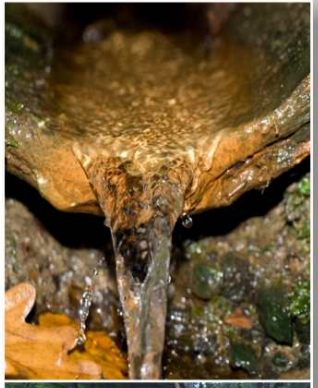

SADC Multi-stakeholder Water Dialogue Report

27-28 May 2009 Johannesburg, South Africa

Global Water Partnership Southern Africa

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BACKGROUND AND CONTEXT

The SADC Multi-stakeholder Water Dialogue is an activity under the IWRM Awareness Creation Component of the SADC–DANIDA Regional Water Sector Programme which falls within a programme in the Regional Strategic Action Plan of the SADC Water Division in the Directorate of Infrastructure Services.

Under the theme Watering Development in the SADC Region, the SADC Water Dialogue mobilises different stakeholders to share experiences in Integrated Water Resources Management (IWRM). The Dialogue highlights IWRM activities by different organisations demonstrating how IWRM approaches can address key aspects of socioeconomic development and poverty eradication in Southern Africa.

The SADC-DANIDA Awareness Creation Component has as its development objective to improve awareness and participation by policy and decision makers and the media on Integrated Water Resources Management (IWRM) and related resources that contribute to poverty alleviation through equitable and sustainable utilisation of water in the SADC region, thus advancing SADC treaty objectives.

To achieve the development objective, the Awareness Component has two immediate objectives as follows:

- Demonstrated awareness among targeted decision makers and policy makers regarding key aspects of the IWRM concept and its relevance to social and economic development in the SADC region;
- Demonstrated awareness of key aspects of IWRM issues among the media in the SADC region.

The 2009 SADC Multi-stakeholder Water Dialogue is the third to be held under the SADC-DANIDA Regional Water Sector Programme. The theme for the 2009 dialogue was “Watering development in SADC: Surfacing of the hidden resource- groundwater”.

EXECUTIVE SUMMARY

The 2009 SADC Dialogue was aimed at examining and discussing how better water resources management using an Integrated Water Resources Management (IWRM) approach could help in bringing different sectors to use, develop and manage groundwater resources in a sustainable manner. Groundwater as a resource has often not received the attention that surface water gets when it comes to management. However of Africa's population of 900 million roughly 60% live in the rural area and approximately 80% of them rely on groundwater. In the region during drought periods, drilling boreholes (groundwater) has always been seen as an ad hoc solution and such initiatives can lead to depletion of the resource. It is therefore clear that reliance on groundwater as a source will increase driven by climate change and variability and other demand side pressures like population growth, urbanisation, land use change, rising food demands which will alter patterns and levels of water demand. Interactions between groundwater and surface water should also be understood – so as to ensure different sectors play a role in managing this integration.

In this dialogue, a number of sectors impacting and influencing the management of groundwater had been identified to come and dialogue with water practitioners and define responses and strategies towards improving management of the resources. Users of groundwater resources vary from players who contribute to the economic growth of countries sectors like mining, tourism, agriculture (for food security), water supply for urban areas, to sectors that directly contribute to the attainment of the Millennium Development Goals (MDGs) thus improved livelihoods like water supply for multi-purpose uses, health (in view of sanitation issues and reliance of health facilities in rural areas to groundwater), smallholder irrigation for improving food security thus reducing hunger. Other sectors that have been targeted are those that influence management responses and decisions these include demographic experts, parliamentarians, planning departments at all spheres of government and climate change experts.

Different sectors affect groundwater resources either through use or influencing groundwater management through decisions and actions that they take. It is important therefore for all these sectors to work together collectively to ensure that an integrated approach is planned for and implemented. The Dialogue focused on the opportunities and challenges on the groundwater resource and explored the responses that each sector can implement to ensure an integrated approach towards ensuring a water secure SADC region.

Issues and actions noted for follow up at the 2009 Dialogue

- The potential and importance of groundwater in the region was noted with respect to contributing to socio-economic development; however awareness is needed to ensure that stakeholders in the region understand these benefits and potential. The SADC Groundwater program is responding to this but more can be done at the national level by the different stakeholders.
- The region has a large resource in groundwater but only a limited amount is being utilized. There is need for more groundwater use in addressing water related MDGs, water supply, food production, drought proofing and climate change adaptation.
- Information on groundwater is lacking and more should be captured and presented in formats that the decision makers, policy makers, and politicians can easily understand.
- It is important to engage the Finance and Economic Planning departments to ensure that adequate resources are allocated. It is therefore important for water practitioners to be able to communicate the benefits and value of groundwater resources and ensure that better water resources management issues are integrated into national development strategies including strategies for good groundwater management.

- It is important to understand the value of groundwater and communicate this to other sectors that are using and impacting on the resource.
- Conclusion of a regional (SADC) Groundwater Protocol based on Draft Articles would create a comprehensive framework of (nearly) identical legal rules for both surface and groundwater resources.
- There is need to improve visibility of groundwater's strategic role to development among policy makers, decision makers and in other sectors outside water. Raising the profile of groundwater and also its vulnerability to demand side pressures like population growth and settlement patterns, land use patterns, rising food demands, economic growth and urbanization.
- Climate Change will add pressure on the resource – it is therefore important to ensure that adaption strategies are put into place. However it is important to understand how climate change effects at a local scale as in sometimes the impact is positive – with regard to increasing recharge.
- In managing groundwater it is important to take into cognisance groundwater dependant ecosystems and ensure that these are protected and are not affected by over-abstraction or heavy pollution.
- Sharing of experiences in the region is important. Best practices and lessons learnt from countries that have moved ahead in managing of the resource should be distilled into knowledge products and shared widely in the region and beyond.
- There is a lack of capacity both at community and public sector level in terms of managing, regulating and protecting the resource. Public –private partnerships are important in ensuring that capacity is built and the sustainable management of the resource. Capacity building is important not only at tertiary education level but also in response to water reforms.
- Investments in exploration of groundwater are critical - there is need to spend resources in ensuring that feasibility studies are carried out to understand the nature and size of the resource. It is also important to invest in groundwater monitoring.
- Issues of sanitation should be integrated into groundwater management – it is important to ensure that sanitation is also managed and funded especially in communities that rely on shallow water wells.
- It is Important to listen to the needs of the communities as well as involve them in decision making processes regarding groundwater use and management.

LIST OF ABBREVIATIONS AND ACRONYMS

ACWR	African Centre for Water Research
AFTWR	Africa Water Resources Unit (World Bank)
AMCOW	African Ministerial Council on Water
AMCEN	African Ministerial Council on Environment
CBM	Community Based Management
CCA	Climate Change Adaptation
CDM	Cleaner Development Mechanisms
COP	Conference of Parties
CSIR	Council for Scientific and Industrial Research
DANIDA	Danish International Development Agency
EU	European Union
GWP SA	Global Water Partnership – Southern Africa
ICP	International Cooperating Partner
IPCC	Intergovernmental Panel on Climate Change
IWSD	Institute of Water and Sanitation Development
MDGs	Millennium Development Goals
NAPA	National Adaptation Programmes of Action
RBO	River Basin Organisation
RISDP	Regional Indicative Strategic Development Plan
RSAP	Regional Strategic Action Plan
RSWIDP	Regional Strategic Water Infrastructure Development Programme
RPRF	Regional Poverty Reduction Framework
SADC	Southern African Development Community
SADC DIS	SADC Directorate Infrastructure and Services
SADC PSF	SADC Programme Support Facility
TWA	Transboundary Water Analysis
WHO	World Health Organisation
WMAs	Water Management Areas
WRTC	Water Resources Technical Committee (SADC)
ZAMCOM	Zambezi Basin Commission
ZINWA	Zimbabwe National Water Authority

1. INTRODUCTION AND OPENING SESSION

Opening Session

Session Chair: Reginald Tekateka, Chair GWP SA

1.1. Welcome by GWP SA Chair

The SADC Multistakeholder Dialogue is the third one to be held under the SADC-DANIDA Regional Sector Programme. The first dialogue was held in Maputo in 2007 and the focus was on moving beyond IWRM as a concept. In 2008 in Maseru for the second dialogue the focus was on rising above the climate change challenge towards security. In 2009 recognising the importance of groundwater especially among the poor in Africa and responding to the call by ministers to prioritise issues of managing the resource, the dialogue will focus on groundwater issues as they relate to IWRM.

The SADC region needs to respond to the multi sectoral nature of managing groundwater resources. Thus the uniqueness of the meeting, in bringing water using and water impacting sectors to dialogue and propose solutions to the water problems in Africa. The dialogue will help stakeholders from public, private and civil society sectors to dialogue in an open and transparent manner in order to find a way to sustainably use, develop and manage groundwater as a collective. Participants were welcomed and encouraged to engage in the dialogue and actively contribute issues.

1.2. Remarks by: Denmark Government Representative

Mr Ole Houmoller – Regional Advisor, SADC-DANIDA Regional Water Support Programme

The SADC dialogue is aimed at bringing the water sector together with non-water sector stakeholders in order to bring water to the top of the agenda. Water is a catalyst for development and it is important for other sectors to understand especially planning and finance sectors.

This is the third Dialogue: The first dialogue in Maputo covered a lot of issues, searching for the right form; the second dialogue in Maseru leaned against the global agenda by using Climate Change as the theme. This dialogue is about groundwater. Groundwater is often a bit overlooked even in the water sector, seen as a rather unreliable source only capable of supplying smaller quantities in rural areas. In South Africa approximately 30% of the population relies on groundwater for their domestic water use, in SADC as a whole it is closer to 50%.

Denmark is a country where groundwater is of the utmost importance. In Denmark all domestic water supply is based on groundwater, and 90-95% of productive water is groundwater, and an understanding of the resource has been developed over the years and these experiences can be shared with the region.

The challenge remains to convince the water planners who focus on surface water only to prioritise groundwater and to convince the planning and finance sector to see water as a developmental tool, and to involve the water sector more and with more resources.

For full text of speech see Appendix A1

1.3. Remarks by SADC Secretariat

Remigious Makumbe, Director Infrastructure and Services, SADC Secretariat

The dialogue this year will report back on recommendations raised by stakeholders last year in Maseru, Lesotho in May 2008 at a similar gathering which discussed issues of Integrated Water Resources Management (IWRM) as they relate to climate change. The SADC Secretariat will highlight to stakeholders what has been done in order to respond to some of the issues raised and also the way forward in dealing with Climate Change Adaptation in Water Resources.

The water programme of action is guided by the SADC Treaty, the RISDP which is the SADC blue print for regional integration and sustainable development at sectoral level the Revised Protocol on Shared Watercourses, a multilateral covenant and legal framework that underpins our intentions and obligations, the SADC Water Policy and Strategy documents and the RSAP 2 as revised in 2005, now to be revised again as RSAP 3

The SADC region is characterised by a large number of shared watercourses and a number of transboundary groundwater bodies (Shared aquifers) which account for over 70% of the region's renewable resource. Although the occurrence of these resources varies both spatially and in time, groundwater itself accounts for almost 60 % of water sources to which the majority of the region's rural population depends on particularly in times of drought. Access to groundwater is not only a matter of life and death for a majority of people in SADC, but is also a key determinant to our ability to attain the Millennium Development Goals (MDGs) and the SADC treaty objective of poverty eradication. Against this background, groundwater is at the epicentre of our survival particularly in times of drought, and deserves the level of discourse being profiled here today.

SADC Member States have adopted IWRM as the fundamental approach to water resources management to ensure that water is adequately contributing to poverty eradication, regional integration and socio-economic development in an equitable and sustainable manner.

It was noted during last year's dialogue that SADC is expected to face potential challenges regarding availability of water resources in the future due to climate change. The need to take on board issues around climate change, variability and adaptation measures to ensure sustainable groundwater resources management is paramount.

This dialogue therefore will focus on the opportunities and challenges on the groundwater resource and explore the responses that each sector can implement to ensure an integrated approach towards ensuring a water secure SADC region through better groundwater management.

In reflecting on these issues, it is important to examine the challenges at the intersection of gender dimensions of water supply and poverty. It is known that women and children continue to suffer more when it comes to limited access to clean and safe water, thereby compromising their dignity. It should be remembered that transforming their lives and enhancing dignity is our direct moral responsibility. Proactive action to avoid cholera is now a must for all of us.

A paradigm shift is required in raising the profile of groundwater, and more importantly the role it plays in poverty alleviation, conflict management, and improved health of our people and ultimately peace of mind.

For full text of speech see Appendix A2

1.4. Keynote Presentation on the Theme

Karen Villholth - Groundwater Specialist, Danish Ministry of Water and Energy.

Groundwater is an important and strategic resource for today and tomorrow both globally as well as in the SADC region. Groundwater provides potable water to two billion people, an equivalent of 33 % of the global population. The majority of groundwater, approximately 70 %, is used in agriculture with the biggest users of the resource being India, USA, China, Bangladesh, Pakistan and Mexico. Groundwater is the most available and only alternative source for safe water supply in many parts of Africa. Use of groundwater for agriculture in Africa however has not developed significantly with less than 5% used for irrigation compared to Asia which uses a third.

Groundwater is a limited resource, as its exploitation has direct negative impacts to the environment thus only a limited amount can be used. Understanding of groundwater as a resource is still limited as groundwater practitioners are learning as they go along. The effects of climate change on groundwater especially in arid areas are also still difficult to predict.

In some places groundwater is situated in deep places where energy is required to abstract it, a link between energy and groundwater is also important to define. On the other hand groundwater is a strategic resource in SADC for achieving the MDGs, and for food production. Groundwater is also an important resource in drought proofing and for climate change adaptation though this can be done up to a certain extend.

The invisible nature of groundwater has many implications and perceptions across a large spectrum of stakeholders. The users think it is an infinite and a separate resource; the policy makers on the other hand do not give it much attention. Research on the resource is expensive and cumbersome – and little investment is put towards the resource.

Trialogue between managers, scientists and the all relevant stakeholders is a key in the management of groundwater. Awareness raising in order to ensure that decisions are based on the best current knowledge is also fundamental. Important issues to consider in managing the resource include innovative approaches in groundwater management and development.

2. THE SADC REGIONAL RESPONSES TO THE MASERU RECOMMENDATIONS

Session 2: Responses to the outcome of the 2008 Dialogue on rising above the Climate Change threat

Session chair: *Mokake Mojakisane, Director of Water Affairs, Lesotho*

2.1. Overview of the Dialogue

Werani Zabula, Communication Specialist, SADC Water Division

The 2009 dialogue is the third to be held under the SADC-DANIDA Regional Water Sector Programme. The first dialogue was held in 2007 in Maputo, Mozambique under the theme “Watering Development in SADC: Beyond IWRM Concepts and the Converted”. The 2008 Dialogue was held in Maseru, Lesotho and dealt with the issue of climate change and variability, which could have a significant impact on other sectors due to its effect on water availability. The theme was “Watering Development in SADC: Rising above the climate change threat – towards security”. The stakeholders at the 2008 Dialogue agreed on a number of priority actions needing follow up and progress will be reported back to the stakeholders at the 2009 Dialogue.

The 2009 Dialogue is focused on raising awareness and initiating dialogue on the 'hidden' critical resource – ground water. The Dialogue aimed at highlighting the threats, challenges and demands of groundwater by other sectors and the importance of IWRM in managing this precious resource, many people heavily rely upon it to addressing the region's socio-economic development and poverty reduction efforts.

Full text of presentation see Appendix A5

2.2. Regional Responses to 2008 Dialogue

Phera Ramoeli – Senior Programme Officer, SADC-DIS

Dealing with the Climate change challenge in Southern Africa: An update on the recommendations made in the 2008 Dialogue".

The second Multi-stakeholder forum was held in Maseru, Lesotho in May 2008 under the theme 'Rising above the Climate Change threat towards Security' and an overall objective to promote sharing of IWRM strategies, experiences and best practices in Climate Change Adaptation that address local, national and regional socio-economic development and poverty reduction (and the attainment of the MDGs).

Stakeholders at the 2008 dialogue came up with 19 Recommendations which are presented in Appendix A3.

Attention was drawn to progress that has been done to respond to some of the Maseru recommendations and the way forward in terms of responding to Climate Change in the region. Some of the initiatives that have been undertaken since the 2008 dialogue were indicated as follows:

- Presentation by the Minister of Water in Lesotho at the Stockholm Water Week in August 2008
- The initiatives funded by DFID as part of the Regional Climate Change Programme (RCCP)
- Water Sector input into COP 15; preparations for negotiations
- The discussion underway with GTZ on a Climate Change initiative that would comprise a web based Climate Change discussion forum
- The broader SADC initiative (Climate Change Programme) under preparation by the Directorate of Food, Agriculture and Natural Resources under the Environment and Natural Resources Sector
- The Entebbe Declaration and findings or recommendations of African or sub regional initiatives to mainstream the adaptation to climate change into managing African Transboundary Lake and River Basins. These seminars were under the auspices of ANBO and in the policy framework of AMCOW were organized by various groups of ICPs (GEP, UNDP, UNEP, GWP, InWent) namely the workshops in Entebbe (August 2008), Abuja (Dec 2008), Pretoria (March 2009) and Mombasa (April 2009)
- The Nairobi Statement of 17th April 2009 (Copenhagen process in preparation for the UN-COP) on climate change adaptation.
- Other initiatives include the Danish Water Forum work on Climate Change Research in the SADC region as part of North-South Collaboration (with GWP and WaterNet)
- At River Basin level, IWRM strategies (completed or being developed) include Climate Change Adaptation activities (Zambezi and Pungwe, Orange-Senqu)

The 19 recommendations were streamlined into a recommended framework that is easier to monitor.

1.	**Knowledge generation, access and management**
2.	**Methodologies, tools for supporting Climate change adaptation**
3.	**Institutional Capacity Building**
4.	**Information sharing, outreach and communication**
5.	**Strengthening Partnerships and Networks**
6.	**Policy development, dialogue and advocacy**
7.	**Pilot, demonstration cases and best practices**
8..	**Infrastructure (from planning to operation)**

It was noted that infrastructure development and sound management of the existing infrastructure are elements that cannot be over-emphasised in the climate change adaptation discourse.

2.3. Overview of the Regional Climate Change Program in the SADC region

Presented by: Belynda Petrie, Director -Regional Climate Change Programme

SADC countries are fast becoming water constrained economies with climate change degrading and impacting water resources. Main challenges that cause countries not to cope are complexities related to population density; urbanization/migration; climatic conditions: reduced rainfall, increase in extreme events, changes in rainfall patterns, inadequate institutional arrangements. The main questions are whether or not SADC has developed social and political stability as well as attract foreign direct investment as corner stones for development in the region.

The SADC region is dependent on shared water resource, which makes transboundary issues of high importance. Six shared water resources are water stressed even before climate change effects are placed in the equation. Shared water resources, transboundary water management and migration of people are political issues. With the situation as presented groundwater resources can be a potential solution to many water scarcity issues in the region, not forgetting that its management is critical. Governance and institutional arrangements for IWRM are critical in this regard. Strengthening of institutional management include

i) understanding climate change,

ii) understanding sectoral impacts,

iii) responding; developing solutions and

iv) achieving development objectives (MDGs).

The position paper as developed from the SADC Multi Stakeholder Water Dialogue on Rising above the Climate Change threat toward security stated that:

"The SADC region should have a strong and informed voice in the global climate change adaptation processes and developments, particularly in how funding mechanisms develop. Scale is achieved at a regional rather than a national negotiating level: it will be much harder for the international community to ignore a voice representing the needs of 240 million of the world's most vulnerable people, as opposed to say 20 million from one country".

As a response to the above stated regional need the Regional Climate Change Programme (RCCP) was established with an aim to enable transboundary adaptation to climate change, with equitable access to climate funding, in southern Africa. The RCCP is a SADC regional five year programme that started in March 2009 to 2014 and also beyond. The programme aims at formulating a regional unified front in order to develop:

- Regional voice
- Practicable solutions
- Clear prioritisation
- Land and water management focus
- Information based
- Financial flow proportionate to the problem

A decentralized approached will be employed with the establishment of the sub regional (RCCP) centres that will enable locally relevant solutions in Tanzania, possibly followed by Zambia, Mozambique and Botswana. The RCCP centres will be responsible for:

- coordination & facilitation
- Strategic direction
- Information packaging & dissemination
- Information clearing
- Project & financial management
- Capacity building

Some of the activities that the RCCP have been engaged in since the 2008 multi-stakeholder dialogue in Lesotho to date include:

- Agreement with DFID - 7.2m GBP programme - 5 years
- Agreement with SADC – Climate Change partnership
- Analysis on the impact of climate change on the progress towards achieving the MDGs
  - Identification of key 'bankable' projects e.g. water infrastructure
  - Analysis of vulnerable health hotspots; WHO partnership to develop a regional Health Dialogue
- Development of the regional voice - preparing the region for COP 15 and beyond
  - Development of a regional position statement on Climate Change
  - SADC/Donor Climate Change Conference late 2009

- Climate Change and Human Security Campaign
- Adaptation framework for AMCEN

The importance of learning from practical experiences that could be used to feed into management and planning processes was emphasised, an example being the case study by RCCP on the Adaptive Management Cycle in Kafue Flats.

2.4. RCCP Transboundary Water Analysis

Constantin von der Heyden - Pegasys Strategy and Development & GWP RTEC

1. Discussion on the Effects of Climate Change on Development:

Climate change and variability are today's realities, while issues of predictability are more focused on the long-term. A clear linkage between climate change and variability with achieving the MDGs needs to be analysed and explored.

In an attempt to assess the effects of climate change on the development in the SADC region the RCCP followed a five step approach as indicated below.

- **Step 1:** Select key MDGs that link to climate change and water
- **Step 2:** Define regional groupings (physical, socio-economic and institutional criteria)
- **Step 3:** Determine MDGs for each grouping (status and progress, including drivers of change)
- **Step 4:** Determine how climate change affects drivers
- **Step 5:** Determine effect on MDGs

2. Regional Transboundary Water Assessment

The regional transboundary water assessment is the key initial project for the RCCP. The purpose of this project is to understand, from a decision-making perspective, the possible impact of climate change on water resources in Southern Africa.

The specific objectives of the project are:

- Identify key transboundary basins vulnerable to climate change
- Determine nature of vulnerability through assessment of supply, demand and yield (infrastructure)
- Describe some key drivers of vulnerability
- Assess key response strategies, based on the drivers of vulnerability

The regional transboundary water resources project focuses on the

i) drivers, looking at the climate change scenarios, development scenarios and the overall current situation,

ii) the impacts both physical and socio-economic and

iii) The adaptive capacity, with the assessment of hydrology, demand and infrastructure.

The criteria for selection of the basins was guided by the following:

- Risk areas identified in MDG study
- Arid / semi-arid western group (including groundwater)
- Coastal eastern group (sea-level rise)
- Central southern Africa (650 – 800mm rainfall pa)
- Reflective of the kinds of impacts (MDG indicators)
- Water quantity / timing and agriculture (small scale / subsistence)
- Water quality and industrial development / urban expansion
- Groundwater dependence, particularly for domestic / livestock
- Ecological integrity, particularly freshwater ecosystems

Four basins have been targeted for the pilot study and these are the Limpopo, Okavango, Zambezi and Cunene. Stakeholders at the meeting agreed to the proposal put forward to carry out the Transboundary Water Analysis in these basins.

2.5. Questions and Answers

Jean Boroto – Strategic Source Focus

Questions on the Follow Up to the Maseru Recommendations:

- How is the SADC Water Sector taking resolutions from these dialogues forward at country level?
- What are the challenges that SADC water sector encounters when responding to some of these resolutions?
- How far are the SADC countries with the development of the National Adaptation Plans of Action?

Response on the Follow Up to the Maseru Recommendations:

Resolutions are done at regional level in this forum, however; projects are implemented at national level. SADC Water Division works closely with the ministries responsible for water. The ministries are engaged in the decision making and national states are encouraged to incorporate these resolutions and good practices in their National Adaptation Plans of Action. The regional water ministers at their meeting made a decision that member states should integrate issues on climate change adaptation in their national development programmes. However, there is a limit on what SADC secretariat can do beyond facilitation. Thus far, assessment has not been done with respect to what various countries have been doing.

Question on the Regional Climate Change Program (RCCP)

- How can climate change vulnerability issues be incorporated into the global economic recession?
- And what are the effects that the economic recession has on the vulnerability issues?

Response on the RCCP

The vulnerability assessments were done using the multi disciplinary approaches basically because climate change impacts on many aspects. The future plan is to assess the socio economic effects of

climate change in the region. The RCCP is making attempts to make economic analysis taking into consideration that the manner at which the global economic recession has affected the region differs between the SADC member states, and such differences need to be well taken into the analysis.

What could be expected as an economic shift in relation the global crisis:

- A significant effect on the national resources, shift in focus in the channelling of funds at the fiscal revenue
- A huge change in donor funding, where focus on relevance of projects and channelling of funds may shift.
- A change in the investment (financial, investment institutions) whereby they may start looking at differing in set of risks to assess whether or not projects are bankable.

Group discussion on the COP (15) and how the water sector is responding to Climate Change Adaptation

A facilitated discussion was held with regional stakeholders, to discuss the progress and initiatives and agree on future priority actions in the build up towards the Conference of the Parties (15) meeting in Copenhagen at the end of 2009 and actions and programmes required beyond that.

COP is the acronym that stands for the Conference of the Parties and the 2009 conference will be the 15th and will be held in Copenhagen. It is a two weeks international annual meeting on climate change where parties negotiate on the political and technical issues in order to come up with declarations on climate change mitigation and adaptation.

A lot of preparation is required before delegates attend this conference. In preparation of COP 15, the SADC region will be holding a number of two-day training workshops aimed at organising the team that will attend the negotiations from the region. These meetings will be held from June 2009 to October 2009. The aim is to train a group of people in order to develop a solid understanding of the relevant issues that need to be addressed in the conference and to create a regional voice.

The role of infrastructure was noted in ensuring that the region adapts to extreme events caused by climate change. Within the SADC DIS there is a programme that promotes water infrastructural development within the region. The framework exists to assist member states to formulate bankable projects. In addition to this, there is a capacity building programme. The capacity building component targets policy makers, professional and civil society. To this effect there are a series of training manuals that have been developed to address several capacity building issues.

The Regional Water Demand Management Programme currently hosted by the Development Bank of Southern Africa and funded by SIDA was also noted as a climate change adaptation strategy. The project is running for three years and is targeting water utilities in funding water demand management.

3. GROUNDWATER – USES, DEMANDS AND THREATS

Session 3: Unpacking groundwater in a multi-sectoral environment

Session Chair: Adam Hussein, Director Water Affairs Zambia

This session aimed to highlight the value, potential and use of groundwater resources for socio-economic development as well as to highlight the impact of climate change and demand side pressures like population, urbanisation, land use changes and rising food demands on groundwater resources.

The session had the following specific objectives:

- To set the IWRM and groundwater context in the SADC region;
- To highlight the dependence of the region on groundwater to address socio-economic development, poverty reduction and improved livelihoods; and
- To highlight the key threats to the groundwater resource – in particular by major water using and impacting sectors.

3.1. Potential and benefits of groundwater in contributing to socio-economic development

Presented by: Eberhard Braun- University of Western Cape

Even though groundwater is recognized in Africa as an important resource there are still the following issues and problems related to the resource in Africa:

- The general lack at all levels of appropriately valuing a natural resource that is life-giving, and by its nature at the doorstep of every community;
- The lack of appropriate approaches for the planning, financing, developing and sustainably utilizing a resource that can normally only be exploited in the form of many, widely distributed, relatively small, individual sources;
- The wide-spread degradation of groundwater and the resulting diminishing resource base, mainly as a result of pollution of underlying groundwater in both urban and rural areas, but also over-abstraction, particularly in higher-yielding aquifer systems;
- The lack of data, information and knowledge about groundwater and its function as a critical hydrological and environmental system component and the serious lack of institutional capacity in this regard. This problem is an underlying cause to most of the other issues.

The Scoping Study on the Status of Groundwater Resource Management in SADC revealed that despite the progress with groundwater utilization and management that has been made in SADC relative to other parts in sub-Saharan Africa, the performance is still rated as “below expectation” when compared to relevant international best practice. With this situation at hand there is a need for a strategic approach at national, regional, continental and international levels.

As a way forward for Groundwater Resources Management the following issues were proposed:

- A long-term process and phased approach through which viable national, regional and local systems can evolve:
- A strategic framework as an essential precursor and progressive instrument for effective groundwater management in order to become more systematic in developing flexible, integrated management systems;
- The SADC Multi-Stakeholder Water Dialogue as initiator of this process.

3.2. Threats and demand side pressures on groundwater resources

Presented by Imasiku Nyambe: Coordinator IWRM Centre, University of Zambia

Rapid population growth leading to urbanisation is a major concern and will continue to affect the economic development of SADC. Population and economic growth have become an added pressure to groundwater resources. The presentation looked at issues of pollution and over abstraction both in rural and peri-urban settings. Looking at five SADC cities of Lusaka, Dar-Es-salaam, Harare, Maputo and Windhoek, which depend a lot on groundwater, the following conclusions can be drawn.

1. National and Local Leadership: Water resources infrastructure requires bold leadership and a compelling national vision. During colonial periods and the early years of independence of these cities, the national governments and municipalities led the way in building our cities' and water resources infrastructure systems using the available policies and legal frameworks.

2. Development of implementable Infrastructure Plans for water resources systems: Infrastructure investment at all levels must be prioritized and executed according to well conceived plans that both complement the national vision and focus on system wide outputs.

3. Life cycle costs and maintenance of water resources systems: As indicated above most of the water resources infrastructure in the five cities were built in the fifties and sixties or just after independence and therefore they are dilapidated. These should be rehabilitated, or new ones built. In doing so, life cycle cost analysis should be performed for all infrastructure systems to account for initial construction, operation, maintenance, environmental, safety and other costs reasonably anticipated during the life of the systems, such as recovery after disruption from natural or manmade hazards.

4. Increase Investment in water resources systems: To have a sustained infrastructure, national governments should increase investment in the sector. Zambia's less than 3% budgetary allocation to water resources infrastructure for example, will keep the underdevelopment for the country for ever. Whether you like it or not the parallelism between underdevelopment and water is real.

5. Sustainability and Resilience of the water resources systems: SADC nations' infrastructure must meet ongoing needs for natural resources, industrial products, energy, food, transportation, shelter, and effective waste management, and at the same time protect and improve environmental quality. Sustainability and resiliency must be an integral part of improving the nations' infrastructure. Today's infrastructure systems must be able to withstand both current and future challenges

6. Research and development should be funded at the national level to develop new, more efficient methods and materials for building and maintaining the nations' infrastructure. Sustainable development will not only bring about high standard of living and quality of life and environment enjoyed in developed countries, but improve conditions in the future.

3.3. Climate change implications on groundwater resources

Presented by: Arthur Chapman, One world Sustainable Investments

According to predictions, climate change in Southern Africa includes longer duration dry spells (droughts) and more frequent and intense rainfalls. A plausible model of climate change impacts on groundwater predicts that longer dry spells would translate into greater groundwater abstraction due to increased demand, while intense rainfall would result in more groundwater recharge. Groundwater recharge is controlled by rainfall quantity and intensity (which is the area where climate change comes in), vegetation as well as soil surface.

Other climate change controls on recharge include vegetation and soil characteristics. With the climate/vegetation interactions, predictions point out that shallow groundwater systems are at risk due to the nitrogen fixing invasive species such as the agro-forestry trees. On the other hand grasslands are better for increased recharge than woodlands and forests. In viewing the climate/soil surface interactions, predictions point out that the effects of drought, high temperatures and intensive land-use would lead to loss of soil organic matter, surface crusting, reduced infiltrability and eventually a reduction in aquifer recharge. Climate / groundwater utilization interactions show that due to drought, there will be increased reliance and dependence in groundwater.

There is a mixed picture of the impacts of climate change on groundwater predicted as extreme rainfalls as well as droughts. As a result there is need for:

- Better management of groundwater resources and abstraction
- Better understanding of resource characteristics
- Utilization for resource sustainably
- Improved land surface management
- Mutual cooperation

Session 4: Open dialogue with Panellists: Groundwater the contested and threatened resource

3.4. Overview of the panel discussion

Presented by Philip Beetlestone, SADC Groundwater and Drought Management Project

The overview put into perspective why groundwater is a contested resource in the SADC region:

- The extents of aquifers are not known
- Who is responsible for its allocation and management
- Needs of humans vs. needs of environment
- Environment vs. economic development
- Resource allocation
- Aquifers not coincident with river basins

Groundwater is a threatened resource in the SADC region because:

- It is currently mined
- Dropping water levels
- Very limited resources are being allocated to its protection and management
- It is vulnerable to pollution
- Recharge areas are being adversely affected
- Is not perceived to have an economic value
- Is out of sight and difficult to quantify
- Climate Change may adversely affect groundwater
- Saltwater intrusion
- Resources are being spent on surface water but groundwater is usually an after thought

It was noted that there was a need then ask the following questions:

1. Are we able to manage groundwater resources?
2. Can we meet the MDGs without groundwater development?
3. How do we commit funds to its development, protection and management?
4. How do we raise its profile?

5. Can we manage the effects of drought without considering groundwater?

6. Do we know enough about the regional aquifers to facilitate long-term sustainable use?

7. Can we develop surface water without considering groundwater?

PANEL DISCUSSION: "Groundwater, the contested and threatened resource"

Panel Moderator: Daniel Makokera

Panellists:

Remigious Makumbe:	SADC Directorate of Infrastructure
Christine Colvin:	Groundwater specialist t
Jeetsing Munbauhal:	Central Water Authority
Yona Kamphale:	Ministry of Economic Planning-Malawi
Karen G. Villholth:	Geological Survey of Denmark and Greenland
Horst Vogel:	ICP Representative

Moderator question 1: What is the state of SADC as far as groundwater is concerned?

The pivotal role that groundwater plays within the SADC region cannot be overemphasised, considering that over 70% of the region's renewable water resources are found within the shared aquifers, while 60 % of the consumed water within the region comes from the groundwater resources. On the basis of this, the region recognised the importance of developing the framework addressing exploitation and good management of groundwater resources. As a result, within the context of the SADC Protocol on Shared Watercourses programmes have been developed within the RSAP I which was reviewed to RSAPII in 2005. Within this context groundwater projects were developed and approved one of which has been fully implemented.

Moderator Question 2: What lessons can we learn from Malawi: There has been increase in budget with regard to management of groundwater in Malawi, what could have led to this?

Basically three factors led to the increase of budget for the water sector in Malawi:

- The political commitment that led to formulation of National Development Strategy where the water sector was identified as one of the key priority areas.

- Water demand, owing to the factor that 70% of the population is rural and depends largely on groundwater for their water needs.
- Political will – driven by local demands through parliamentarians. This ensured that groundwater issues are high on the agenda since most communities rely on boreholes.

Moderator Question 3: What lessons can the region learn from Denmark: In Denmark what triggered the shift from using surface water for domestic and drinking supply to groundwater use?

What triggered the government then (about 100 years ago) to shift from using surface water for domestic supply to using groundwater were health issues that were associated with contamination of surface water. Since then groundwater management has been institutionalised such that a management framework has been developed specifically for groundwater including adapting to the European Water Framework Directive. Denmark thus far has been viewed as a role model in relation to management of groundwater in Europe due to its high reliance on the resource and many years of experience in managing and monitoring the resource.

Moderator Question 4: Groundwater Specialist Perspective: Does SADC have enough groundwater? Can the region use more of the groundwater resources in future?

The SADC region has enough groundwater, though most of it requires special siting mechanisms because some boreholes may have low yields. There are differing amounts of groundwater storage in different places; however, in any given catchment about 90% of the total water storage is groundwater. Consideration must be taken though that groundwater is a renewable finite resource and it is a source of water for many communities and ecosystems of which proper management is vital.

Moderator Question 5: What is the perspective from Island states like Mauritius: Does Mauritius have similar groundwater issues as inland SADC states?

Mauritius, being a small island state, transboundary aquifer issues are not of concern, however there are some similar issues to those of mainland states. During dry seasons (mainly summer) the country encounters challenges of conflicting demands between the users, especially where irrigation use takes precedence in use of portable water resources. This is also associated with challenges of quick depletion of groundwater resources if monitoring is not done well, which eventually leads to deterioration of water quality due to salt water intrusion.

Moderator Question 6: What is the perspective of ICP's with regards to funding challenges to groundwater?

At the moment the demand is quite high, for example in the joint programme between the British (through DFID) and the German (through GTZ) governments funds are overstretched due to a high demand and this being the case, there is a dire need for national cooperating partners to get more involved in the activities within the region.

Moderator Question 7: Issues of health and groundwater in the region?

There is never enough water as the availability of groundwater is a spatial issue, whereby other places generally have more water while others have deficiencies. Based on this information SADC is in the process of developing a groundwater map that will serve as a guide to where the groundwater is available. Health related issues regarding the quality of water are dealt with at the local level and SADC is responsible for development of the standards of the quality of water. In terms of the quality of groundwater the region is not doing badly, however there have been health challenges such as outbreaks of cholera facing some of the member states from time to time.

Moderator Question 8: Donor funding is said to be overstretched, how can SADC assist in accessing the groundwater?

Regarding the question of what SADC can assist with in relation to approaching the ICPs, implementation of programmes on accessing groundwater lies in the onus of the member states, SADC's responsibility is to ensure regional harmonisation as well as development of strategic policies to assist the member states to come up with the programmes that can be implemented.

Moderator Question 9: Is there sufficient information on groundwater in the region?

There is a reasonable amount of information in the region, however whether relevant information reaches the right people may be another issue. It is quite difficult to disseminate data from the regional to national up to local level where most of the groundwater operations occur.

Questions and discussion between panellists and stakeholders

Denmark's experiences in valuing groundwater: Usually the importance of a resource is attached to its value, how much has the valuation of groundwater in Demark influenced its development and management? Experience in many places is that water projects tend to be less attractive to investments mainly because it is taken for granted that water will always be there, which sometimes is not the case.

Groundwater has been a sole source of water supply in Denmark for many years; hence has been a priority, for this reason there has been a lot of valuation and investments towards development and management of groundwater resources. The situation in Denmark may therefore be slightly different from other parts of the world where surface water takes primacy to groundwater, making groundwater to be viewed as a secondary water resource.

SADC response and role in transboundary aquifer management: What are the regulatory and institutional arrangements concerning groundwater especially in SADC since there are a number of transboundary aquifers?

SADC coordinates its member states in various processes relating to institutional arrangements. In the area of transboundary aquifers SADC has various institutions that are championing issues around groundwater resources, an example of which is an institution that is based in Windhoek, Namibia looking at issues relating to aquifers. SADC also has programmes within the context of African Union, of which they are largely followed. The region is also determined to come up with the institutional arrangements regarding governance, utilisation and regional consensus around the use of aquifers.

Denmark's experience on the groundwater – health linkage: What were the health issues (100 years ago) that were experienced in Denmark that ended up causing the shift from using surface water towards using groundwater? From examples given earlier in Lusaka and Harare there were an outbreaks of Cholera that were linked to use of shallow wells.

In Denmark groundwater is tapped from very deep levels that are protected from contamination instead of shallow wells. Secondly, Denmark has relatively good quality of groundwater that does not need much treatment after the abstraction. In the case of Lusaka, the health problems from the use of groundwater were much linked to sanitation. When talking about groundwater there is always a need to remember its linkage to waste management as well as sanitation.

Funding and capacity to absorb funds: During the discussions of funding it was noted that sometimes funds had to be withdrawn due to lack of capacity in the region to absorb them. The question is, are we not failing to re-adjust to new realities where for instance new partnerships are being formed between civil society and government, as well as between government and other institutions which themselves are creating capacities for development, not in the traditional way that used to happen before. Is it not possible to exploit these existing networks (e.g. Global Water Partnership) as well as other civil society groupings?

All ICPs want to see funds being utilised. However this does not do away with the fact that there are variations with different partners as well as situations. In other cases some partners may despair due to tedious formalities and procedures that are set as requirements for accessing the funds. In essence even though funds may be available, and there is enough capacity to absorb them, the processes involved in accessing the funds are sometimes too laborious, these networks might therefore be an answer if they are well capacitated. These networks should however approach donors with demand driven problems that address the concerns of the region.

Groundwater planning experiences from Malawi and Mauritius: Is water resources planning systematic in relation to groundwater owing to the fact it is invisible and as a result generally not understood?

The national water policy of Malawi clearly articulates the roles of the surface water and groundwater resources. The policy also clearly designates the organisations tasked to work in specific aspects of water resources management.

In Mauritius planning for groundwater is at an advance stage as the Island is mainly dependant on the resource. The country has 150 boreholes which are managed through an integrated system that

incorporates monitoring groundwater levels and protecting the groundwater from salt water intrusion. A number of institutions which are capacitated have been set up to develop and manage the resource.

Artificial recharge solution to water scarcity problems: It is noted that artificial recharge of groundwater is and can be a solution in addressing issues of scarcity, why is it not practiced everywhere else?

Artificial recharge has been used in many other parts of the world to replenish aquifers. In India this has been practiced for a long time, in some parts of Southern Africa as well specifically in Namibia and Cape Town. Lessons can be learned from those who have done it and the technique can be used in SADC. However these methods are expensive and proper planning is required.

4. SOLUTIONS FROM DIFFERENT SECTORS TO GROUNDWATER ISSUES AND CHALLENGES

Session 5: Playing Your Role – Sectoral Responses to Improving Groundwater Management and Use

Session chair: Gilbert Mawere, Deputy Director, Department of Water Affairs, Zimbabwe

4.1. The International Response:

Articles on Transboundary Aquifers

Daniel Malzbender, African Centre for Water Research, Cape town, South Africa

The articles were established in order to lay principles of customary international law for transboundary surface water resources. This follows numerous international agreements concerning the utilisation and protection of shared surface water resources including the 1997 UN Convention and subsequent agreements based on it that includes groundwater to a limited extent. In comparison to surface water resources, there are a limited number of agreements related to transboundary aquifers.

The process of developing the articles on transboundary aquifers started in 2002 when the UN International Law Commission (ILC) embarked on an exercise of codifying the (customary international) law of transboundary aquifers. After only six years (compared to the nearly 30 years it took for the 1997 Convention) the ILC adopted the preamble and 19 draft Articles in 2008. The 63rd session of the UN General Assembly adopted the draft Articles and recommended them for adoption as well as encouraged States to make appropriate bilateral or regional arrangements for the proper management of their transboundary aquifers, taking into account the provisions of these draft articles.

On matter of the legal status and significance the articles are currently not a binding international agreement, however they will play a strong legal guidance function for the drafting of future agreements as an authoritative summary of the law of transboundary aquifers

Groundwater that is related to surface water and flows into a common terminus (with the surface water) is covered by the 1997 UN Convention, NOT the Draft Articles. On the other hand the unconnected aquifers and those that do not flow into a common terminus fall under the coverage of the Draft Articles. These cover both the transboundary aquifers and aquifer systems.

Draft Articles contain the same key rules as the 1997 UN Convention with articles 4 and 5 embracing the principle of equitable sharing. The framework character calls for bilateral and regional agreements as well as establishment of appropriate joint management mechanisms.

However there are some practical challenges:

- Scope of Draft Articles requires detailed scientific knowledge of aquifers, aquifer systems and their connection (or not) with surface water systems
- Institutional machinery for transboundary groundwater management not well developed (compared to surface water resources)
- Do characteristics of surface water and aquifers allow for joint management institutions in charge of "both types" of resources
- How can efficient linkages/synergies with institutional machinery for transboundary surface water management best be achieved

And also some opportunities:

- Conclusion of a regional (SADC) Groundwater Protocol based on Draft Articles would create a comprehensive framework of (nearly) identical legal rules for both surface and groundwater resources
- Draft Articles (or SADC Groundwater Protocol) provide legal guidance for drafting of bilateral agreements on shared aquifers
- SADC region can benefit from experience in the joint management of transboundary surface water resources
- Possibility to create institutional linkages with existing joint management institutions (e.g. ORASECOM GTT)
- Surface water and groundwater resources under one comprehensive legal regime (together with appropriate institutional mechanism) provides greater basket of options for negotiations and ultimately optimal resource utilisation

4.2. The Regional Response

SADC Groundwater Management Programme:

Phera Ramoeli, Senior Programme Officer, SADC DIS

The SADC region comprises 15 Member States, 15 Transboundary River Basins and 20 Transboundary Aquifers. In order to manage its water resources, the region has the SADC Protocol on Shared Watercourses (adopted 1995, revised 2000), the Regional Water Policy as well as the Regional Water Strategy.

The challenges that SADC face in managing its water resources:

1. Lack of Information and Data

- Surface water resources are generally well characterized in the region; however there is a dearth of basic information for groundwater resources.
- nomenclature
- lost data/information
- compliance and submittal of hydro-geological data

2. Limited capacity at all technical levels

3. Poor appreciation of the transboundary role of groundwater

- little understanding of the transboundary nature of aquifers amongst managers and communities dependent on the aquifers
- Poor consideration during water resources planning and IWRM

4. Legal and regulatory limitations

- Laws in most member countries have been drawn up with regulation of surface water sources in mind

5. Awareness

- Very little awareness of Groundwater and its importance at all levels of society and government

6. Institutional limitations

- Responsibility for management of the basic resource is often fragmented between different authorities and at different scales

7. Operational

- Differences between government policies/practices and those that actually exist on the ground

In addressing of some of the above mentioned challenges, SADC has developed the groundwater management whose aim is to promote the sustainable development of groundwater resources at a regional level, incorporating research, assessment, exploitation and protection, particularly related to drought management and to integrate groundwater issues in the joint management of International River Basins. Ten projects have been developed within this programme.

In responding to capacity building issues, the existence of the Groundwater Management Institute of Southern Africa whose vision is to ensure the equitable and sustainable use and protection of groundwater, as well as being a centre of excellence in the areas of groundwater, drought management and management of groundwater dependant ecosystems in the region.

In the future SADC aims at bridging the Member State's Gap's and "Leveling the Playing Field" in the areas of capacity, data, policy and awareness.

4.3. The Private Sector Response

Managing groundwater resources –the Debswana Case

Presented by Mike Brook, Debswana

Debswana's interest in water resources emanates from the fact that "no water, no diamonds". Debswana's water department looks into water from well fields which provide for water supply for domestic and mine plant requirements, pit dewatering for pit stability control and depressurization, development of new water conservation methods as well as protection of water sources and resources from the environmental impacts of mining activities.

Water resources management in the past tended to be ad hoc and not properly planned. Presently Debswana has developed a Water and Residue Strategy (2005-2030) which focuses on the following key areas:

- Water Resources and Supply
- Water Demand Management

- Water Quality
- Residue Disposal, Rehabilitation and Closure
- Research
- Stakeholder Management

The Debswana's water and residue strategy has a mission to minimise new water intake and impact on the environment for sustainable development. It has the core values with acronym PASTE which in full means: "People are Accountable to provide Sustainable Technological solutions to minimise Environmental impacts and continuously save water".

The following are the key lessons learnt from Debswana's operations in relation to water management:

- To cater for maintenance, failures etc., up 15% additional resource need to be planned for
- Groundwater development is a long process and needs to be planned for well in advance of water requirements
- Debswana needs to plan for the development of alternative water resources to the existing wellfields within the next 5-10 years e.g. storm-water/ rain water harvesting, Industrial (brackish + saline) wellfields etc
- Paste thickening will be an expensive exercise and may not be able to achieve the water conservation that has been expected
- Public awareness and education campaigns on water conservation and rationalisation of water use need to be continuous and aggressive in order to have an effect
- IWRM needs to be implemented at all operations
- Development of partnerships e.g. groundwater, dewatering & drilling are crucial to cost effective and efficient WRM at Debswana operations
- Development & Maintenance of a comprehensive water database is crucial for effective WRM (scheduled for implementation in 2009)

4.4. The Public Sector Response

Developing the South African Groundwater Strategy

Kevin Pietersen, Water and Geoscience, South Africa

The development of the South African National Groundwater Strategy emanates from the country's legislative drivers which include the Constitution, National Water Act (no.36 of 1998), the National Environmental Management Act as well as the national policies such as Water Policy (2007), National Water Resources Strategy (NWRS) (2004, to be updated) and Water for Growth and Development Framework (2009). Despite the policy and legislative driver's groundwater practitioners and water resource planners are struggling to integrate groundwater into the IWRM framework. As a result a comprehensive strategic intervention was found necessary to ensure that groundwater is integrated into the National Water Resource Planning Framework in South Africa.

A Groundwater Strategy for the NWRS was developed in 2001 and was known as the DWAF/DANIDA strategy, a Framework for a National Groundwater Strategy was also developed by DWAF in 2007. These two documents were presented as the two national documents that preceded the National Groundwater Strategy (NGS).

To support the strategy development a number of upfront activities were defined to include:

- Stakeholder participation and Institutional assessment
- Marketing and Communication
- Capacity building
- Framework for groundwater assessment methodologies

The framework for groundwater assessment methodologies included evaluation of past and current groundwater assessment methodologies and programmes, review the data requirements of the above approaches, guidelines for incorporation of groundwater assessment and management approaches into water resource planning, workshop with water resource planners as well as technical workshops.

4.5. The Local government Response

Solutions from Namibia in using and managing groundwater resources

Presented by Greg Christelis, Namibia

In Windhoek water supply in Windhoek is sourced from groundwater (1.74 N$/m3), surface water (5.75 N$/m3), reclaimed water (7.00 N$/m3) and reused water (3.60 N$/m3). Additional supplies of water are sourced from Okavango pipeline, Karst aquifer and artificial recharging.

A solution for artificial recharge has been explored and the following are the benefits to Windhoek:

- The project can be developed according to supply and demand (phased)
- It is an efficiency improvement of existing sources (lower evaporation, bigger water bank)
- Future augmentation schemes can be downsized
- Previously non-viable sources have become viable to keep the “water bank” full
- Water demand management actions will free up water for injection
- Lower peaks on the bulk system through aquifer storage and recovery
- The environmental impacts are minimal

The main challenges relating to artificial recharging of groundwater as pertaining to

i) the quality of water injected underground,

ii) pollution threat as well as the

iii) aquifer & artificial recharge management.

It was noted that there is much emphasis on climatic models & emission reductions but few strategies to address water shortages. Climate change will require major adaptation & efficiency improvements in the water sector. The assurance of water supply can be significantly increased by artificial recharge and deep groundwater abstraction and for the Windhoek aquifer it is a valuable resource – it must be well-protected and well-managed.

4.6. The Community Response

Managing and using groundwater resources

Noma Neseni, Institute of Water and Sanitation Development, Harare, Zimbabwe

Community based management (CBM) was defined as communities having authority, control, responsibility and accountability of the development and management of their water resources. It is not a choice between top down and bottom up approaches but rather an establishment of a management system in full collaboration between community and local authorities/utilities.

In Zimbabwe, studies suggest that community based management include manual tasks for development of source, technical work for preventive and correction of maintenance (sometimes making parts) and the organisational activities. Regulatory activities include those designed to preserve scarce resource, equitable distribution, those meant for maintaining good working order of pump and ensuring cleanliness and hygiene of surroundings where the water is fetched.

Lessons learned

For CBM to work a variety of conditions have to be met:

- Soft conditions such as legal ownership, community demand, capacity development, behaviours, norms and practices are important
- Equally hard conditions such as human resources, suitable technologies should also be in place
- Financial conditions such as availability of finance for capital expenditure and ability of users to pay for services
- Information be made available for communities to make informed decisions and choices (e.g. cholera outbreak people drinking contaminated underground water)
- External support and services must be made available (training, advice, credit, monitoring)

Communities have been responding to water scarcity, water pollution through community based management structures. With the climate change threat, community based management is going to be more important and relevant for allocation, equity and preservation of a common but finite resource. In addition, with the continued pollution, and the lack of institutional capacity to monitor the resources community based management is the more feasible option.

4.7. Reflections on the Responses from Different Sectors

REFLECTIONS ON THE SIX RESPONSES – BY DR WASHY NYABEZE

My reflections are informed by six presentations as follows:

- International Response: Articles on Trans-boundary Aquifers by Daniel Malzbender
- Regional Response : SADC Groundwater Programme by Phera Rhamoeli
- The private sector response – managing groundwater resources – the Debswana Case by Mike Brook
- Public Sector Response: developing the South Africa Groundwater Strategy : Water for Growth and Development by Kevin Pietersen
- Local Government Response – solutions from Namibia in using and managing groundwater

resources Christelis Greg

- Community Response – in managing and using groundwater resources by Noma Neseni

The content of the presentations was excellent. They covered critical issues with respect to groundwater development, use and management. I find it fit to start with the community responses because more than 60% of the people in SADC use groundwater to meet their water needs and these communities play a direct role in the development and management of the resource. The current situation where communities are the "silent equity" in groundwater management is not sustainable. Their role should be recognised and their limitations should be addressed. For example people do not wait for guidelines or laws to develop and manage groundwater. Groundwater is developed and used out of need or opportunities to sell water that may not be supported by management skills, knowledge of the resource or requirements/abstractions by other users. Communities need to be involved in the development and management of groundwater within their limited means and huge water requirements, which are amplified in drought conditions. Left alone users can easily over abstract from a common aquifer and this obviously results in failure of supply and highly dissatisfied users. There are a lot of experiences in groundwater use and management in SADC. These customs and experiences should inform the principles for regulation of the resource because aquifer properties and community needs and management capacities can be very peculiar to a locality. The disparity of aquifers suggests that decentralised management of the resource is most appropriate and the "tragedy of commons" can be easily avoided through community regulation, which comes from awareness of integrated water resources management specifically the unity of the water cycle.

This presentation links very well with the Presentation by Kevin Pietersen on how South Africa is developing its national groundwater strategy through a consultative process. This started with a framework document which outlined the need for the strategy, the key issues it should address and the process to be followed in developing it. A number of sub-strategies are being developed to better inform the groundwater strategy. For example the capacity building strategy has already identified a serious lack of capacity in existing groundwater management institutions and low output of groundwater managers from training institutions. A multi-pronged approach is required on capacity building. The strategy development process should try to capture community practices and needs as suggested by Neseni. A feedback loop should be implemented to update/maintain the strategy as community experiences change and new knowledge becomes available. This strategy development process could be used as a model for other countries in the SADC region.

The Articles on Trans-boundary Aquifers presented by Daniel Malzbender is a top-down approach to plug identified gaps on the SADC protocol on shared water courses through adopting recommendations from evolving international law (International Law Commission) or practices. Ideally common state practice should inform international law which should take a framework character in order to accommodate specific conditions in individual countries. Success in resource management lies in state commitment and community customs and practices. A suggestion for the SADC groundwater protocol to be developed as separate document but being a subsidiary to the SADC protocol on shared water courses deserves serious consideration as the later has already been adopted by most member states. Joint management of surface and groundwater allows for reduction of institutional costs and this can be justified through better understanding of the connectivity of aquifers with surface water. There is already some experiences on management of shared aquifers by river basin organisations and but challenges remain of aquifers that are shared between different river basins.

The presentation by Phera Ramoeli on the SADC Groundwater Programme highlighted what SADC is already doing on groundwater. The link to national programmes and the effectiveness of consultations with national stakeholders could be strengthened by the development of national groundwater strategies. The SADC regional programme is facing the same challenges on capacity, awareness, information/data operational management etc noted in the presentation by Kevin Pietersen.

The responses presented by Christelis Greg (Windhoek - urban and industrial supply) and Mike Brook (Debswana - urban and mining supply) clearly demonstrate best practice in groundwater development and management by relatively large users. Both cases are in a situation where groundwater is the most feasible option and there is a clear link between desired assurance of supply of water and investment into its development and management. The risks and impacts of failure to supply are calculated in advance and management instruments (medium to long tern water resource strategies, short term interventions such as use best practice guidelines, reduction targets, water assurance audits etc) are put in place to avoid this. In the Windhoek case the Municipality (local government) paid for the development of the aquifer, pays for water supply, is the main user and water resource manager and in the Debswana case the mining enterprise paid for the development of the aquifer, pays for water supply, pays for the water supply, is the main user and water resource manager. Government's role in the Debswana case is in monitoring and regulation. Both the municipality and Debswana could play a bigger role in supporting capacity building on groundwater in SADC.

I would like to summarise my reflection by listing the following key messages gleaned from the presentations:

- Groundwater development and management needs affirmative action in order to attain a high level of assurance of supply and become a resource of choice. This can be achieved through increased investment on the following:
  - human resource development and retention
  - development and management of aquifer systems
  - installation and maintenance of monitoring systems
  - research and development leading to better understanding of the resource
- SADC should encourage the development of national groundwater strategies that reflect the national vision, objectives and programmes.
- International protocols on shared basins or aquifers should be informed by local and national practices and strategies and make reference to international law and experiences in other parts of the world and not vice versa. This makes it easier for adoption of policies and for self regulation

4.8. Questions and Answers to presentations on responses to groundwater management

4.8.1. Questions on the International Response to groundwater management and use:

- **Usually a document is called a draft when it is not yet finished, and final when finished. Why are the articles on Transboundary aquifers still termed as "draft" even though they have been adopted?**

  The reason for the articles to be termed as draft is because; they have not taken a form of a legal agreement yet. For example, the 1997 UN Convention was adopted as an agreement, countries signed up and a number of them ratified it. The document has not yet gone through the process of voting, signing and ratification but has only been passed as a resolution for recommendation. If the document is to be tabled at some stage as a proposal for a convention there could still be some changes subject to governments' negotiations.

- **Similarities and disparities between the two instruments i.e. the 1997 UN convention and draft articles were highlighted. In the case of the SADC region, the SADC Protocol on Shared Watercourses already exists, in case there is need to develop another instrument for shared aquifers, is it possible to have the one for shared aquifers as an addendum to the existing protocol? Will they have an equal legal standing?**

  From the legal perspective having one well established water management legal instrument that includes surface water and groundwater within one legal regime is a good opportunity. However, there should be caution and a need to realise how such an instrument can be implemented in practice. Information from the scientific knowledge is fundamental in defining the aquifers. It is also important to understand the management framework that is needed in order to implement such a regime properly.

  SADC is best placed since it already has well functioning River Basin Organisations which are gaining more experience continually and can be tasked to implement such instruments. In order to have the groundwater regime for SADC at the same legal standing as the Protocol, which is a legal binding instrument, there would be a need to develop the draft articles on shared aquifers. Numerous techniques and forms to the process of developing such articles into legal binding instrument exist; one could be to have that as an amendment to the existing protocol, which member states would have to agree to and ratify to.

- **Viewing the fact that many countries have not ratified the 1997 UN Convention, interesting enough within SADC region where all the member states have ratified the SADC Protocol on Shared Watercourses which is based on principles contained in the UN Convention, why are countries reluctant to ratify the UN Convention?**

  As a speculation on why countries are reluctant to ratify the 1997 UN Convention, the main issue is that of sovereignty. Countries are afraid that if they give up their sovereignty through such agreements as the UN convention they loose control over their water resource. Downstream countries are more inclined to ratify the convention, since they are not in control of the resource anyway, which explains why many countries that have ratified the convention are downstream states and island states. On the other hand the European states have gained a lot of benefits from giving up some level of sovereignty. There is a need to find the right balance between giving up a country's sovereignty and the benefits that accrue to such a decision.

  Another view was raised that has at national level countries do not have the capacity to promote ratification of the UN convention. The existence of the UN convention is not even known by Parliamentarians in some of the countries, which shows that it is sometimes not a question of reluctance to ratify, but of lack of information. There is a need to raise awareness in the countries to promote understanding of relevant issues relating to water resources management in general.

4.8.2. Questions on the Private Sector Response to groundwater management and use:

- **What is the understanding of the source of groundwater in Botswana? How does the Debswana mine ensure environmental sustainability?**

  The North of Botswana has a mean annual rainfall of less than 400 mm, which means that the threshold is expected to be lower in that part of the country. Since there is minimal recharge occurring in this part the groundwater is about 30 000 years old, which is why there is a large

cone of depression continuing to expand. In the South there is a higher mean annual rainfall, meaning that there is a considerable groundwater recharge in that region. This is evident through a relatively low drawdown of 12m since the starting of pumping in 1980. The mine groundwater abstraction is in line with the legislation of Botswana. In addition, Debswana is at the moment working with the Department of Water Affairs in Botswana to develop common groundwater models in order to monitor the abstractions.

There is a need to enhance enforcement and empowering of environmental authorities in order to address these issues. In Debswana the issue of acid mining is taken very seriously, however fortunately in diamond business there are not many acid based chemicals except the flocculant, which is completely not harmful to human health.

- **How is Debswana as private sector contributing to capacity development and building strategic partnerships in order to achieve capacity development? How are these being retained after training?**

Regarding institutional capacity, there have been a number of technical training initiatives particularly of hydro-geologists both in the government sector as well as in consultancy in recent years; this could have been the reason of discontinuing some of the partnerships. With the government now implementing special skills development strategy and increasing hydro-geologists' salaries by 40%, there is an observed movement of people leaving the private sector to join the government sector. There is presently a cooperation programme with the University of Botswana to try to assist with the capacity development; however there is still a positive thinking of developing capacity through partnerships with the private sector.

- **Due to lack of capacity in some government departments does the private sector self regulate?**

Private sector does not self-regulate, but monitors all groundwater abstractions, water use and quality and report to the Water Apportionment Board regarding the quantity and abstractions. Secondly, we produce an annual monitoring report to satisfy that and the report is distributed to all relevant departments. In terms of water quality we are regulated by the Botswana Bureau of Standards, which does its own monitoring on an ad hoc basis.

- **Debswana is promoting rainwater harvesting in Botswana and 95 % of water is lost in evaporation, what technique is being used to address the problem?**

With regards to safeguarding against evaporation of rainwater and storm water, a special storage system has been developed (underground tanks) in order to safeguard against evaporation losses. The other strategy is that as soon as there is a flooding event, water is pumped out and used immediately before it evaporates.

4.8.3. Questions on the Regional Response to groundwater management and use:

- **How effective is the consultative processes of the SADC water division, viewing the fact that some of the documents that have been referred to here e.g. the SADC minimum standards, when SADC is still developing them, some member states already had highly comprehensive ones. In this case examples include South Africa, Zimbabwe and Botswana.**

Consultation processes within SADC programmes implementation and design are as laid down in its various institutions. For all its programmes SADC establishes steering committees. For implementation of its projects, SADC has a specific instruction to consult with respective member states in terms of getting information through contact persons who are usually WRTC members, while the members of the steering committee would be facilitating the process of gathering the required information. During the development of the SADC common minimum standards the consultant undertaking that assignment went around various countries and based the analysis on the situational reports that were produced by each of the member states.

- **The issue of aligning transboundary groundwater management within the functions of exisiting RBOs. The challenge may come when an aquifer links two or more different basins, and the challenge may be encountered on the mandates of such RBOs. From the mapping exercise, are there any examples from anywhere in the world where we can learn from?**

  At this point in time, the project of hydro-geological mapping is just starting; at the moment there is no information regarding aquifers that link two or more river basins. On the issue of RBO functions, there could be mechanisms that can be used to coordinate activities of the RBOs, even if that would mean to amendment of their constitutional mandates.

4.8.4. Questions on the Community Response to groundwater management and use:

- **Is there enough understanding amongst the communities with regard to protecting groundwater from sanitation contaminant?**

  There are a number of studies ongoing that are aimed at assessing whether communities have understanding on the effects of sanitation on groundwater resources.

- **On the availability of spare parts for rehabilitation of the use of boreholes, do the community based management structures have ability to access the necessary spare parts owing to the fact that fiscal resources may not always be readily available?**

  There are still some challenges with regard to accessing spare parts for many communities. In addition, since the private sector has not been adequately engaged in the issues of water management and development, many stockists are not stocking these parts, which make it difficult to access them in the local market.

4.9. Overview of the panel discussion

Kenneth Msibi, SADC Water Division

An overview of typical climate change impacts on the groundwater resources illustrated by three different scenarios of very wet conditions, normal conditions and very dry conditions was given. Opportunities and threats with respect to groundwater response to two extreme scenarios of very wet and dry conditions are shown in the diagram below.

PANEL DISCUSSION: "Are we geared to implement integrated & sustainable groundwater management?"

Panel moderator: Daniel Makokera

Panellists:

Phera Ramoeli:	SADC Directorate of Infrastructure and Services
Paul Taylor:	CapNet
Mike Brook:	Debswana
Sam Sunguro:	ZINWA
Kevin Pietersen:	Groundwater Consultant
Noma Neseni:	

Moderator Question 1: The issue of lack of capacity has been repeated over and over in the management of groundwater resources, where exactly is capacity lacking, Is it the technical or the financial capacity?

Groundwater is increasingly seen as a vulnerable and limited resource, which is susceptible to pollution and depletion. In this regard the crucial matter rests upon managing the resource effectively. The management issues go beyond the training of young professionals on the technical aspects of groundwater resources to include existing groundwater practitioners to understand the water reforms that take place from time to time internationally, regionally and nationally. In this regard, the technical capacity goes beyond the usual issues of groundwater exploration (drilling and development of wells and boreholes) to being recognised as an important national resource that features in the policies and reforms.

Moderator Question 2: Is it a policy issue when groundwater is not adequately recognised?

Groundwater is in one way or another linked to land ownership in many countries within SADC. However, nowadays when there are many issues related to groundwater resources management, there is a need to change people's attitudes as well as the policies that link land and water management. In this regard, the raising of awareness in issues relating to groundwater as well as education in various levels is of utmost importance in the management of the resource.

Moderator Question 3: At SADC level are there programmes that specifically aim at raising the profile of groundwater within the member states? Are we seeing any improvement in relation to the water reforms within the member states?

In the past there has been a general trend in the region where there was lack of recognition on groundwater issues, however presently that is rapidly changing. This was mainly seen in those countries where the issue of focus in water was around supply instead of general resource management. The whole change was brought about through putting in place programmes aimed at increasing awareness in realising the role and importance of groundwater within the realm of integrated water resources management. Most of the SADC member states are now in the proper stand in realising the role of groundwater in IWRM and have put in place the policies and plans addressing issues of water resources management in A holistic manner.

Moderator Question 4: In Zimbabwe how is the groundwater profile for both policy and management, is water management done in an integrated manner

In Zimbabwe groundwater features at high level because it has long been used as a secondary source of water supply for the city of Harare. In the early 1990's there was a serious water crisis that brought about ad hoc measures that included development and utilisation of groundwater resources for water supply. In addition, the other important aspect in groundwater management as has been mentioned before is the issue of technical capacity, because accuracy is fundamental when using groundwater resources. Also important to realise is that, groundwater is viewed in many cases as a private commodity, the issue that brings another dimension to its management in entirety.

Moderator Question 5: What is lacking right now in order to properly manage groundwater resources? What do we need to do as SADC region to move forward?

The following issues were raised in response to the questions:

- There is a need to put necessary measures to prevent groundwater contamination and pollution from sanitation sources. Unless proper sanitation systems are put in place groundwater will continue to be susceptible to pollution from sanitation sources.
- A need for depoliticising water was raised as another important aspect to view in addressing issues of groundwater resources management.
- Awareness creation on groundwater issues and management is very crucial; there is a need to focus on ensuring that economic and finance planning departments appreciate the role and potential of groundwater resources in development.
- On capacity building it was viewed that there is a need for a high profile drive from the national governments in order to have the national scale interventions. There is need to ensure that groundwater programs are included in training on surface water. Networks like WaterNet should be seen as a key partner towards formal education in the region.

- Groundwater is considered to be an unreliable resource; usually people are willing to pay for the good if they have a high assurance that it will available next time. However, in many cases it has been seen that groundwater supply failure may not be necessarily due to the resource itself but to water supply technologies. Technological sustainability needs to be viewed closely, with a consideration that communities need to have the technology that they can easily manage.

5. CLOSING SESSION

5.1. Summary of proceedings and way forward

Phera Ramoeli – Senior Programme Manager, SADC Water Division

It is important to increase awareness on the importance of the resource groundwater as a critical resource that the poor in the region depend on. The benefits and potential of the resource should be articulated to different sectors. The SADC Groundwater program is responding to this but more can be done.

There is need to improve visibility of groundwater's strategic role to development among policy makers, decision makers and in other sectors outside water (Raising the profile of groundwater) the region has a large resource but only a limited groundwater is being utilized. There is need for development of more groundwater use in addressing MDGs e.g. water supply, food production, drought proofing and climate change adaptation

The lack of information on the groundwater resource is lacking and more should be done to capture and present it in formats that the decision makers, policy makers, and politicians can easily understand

It is also important to share experiences in the region. Countries that have moved ahead in managing of the resource can share best practices and this is the richness of regional fora's like this dialogue.

It is also important to listen to the needs of the communities as well as involve them in decision making processes regarding groundwater use and management. It is important to ensure that issues of sanitation are dealt with in an integrated manner in managing groundwater resources.

Issues of climate change should also be taken on board in planning for and adaptation strategies for groundwater resources should be developed.

Recommendations and outcomes of the dialogue will be taken to SADC Water Ministers meeting. Outcomes will be implemented through the SADC Groundwater Program and some of the issues will be used to guide the development of the SADC RSAP III. To raise awareness on the issue of groundwater the panel discussions will also be aired on Africa and International Television stations to ensure a wider range of stakeholders is covered.

5.2. Vote of thanks

Reggie Tekateka, GWP SA Chair

The GWP SA Chair noted that the meeting had been successful and reflected on the response of the focus of the meeting to Africa Ministerial Declarations. He specifically noted the engagement of other sectors and thanked them for actively participating in the discussions and also contributing through presentations. He thanked a number of organisations who made the meeting possible:

- Sponsors and cooperating partners
- GWP SA

- SADC Water Division
- SADC PSF
- Participants of the dialogue

APPENDICES

Appendix 1: Dialogue Programme

SADC MULTI-STAKEHOLDER WATER DIALOGUE - Day 1: PLENARY Wednesday 27 May 2009

TIME	ITEM	WHO
08.00 – 08.30	Day Registration	GWPSA
08.30 – 10.15	**SESSION 1: OPENING SESSION**	**Session Chair: Department of Water and Environmental Affairs - RSA**
08.30 – 08.35	Welcome	Reggie Tekateka
08.35 – 08.45	Remarks by Denmark Government Representative	Ole Houmøller
08.45 – 09.00	Remarks by SADC	SADC representative
09.00 – 09.15	Opening Address and Official Opening	Guest of Honour –DWEA representative
09.15 – 09.20	Vote of Thanks	SADC WRTC (Chairman)
09.20 – 09.25	Introduction of Keynote Speaker	Ruth Beukman
09.25 – 09.55	Key Note Presentation on theme	Karen G. Villholth
09.55 – 10.10	Close of Opening Session	SADC WRTC
10.10 – 10.15	Group Photograph (at start of tea)	Session Chair
10.15- 10.40	**TEA**	
10.40 – 13:30	**SESSION 2: Response to the outcomes of the 2008 Dialogue on rising above the climate change threat**	**Session Chair: TBA**
10.40 – 10.50	Overview of the Dialogue	Werani Zabula
10.50 – 11.10	Regional responses to the 2008 dialogue	Phera Ramoeli
11.10 – 11.30	Overview of the SADC Climate Change Program	SADC FANR
11.35 – 11.50	Overview of the Regional Climate Change Program	Belynda Petrie
11.50 – 12.10	RCCP Transboundary Water Analysis	Constantin von der Heyden
12.10 – 13.00	Question and answer question	
13.00 – 14.00	**LUNCH**	
14.00 – 15.00	**SESSION 3: Unpacking groundwater in a multi-sectoral environment**	**Session Chair: TBA**
14.00– 14.20	Potential and benefits of groundwater in contributing to socio-economic development	Eberhard Braune
14.20 – 14.40	Threats and demand side pressures on groundwater resources	Imasiku Nymabe
14.40 – 15.00	Climate Change implications on groundwater resources	Arthur Chapman
15.30 – 16.00	**TEA**	

TIME	ITEM	WHO
15.30 – 17.15	**Session 4: Open Dialogue with Panelists: Groundwater the contested and threatened resource**	
15.00 – 15.30	Panel Discussion Overview	Philip Beetlestone
15.30 – 17.15	**Session 5: Open Dialogue with Panelists: Groundwater the contested and threatened resource**	**Moderator – Daniel Makokera**
	Central Water Authority – Jeetsing Munbauhal Geological Survey of Denmark and Greenland - Karen G. Villholth Ministry of Economic Planning – Yona Kamphale SADC Directorate of Infrastructure – Remigious Makumbe Groundwater specialist – Christine Colvin ICP Representative – Horst Vogel	
16.30 – 17.30	Wrap up	SADC Water Division

Day 2: Thursday 15 May 2009 - SADC MULTI-STAKEHOLDER WATER DIALOGUE DAY 2: PLENARY SESSION ctd.

TIME	ITEM	WHO
08.30 – 10.30	**SESSION 5: Playing your role – Sectoral Responses to improving groundwater management and use**	**Session Chair: TBA**
08.30 – 09.00	International Response: Articles on Transboundary Aquifers	Daniel Malzbender
09.05 – 09.35	Regional Response : SADC Groundwater Programme	Phera Ramoeli
09.35 – 09.55	The private sector response – Managing groundwater resources – the Debswana Case	Mike Brook
09.55 – 10.15	Question and Answer	
10.15- 10.45	**TEA**	
10.45 – 13.00	**SESSION 5: Playing your role – Sectoral Responses to improving groundwater management and use**	**Session Chair: TBA**
10.45 – 11.05	Public Sector Response: Developing the South Africa Groundwater Strategy : Water for Growth and Development	Fanus Fourie
11.05 – 11.25	*Local Government Response – Solutions from Namibia in using and managing groundwater resources*	Christelis Greg
11.25 – 11.45	*Community Response – in managing and using groundwater resources*	Noma Neseni
11.45 – 12.05	*Reflections on the Responses from the different sectors*	Washy Nyabeze
12.05 – 13.00	Question and answer session	
12.30 – 13.30	**LUNCH**	
13.30 – 16.00	**SESSION 6: Open dialogue with panelists**	
13.30 – 13.50	Panel Discussion Overview	Dr. K. Msibi
14.00 – 15.30	Open Dialogue with Panelists: Are we geared to implement integrated & sustainable groundwater management? SADC DIS – Phera Ramoeli CapNet – Paul Taylor Debswana – Mike Brook ZINWA – Sam Sunguro Groundwater Specialist – Kevin Peitersen	Moderator: TBA
15.30 – 15.40	Closing Remarks and Way Forward	SADC Water Division
15.40 – 15.45	Vote of Thanks	SADC WRTC Chair
15.45 – 16.00	Closing Speech	South Africa Official

Appendix A1 Remarks by Denmark Government Representative

Representatives of SADC Member states

Director of Infrastructure and services

Ladies and Gentlemen

Friends and Colleagues

I am very pleased and honoured to be part of the opening of thus SADC dialogue. The SADC dialogue is aimed at bringing the water sector together with non-water sector stakeholders in order to bring water to the top of the agenda-any agenda. We need to build and understanding that access to water in itself is catalyst for development and not just a technical input in projects. We need to bring that understanding outside the water sector.

Water is often an after thought. Once development plans have been made water sector is asked to supply the water. We need our planning and finance people to understand the need to involve the water sector up-front and with proper resources.

This is the third Dialogue: The first dialogue in Maputo covered a lot of issues, searching for the right form; the second dialogue in Maseru leaned against the global agenda by using Climate Change as the theme. This dialogue is about groundwater. Groundwater is often a bit overlooked even in the water sector, seen as a rather unreliable source only capable of supplying smaller quantities in rural areas. In South Africa approximately 30% of the population relies on groundwater for their domestic water use, in SADC as a whole it is closer to 50%.

And groundwater is in many cases a good and reliable source of water. You do not need to build a reservoir- groundwater is a reservoir in itself. Groundwater is often not polluted and does not need the advanced treatment often needed to make surface water into good quality water.

Being from Denmark it is particularly pleasant that groundwater is the theme. Denmark is a country where groundwater is of the utmost importance. In Denmark all of our domestic water supply is based on groundwater, and 90-95% of our productive water is groundwater, and we understand there are many advantages of using groundwater rather than surface-water when it is possible.

It is most appropriate for Danida to support the groundwater dialogue here in South Africa. One of our previous programmes had a component on groundwater. We were basically trying to convince DWAF to take Groundwater more seriously.

After we finished the programme DWAF decided to close down the groundwater directorate, so I am not sure if we succeeded. I see some of my colleagues from then, maybe we can together make an assessment if we succeeded on not.

So colleagues and friends we have a challenge: To convince the surface water people to prioritise groundwater and to convince the planning and finance sector to see water as a developmental tool, and to involve the water sector more and with more resources.

With these words I wish you all a constructive and interesting debate.

Appendix A2 Remarks by SADC Secretariat

Remigious Makumbe, Director Infrastructure and Services, SADC Secretariat

Director of ceremonies

Officials from the Department of Water and Environmental Affairs in South Africa

Representatives of SADC Member States from water and other sectors

Representative of our ICPs Dr Horst M. Vogel

Our special guest Karen Villhoth from Danish Ministry of Climate and Energy

Our implementing partners on this project: Global Water Partnership-Southern Africa

Distinguished guests

Ladies and gentlemen

All protocol observed

Good morning, bom dia bonjour, guten morgen, dumelang, habari zenu, muli bwanji, kwaziwai, salibonani, mamuka chini!

Welcome to the 3rd SADC Multi-stakeholder Water dialogue on IWRM with special focus on ground water.

I bring to you colleagues, greetings from His Excellency; Dr Salomao who would have liked to be here in person, but due to other pressing matters was not able to attend this gathering. Let me take this opportunity to express my appreciation to the government and the people of South Africa, for hosting this conference. It is indeed a great honour and privilege for me to stand before you this morning to deliver these opening remarks on behalf of the SADC on this occasion.

Last year in Maseru, Lesotho in May, 2008 at a similar gathering we discussed issues of Integrated Water Resources Management (IWRM) as they relate to climate change. I expect that this dialogue shall build on last year's as from the program I can see that we will hear a report of progress mage since the 2008 Dialogue before we begin the groundwater discussions.

Director of Ceremonies

Distinguished guests

Ladies and gentlemen

Let me take this opportunity to attempt to put into context, this Dialogue from the SADC perspective, with the hope that such a context will guide your deliberations in the coming two days. The water programme of action is guided by:

- The SADC Treaty
- RISDP, the SADC blue print for regional integration and sustainable development
- At sectoral level the Revised Protocol on Shared Watercourses a Multilateral covenant and legal framework to underpin our intentions and obligations
- The SADC Water Policy and Strategy document
- RSAP 2 as revised in 2005, now to be revised again as RSAP 3

The SADC region is characterised by a large number of shared watercourses and a number of transboundary groundwater bodies (Shared aquifers) which account for over 70% of the region's renewable resource. Although the occurrence of these resources varies both spatially and in time, groundwater itself accounts for almost 60 % of water sources to which the majority of the region's rural population depends on particularly in times of drought. Access to groundwater is not only a matter of life and death for a majority of people in SADC, but is also a key determinant to our ability to attain the Millennium Development Goals (MDGs) and the SADC treaty objective of poverty eradication. Against this background, groundwater is at the epicentre of our survival particularly in times of drought, and deserves the level of discourse being profiled here today.

You may all be aware that SADC Member States adopted IWRM as the fundamental approach to water resources management to ensure that water is adequately contributing to poverty eradication, regional integration and socio-economic development in an equitable and sustainable manner.

Director of Ceremonies

Distinguished guests

Ladies and gentlemen

We noted during last year's dialogue that SADC is expected to face potential challenges regarding availability of water resources in the future due to climate change. The need to take on board issues around climate change, variability and adaptation measures to ensure sustainable groundwater resources management is paramount.

This dialogue therefore will focus on the opportunities and challenges on the groundwater resource and explore the responses that each sector can implement to ensure an integrated approach towards ensuring a water secure SADC region through better groundwater management.

The key objectives of this dialogue include:

- Appraising stakeholders on progress relating to implementing of the water resources development agenda
- Build multi-stakeholder consensus around how best to accelerate this initiate given our finite resources
- Promote stakeholder participation in this noble cause
- To put on record what we have to show for the three meetings held to date, in other words, how much value have we added to the communities
- Ultimately how to realign our programme to optimise our outcomes
- Bottom line, this forum constitutes a critique of RSAP2

Questions to be asked include:

- How effective have we been?
- Do we have the correct methodology of implementation?
- Are we harnessing all pertinent stakeholders and other key attendant issues

As we reflect on these issues, let us not forget to examine the challenges at the intersection of gender dimensions of water supply and poverty. We are aware that women and children continue to suffer more when it comes to limited access to clean and safe water, thereby compromising their dignity. We should remember that transforming their lives and enhancing dignity is our direct moral responsibility. Proactive action to avoid cholera is now a must for all of us.

Colleagues and Friends,

I wish to share with you that SADC has a fully fledged groundwater programme that was developed in 1998, whose current projects include:

- The SADC groundwater and drought management project, funded by the world bank and
- The SADC Hydro-geological mapping project, co-funded by the European Union and the German Government

A paradigm shift is required in raising the profile of groundwater, and more importantly the role it plays in poverty alleviation, conflict management, improved health of our people and ultimately peace of mind.

My Esteemed Colleagues

The World Water Forum held in Istanbul, Turkey has come and gone, but it also called for aggressive interventions to upscale programmes for enhanced water access. We need to take full advantage of the WWF and the AMCOW to further our interests.

I would be out of order if I do not express our appreciation to key credible partners that make this dialogue tick……this dialogue rocks…..and I wish to salute the SADC/DANIDA water programme, the Global Water Partnership and all our distinguished partners, you are pinnacles of this initiative.

I am confident that the outcomes of your deliberations in the two days shall not be an end in themselves, but a means to an end. And the outcomes need to be mainstreamed in our programmes to recalibrate our developmental trajectory as it relates to:

- Policy development
- Broad based participation and
- More importantly financing of water projects to enhance access to water.

The SADC Secretariat waits with passion, the outcomes of this dialogue to guide us on how to consolidate further the management of groundwater as it links to other sectors and poverty alleviation.

As I conclude my remarks to this distinguished gathering, lets all remember, implementation is the password, as we strive to bridge the gap between rhetoric and action.

As you take you home bound flights, I wish you a happy landing and a befitting reunion with your loved ones, as you continue to take safe drinking water in your communities.

Thank you!! Muito Obrigado!! Merci!! Dankie!! Siyabonga!! Rea leboga!! Zikomo Kwanbiri!! Tatenda Wedu!! Asanteni Sana!! Ngibomgile Nkutu!! Kanimambo!!!

Appendix A3

Maseru Recommendations

Recommendation 1:	Raising awareness of Climate change adaptation as a multi dimensional challenge amongst different stakeholders at community, national, regional and global levels.
Recommendation 2:	Mainstreaming CC into the political economy dealing with cross sectoral management issues and WDM
Recommendation 3:	Follow an IWRM approach and map out linkages of climate change with water resources and the impact on key sectors such as energy, agriculture and health
Recommendation 4:	Countries to review national legislation and policies and undertake cross sectoral planning to inform financial planning
Recommendation 5:	develop its capacities to effectively participate in global climate negotiations
Recommendation 6:	Facilitate a dialogue preparing for the COP meeting in Copenhagen as well as the post - Kyoto talks as a region and to engage in global discussions not as individual states but as a region.
Recommendation 7:	It is important to consider hard and soft solutions in order to improve resilience and adapt to climate change
Recommendation 8:	A balanced approach considering balance social, environmental and economic issues recognizing that water resource infrastructure include smaller systems
Recommendation 9:	Soft solutions are important include measures such as water demand management, pricing and reuse, efficiency and watershed management
Recommendation 10:	Understanding better the water-energy nexus: ensure water security and energy security in an integrated manner and as well as water impacts on other sectors.
Recommendation 11a:	To ensure food security: develop technologies and intervention for water management (dams and irrigation) and information on these widely disseminated.
Recommendation 11b:	At national level enhance collaboration efforts between climate scientists, water managers and agriculture sector when formulating policies.
Recommendation 12a:	For better health and equity in the region - storage facilities for drought management and flood mitigation should be in place to minimise adverse health impacts caused by extreme weather events
Recommendation 12b:	Differential adaptation is critical and issues of gender should be taken into consideration when targeting adaptive measures to the most vulnerable groups. These measures should include information dissemination, awareness creation and capacity building
Recommendation 13:	Gender mainstreaming and recognizing the particular vulnerabilities of women should be part and parcel of any climate change policy formulation.

Recommendation 14:	The SADC region needs reliable, localized data, information and models to determine how best to deal with the impacts of climate change
Recommendation 15:	Responding to CC is about economic empowerment, strengthened institutional arrangements and strengthening resilience since sub regions with weaker institutions are more vulnerable
Recommendation 16:	Capacity development should go beyond the people in the institution to strengthening the institutional capacity and building up systems for planning and management in the context of adaptation to climate change
Recommendation 17:	There is a need to strengthen communication channels between end-users and all tiers of governance; improved science-government dialogue is a critical success factor (for understanding value of water for the economic development of countries and the region).
Recommendation 18:	The region should invest in developing water resources accounts and valuation accounts in order to guide mitigation and adaptation decisions
Recommendation 19:	The water sector and its influencing sectors to contribute significantly to the ongoing development of National Adaptation Programmes of Action in applicable countries and 2nd National Communications to the UNFCCC in others

Appendix A4 Proposed framework for capturing Climate change Adaptation Issues in Water Resources Management

Action area	Strategies	Expected outputs	Regional/ national actors	Roles and responsibilities (champions, focal points)
1. Knowledge generation, access and management				
2. Methodologies, tools for supporting CCA				
3. Institutional Capacity Building				
4. Information sharing, outreach and communication				
5. Strengthening Partnerships and Networks				
6. Policy development, dialogue and advocacy				
7. Pilot, demonstration cases, best practices				

Appendix 5A Overview of the SADC Multi stakeholder Dialogue, Werani Zabula

The objectives of the 2009 SADC Water Dialogue as follows:

- Improve the region's understanding of groundwater as an important resource in addressing critical development challenges such as climate change, food security and health; and its potential in addressing local, national and regional socio-economic development and poverty reduction (with an emphasis on achieving the MDGs and thus improving livelihoods).
- Understand groundwater's potential in addressing local, national and regional socio-economic development and poverty reduction.
- Promote knowledge sharing on integrated approaches and responses with regards to opportunities and threats in the use, development and management of groundwater resources.

Three main components of the dialogue as:

1. A report back session following the outcomes of the 2008 Dialogue, highlighting the recommendations, progress that the SADC region has made and what urgent actions remain for the region to 'rise above the Climate Change Threat'.

2. Examine the impact of different sectors on groundwater and discuss ways in which different stakeholders can contribute to an integrated approach in use, management and protection of the resource.

3. Recommendations from stakeholders on how the region can collaborate to ensure that groundwater contributes to a water secure SADC.


Global Water
Partnership
Southern Africa


A strategic programme of
the SADC Water Sector