ability to use IWRM approach as a tool for climate change adaptation.

The training course consisted of six modules which were built on the Cap-Net training materials, and other materials such as those developed by the African Union, and African Ministers Council on Water (AMCOW), with GWP on the strategic Framework for Water Security and Climate Resilient Development.

The six training modules are:

- MODULE 1: Introduction to catchment based integrated water resources management and climate change;
- MODULE 2: Drivers and impacts of climate change;
- MODULE 3: Climate change vulnerability assessment and climate change adaptation strategies with practical examples;
- MODULE 4: Adapting to climate change through a catchment based approach;
- MODULE 5: Dealing with uncertainties;
- MODULE 6: Case study analysis, experience sharing and field visits.

For each module, there was a presentation by a facilitator followed by a discussion. The participants also had the opportunity to present case from their situations.

On the fourth day of the training, the participants together with facilitators went for a field trip to the Lukaya catchment where three sites were visited. The objectives of the field trip was for participants to have first hand experiences of IWRM activities implemented in the Lukaya catchment, to meet stakeholders implementing activities and to identify the evidence of the impact of IWRM.

The first site visited was the Lukaya Association meeting place for members where an IWRM project stated in January 2013. This was after consultative and participatory processes between users and local authorities. Main activities being done by the Association in the basin include projects on catchment protection and preservation, wealth creation, sanitation and renewable energy, upstream and downstream stakeholder engagement.

The second site for the field visit was the water treatment plant which has a processing capacity of 100 m<sup>3</sup> per hour. The stages of the processing plant were as follows; screening, sedimentation, filtration, flocculation and purification.

The third site visited was the 45 m deep quarry which was flooded on the 12<sup>th</sup> of December 2012. There has been efforts since January 2013 to pump water from the quarry. This has resulted in huge losses for the company. However, communities downstream were cushioned from flooding due to water retention in the quarry pit. As a strategy to mitigate against flooding, the river banks were later reinforced.

## WaterNet PhD Programme

WaterNet initiated a PhD Programme under which Fellows are incorporated into ongoing research projects. PhD students are registered at WaterNet member institution Universities. The first group of PhD students are carrying out their studies under a Danida funded 5 year project whose major object is to contribute towards equitable water allocation and benefit sharing in the Zambezi Basin through balancing energy production, improving livelihoods and achieving environmental sustainability. There are three students focusing on the following areas:

- PhD 1: Ecohydrology: focusing on eco-hydrological effects of increasing hydropower facilities in the Zambezi Basin and the effect of implementing e-flows
- PhD 2: Economic: focusing on benefit-cost sharing approaches in the Zambezi Basin, socio-economic benefits of joint operation of hydropower facilities by the riparian states in the Zambezi Basin.
- PhD 3: Social: Strengthening of institutional capacities in the Zambezi Basin, social effects of increasing hydropower in the Basin and case studies on early warning systems for drought and floods within the Zambezi Basin.

The three students currently under the PhD Programme are Webster Gumindoga, Momde Petrina Mabuku and Mulenga Kalumba.

### Mulenga Kalumba (Zambia)



Mulenga holds a Bachelor of Engineering in Agricultural Engineering at the University of Zambia and a Master of Science in Water Resources Engineering from Katholieke Universiteit in Leuven/Brussels in Belgium

Mulenga is currently registered for PhD studies at the University of Zambia where he also lectures. His area of study is Water Resources Engineering with a

bias on the environment and ecosystems with international transboundary features like the Zambezi Basin. His PhD studies are focusing on assessing the increasing effects of hydropower facilities and implementing environmental flow requirements in the Zambezi Basin. The Zambezi basin has seen a dramatic rise in population and economic activities such as the mining industries and subsequently a

demand for more energy in the basin and the SADC region as a whole. As such the study seeks to address issues on how best the vast water resources could be shared among the riparian countries that share the Zambezi basin as they seek to build more hydropower facilities in the basin to meet this energy demand while at the same time not neglect the environment and ecosystems by implementing environmental flow requirements.

Mulenga feels that the PhD programme will enable him to gain research skills and knowledge on transboundary water resources management, catchment and hydrological modelling skills. He holds the view that water resources data collection and management at a regional and international levels are challenging as there are problems with data limitations in Africa. He hopes to further gain insight on aspects dealing with environmental flows, ecosystems and water allocations and how various institutions within the Zambezi basin riparian countries deal with issues of allocating environmental flows to the environment when there are other competing sectors like domestic, industrial, agriculture and hydropower water rights.

After his PhD studies, Mulenga hopes to conduct more research as well as to publish and to be promoted to a senior Lecturer. This will enable him to impact knowledge to students at the University of Zambia.

Mulenga wishes to:

- Become a full Professor later in life after conducting further research and peer reviewed publications.
- Pioneer in transboundary water resources management in the country and SADC region.
- Advocate for the inclusion of environmental flow water right to water rights Acts in the country and the Zambezi basin riparian countries.

Conduct further research in the basin, conduct lectures, and publications and give presentations at various WaterNet institutions and other affiliating institutions, symposia and forums. >>>

## WaterNet PhD Programme

### Webster Gumindoga (Zimbabwe)



Webster holds a BSc (Hons) Degree in Geography and an MSc degree in Environmental Policy and Planning (MEPP) all from the University of Zimbabwe. He also holds MSc degree in Geo-Information Science and Earth Observation in Water Resources and Environmental Management (WREM), specializing in surface hydrology, from the International Institute for Geo-Information Science and Earth Observation (ITC) of the University of Twente in The Netherlands. He graduated in 2010.

Webster is currently teaching in remote sensing for water resources management at the University of Zimbabwe's Civil Engineering Department and as such has supervised a couple of MSc theses

Webster was awarded the DANIDA WaterNet PhD scholarship to carry out Transboundary Research in the Zambezi basin. He is a registered student of Universiteit Twente (ITC) for the PhD. The working title of his PhD work is OBSERVING THE ZAMBEZI BASIN FROM SPACE: Satellite based parameterisation of the Representative Elementary Watershed (REW) model for runoff simulation under environmental changes. This study is an attempt to assess how land conversions and climate changed over the past decades in the Zambezi basin as well as how the hydrological behavior and water balance have been affected. However, in this basin there is limited ground data to effectively analyse land conversions and conduct hydrological modeling for impact assessment. Remote sensing and distributed models present an opportunity to address these pertinent problems in the basin. Thus in this work the innovative distributed Representatives Elementary Watershed (REW) model was chosen to predict the hydrological impacts of climate change and land conversions in the Zambezi basin's Kapombo catchment. However application of this model in climate and land conversion assessments in African basins is not yet tested or explored.

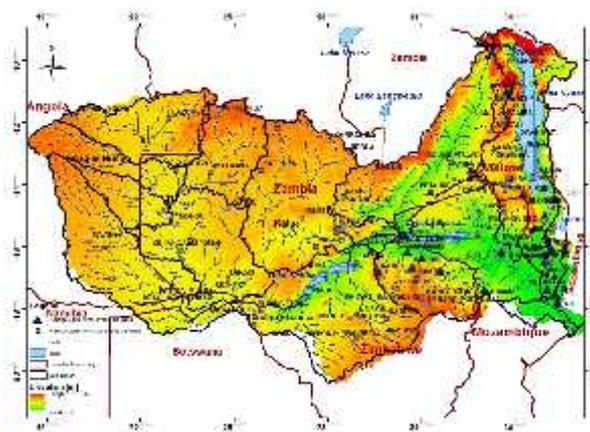
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For the proposed research, it is hypothesized that observing (or knowing) the time-space patterns of rainfall and evapo(transpi)ration in particular allows for more accurate simulation and forecasts.

Organizations such as the National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Centre (CPC) generate, validate, distribute and archive high-quality data sets and products for operational hydrological applications and implicitly assume that use is effective, also when products are mutually used. A Digital Elevation Model (DEM) from the Advanced Space borne Thermal Emission and Reflection Radiometer (ASTER) are used for representing topography in the model. Field investigations of land cover units will be conducted to verify results of the digital land cover classification. Part of this procedure is to collect ground control points by the use of a handheld Global Positioning System (GPS). The most important contribution of this work is to improve model performance by multi-objective model calibration; by assimilating various data sources that also include RS based data in modeling under climate and land conversions.

After completing his PhD studies Webster hopes to contribute to the much needed hands on skills in Sub-Saharan Africa's data scarce water basins by focusing on developing and applying hydrologic modeling approaches and satellite remote sensing techniques for improved Water Resources Management.



The Zambezi basin showing sub-basins, lakes, rivers, elevations and locations of rain gauges.

## WaterNet PhD Programme

### Monde Patrina Mabuku (Namibia)



Monde Patrina Mabuku is a full time 1<sup>st</sup> year PhD student with the College of Agriculture, Engineering and Science, University of Kwa-Zulu-Natal, Pietermaritzburg campus, South Africa. She is fully sponsored by WaterNet on a three-year PhD programme which she registered in 2014. Her research is a comparative case study of two flood prone areas in Zambia and Namibia, within the Zambezi basin. Her research focuses on assessing the socioeconomic impacts of floods on rural community, evaluating their level of flood disaster preparedness as well as identifying and evaluating the adaptation strategies employed by both households and national governments to reduce the impacts of floods.

Monde holds the following qualifications, National diploma in forestry, Bachelor of Science degree in Environmental Science with the University of Botswana and Masters degree in Integrated Water Resources Management from the University of Dar es Salaam. For her MSc degree she specialised in water and land at the at the Okavango Research Institute, University of Botswana. She graduated in November 2013 with a distinction. Her research involved the application of Landsat imagery in delineating the flood extent and the impacts of flood on rural households' food security.

Her long term plans after completing the PhD is to become a research academic in the area of disaster management, climate change, forestry, earth observation and social studies. This area of research would afford her opportunities to mentor young researchers in Africa and increase the number of experts who can add practical value to societies, institutions and governments at large in flood management and policy formulation on water resources and disasters especially floods. Monde sees herself playing a crucial role in improving the livelihoods of rural communities through implementation of projects aiming at building resilience to the impacts of climate variability and change.

## Regional knowledge exchange workshop, 12-14 July, Durban

Water actively took part WaterNet actively took part in a Global Water Partnership Southern Africa (GWPSA) organised one day a half day workshop held in Durban, South Africa between the 12<sup>th</sup> and 13<sup>th</sup> July 2014. The workshop theme was **Regional Knowledge Exchange Workshop: The GWP ToolBox and Other Strategic Aspects, GWPSA - WaterNet Collaboration**. The workshop mainly focused on the GWP ToolBox, strengthening of GWP-WaterNet capacity partnership in research and development and in professional development.

The issue of sustainability of the activities of GWPSA and WaterNet featured prominently as delegates highlighted the need for activities aimed at generating knowledge to be funded locally by governments and the private sector. GWPSA highlighted that it is generating knowledge at different levels which can play a critical role in enhancing the application of IWRM. One of the knowledge databases of GWP is the IWRM ToolBox meant for different water practitioners including academics. Anyone can submit a case study aimed at strengthening any of the 59 tools. Work which is done by WaterNet in terms of research and by students in the form of dissertations can contribute to various tools of the ToolBox as case studies. WaterNet's students undertaking the Master in IWRM are exposed to the ToolBox in some of their modules. Students at the University of Zimbabwe have also undergone a one day training on the IWRM ToolBox.

One of the highlights of the Workshop was the presentation on the revival of the Water Research Fund for Southern Africa (WARFSA) which is housed by the New Partnership in African Development (NEPAD), University of Stellenbosch. The fund was seen as a positive step for the region as it has the capability of generating both knowledge and enhancing development.

Ms. Ruth Beukman of GWPSA and Dr. Jean-Marie Kileshye-Onema of WaterNet highlighted the need for continued coordinated efforts by GWPSA and WaterNet in Southern Africa in the area of IWRM as working in isolation does not result in addressing water related challenges.

## Congratulations are in order ...



**W**aterNet wishes to congratulate Mr Krasposy Kujinga in his new appointment as the Programmes Coordinator for WaterNet. Mr Kujinga who is currently undertaking PhD studies in Natural Resources Management with the Okavango Research Institute, University of Botswana was previously with the Institute of Environmental Studies, University of Zimbabwe where he was a Research Fellow.

## Upcoming Events...

Name of Conference	City and Country	Dates
15th WaterNet/WAFSA/GWP-SA Symposium	Lilongwe  Malawi	29 - 31 October 2014
Gender and Water Conference	South Africa  East London	3 - 7 November 2014
Short Professional Course on Water Negotiations, Conflict Management and International Water Law	Johannesburg  South Africa	11 - 20 November 2014
CapNet Networks Managers' Meeting	Zimbabwe  Victoria Falls	10 - 14 November 2014
Short Professional Course on Water Diplomacy	Kenya  Nairobi	24 - 28 November 2014
IWRM ToolBox Training for postgraduate students	Dar es Salaam Tanzania	TBA

**The WaterNet Management Board and the Executive Management Wish You Good Health and fruitful deliberations and networking at the forthcoming Symposium in Malawi...**



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