

GEF IW: Learn 1st Pan-Africa TWRM (Transboundary Water Resources Management)

Structured Learning Workshop

30 Oct to 2 Nov 2006, Nairobi



Introduction

The first GEF Pan-Africa Regional Workshop for Networking and Knowledge-sharing took place at UNEP in Nairobi, Kenya from 30 October to 2 November 2006 and included a one-day field trip to the Lake Naivasha area including site visits to the Kenya Wildlife Service Training Institute, an artisanal fish market, a commercial flower farm, and a (GEF-supported) Geothermal electrical generation plant.

The workshop brought together GEF project managers and transboundary freshwater and marine management partners i, to exchange practical experience and explore synergies between IWRM (Integrated Water Resources Management) in transboundary river and lake basins and shared aquifers, and ICM (Integrated Coastal Management) in Large Marine Ecosystems. InWEnt, the German Capacity-building organization, is IW:LEARN's partner for regional structured learning activities in Africa. InWEnt-trained facilitators included one national representative from the GEF Agulhas-Somali Current LME project, and general coordination was provided by the African Water Research Centre, Cape Town. The workshop was also enriched by substantive and logistical support provided by WBI (World Bank Institute) and UNEP's Division of Early Warning & Assessment (DEWA).

Objective of the workshop:	To enhance knowledge exchange and develop peer learning networks between GEF international waters projects and partners in Africa
Expected outputs:	1) Elements of a Networking and Outreach Strategy developed by participants
	2) Identification of next steps for planned activities and events to promote sharing of information
Format:	Presentations of TWRM experience by selected participants and resource persons, "buzz" group deliberations, facilitated plenary discussions and a technical field trip to illustrate practical IWRM issues, challenges and approaches at the microbasin level.
Participants:	Representatives from GEF international waters projects and TWRM partners in Africa. Total of 43 people participated including resource people from GEF agencies and partner organizations, UNEP host team and InWEnt facilitation team.

Report prepared by the event facilitation team:
Anton Earle[1], Fred Lerise[2], Hajanirina Razafindrainibe[3] and Nathaniel Mjema[4].

Full workshop materials (including all presentations) available at:
www.iwlearn.net/abt_iwlearn/events

[1] African Centre for Water Research (www.acwr.co.za)
[2] University of Dar es Salaam
[3] Service d'Appui a la Gestion de l'Environnement
[4] Baobab Consulting and Training

TWRM Recommendations and key lessons learnt from the workshop:

- Involving stakeholders early in the project process, although time consuming and costly, leads to easier and more sustainable implementation later down the line. Skills such as effective communication and conflict management need to be developed within project teams. Micro-grants have been used successfully in some cases to initiate and support stakeholder participation. More emphasis should be placed on projects sharing stakeholder engagement experiences between each other – good practice as well as lessons leant.
- Transboundary projects need to develop a common vision – for the management and development of water resources – amongst the actors involved, including the environmental, social and the economic concerns. Shared vision has three components – political, technical and financial. For a shared vision to be developed trust has to be enhanced, through mechanisms such as data-sharing, dialogue and exchange visits.
- Issues around data availability, reliability, accessibility, harmonisation, update and cost have to be addressed. However, a lack of data should not stand in the way of initial steps being taken.
- Experiences shared by projects in generating political support include: public acceptance of the project, support from different levels of government involved, speeding up the ratification of MoUs and getting countries to honour their commitments. The Project Coordinating Unit (PMU) plays an important role in this.
- Cost and benefit sharing is unequal at different levels of scale – benefits of a project may accrue to the national account, but the costs could be felt by stakeholders at the local (basin) level.
- Setting up of regional centres within the project so as to run pilot projects on a small scale first – one country or only part of the basin – assists with long-term implementation and generates a body of good practice.
- Capacity building, development and retention (of staff) should receive high priority in all projects.
- Climatic variability and change are realities which need to be factored into management strategies. These responses will differ from region to region. Climate vulnerability assessments should be included in the GEF IW projects.
- National or organisational champions to drive the process are important – champions are generally well integrated into existing regional networks and structures.
- As much as possible promote transparency in project management processes – eg placing tenders and awards on the internet.

NOTE: for additional detail on lessons shared during the workshop, see p. 20, 22, 24-5, 26-7, 29, 31, 37, 38, 43, 44, 45-6, 46-7, 47-48, 48-9, 49-50.

Conclusions and action items from the workshop:

- Knowledge-sharing tools available to the projects to promote peer-to-peer regional learning include:
  - the www.iwlearn.net website
  - IW:LEARN support for exchange visits (between projects or other partners projects want to learn from)
  - the generation of thematic e-lists.
- An up-to-date region-wide list of Africa project contacts as well as a calendar of regional IW events would be useful – this will be developed by InWEnt.
- Participants agreed that it is worthwhile to have two more workshops, devoted to specific issues such as (in order of popularity):
  - Public participation
  - Data management
  - TDA/SAP process
  - Integration of freshwater and marine elements
  - Project management (design, implementation etc)
- Each project should be able to contribute what they have learnt in a structured manner.
- Projects will submit news to IW:Learn for inclusion in IW:Bridges.
- An Africa Network page will be set up on the IW:Learn website.

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SUMMARY REPORT
FIRST PAN-AFRICA TWRM STRUCTURED LEARNING WORKSHOP
30TH OCTOBER -2ND NOVEMBER 2006

1 Day One

1.1 Official Opening

Welcome remarks were made by representatives of the organizations sponsoring the workshop: UNEP, World Bank Institute, GEF IW: Learn and InWEnt.

1.1.1 UNEP: Dr. Olivier Deleuze

The head of UNEP's GEF Division stressed the importance of exchanging information amongst related institutions, cooperation among projects and programmes and the importance of mapping linkages across projects and agencies.

1.1.2 World Bank Institute: Dr. Mei Xie

Dr. Mei Xie introduced WBI as the organization dealing with capacity building in the World Bank, with several components related to water: in the areas of agriculture, water development, water management and integrated water resource management. She stressed the importance of this workshop for bringing together experiences and learning from one another.

1.1.3 GEF-IW: LEARN: Janot Mendler de Suarez

Janot introduced IW: Learn as knowledge-sharing project which began in 1998 with the aim of establishing a learning culture among the projects in the GEF International Waters portfolio. She made two key points that form the basis of "IW:Learning" - and this workshop:

- First: "the participants are the experts" in this workshop and will use their own knowledge and experiences to address common issues and challenges
- While this workshop brings together practitioners from freshwater and marine projects, all share the goals of increasing shared benefits amongst people sharing water resources and the reduction of negative impacts on the environment.

1.1.4 INWENT: Dr Thomas Petermann

Dr. Petermann explained what InWEnt stands for – Capacity Building International – Germany, fully owned by the Federal Republic of Germany, and described InWEnt's role:

- To assists partners worldwide to strengthen capacities at the local and global level, institutional and organisational level, as well as at the individual level.

He explained that this workshop was conceptualized by the cooperating institutions to:

- Explore water management practice and concepts for Africa
- Establish a networking basis to scale up sub-regional activities in the east, north, west and southern Africa regions in future

1.1.5 Orientation of the Workshop

Facilitator, Dr. Fred Lerise presented aims and expectations of the workshop:

Workshop Objectives

- To facilitate structured learning, knowledge-sharing and exchange of practical experience among GEF IW project practitioners in Africa
- To address priority TWRM (Transboundary Water Resources Management) issues and challenges in the different regions of Africa
- To examine potential for linkages or synergies between TWRM in catchment basins and coastal zones

Expected outputs

- A system of networking and structured learning developed and agreed to be implemented by participants
- Identification of next steps to promote sharing of information in InWEnt/IW:LEARN activities and events

Workshop Methodology

Workshop objectives were expected to be achieved through a variety of didactic methods including:

- Plenary presentations by Resource Persons who in most cases are participants,
- Individual studies (based on distributed background documents and websites)
- Informal discussions and consultations: These run over breaks and evenings. Participants were encouraged to note the different people he or she would like to consult with and to organise such meetings on a bilateral basis.
- Buzz Group sessions: from time to time the plenary was broken into 4-5 buzz groups to work within a specified time frame and report back to plenary.

- Group work discussions: Specific tasks were given to different groups, to spend scheduled time discussing group-defined areas of specialisation.
- Facilitated plenary discussions: All plenary discussions were facilitated by one or more of the team of facilitators.
- Field trip: excursion to Lake Naivasha area planned on the third day of the workshop.
- Evaluations: took place at the end of the workshop, aimed at collating participants' opinions to help in the organization of future workshops.

Workshop Agenda

The four-day schedule included the following:

- Key Notes to clarify principles of TWRM in Africa
- Facilitated Discussion on how to enhance structured learning
- African experiences: Presentations and field trip sites
- Learning from TWRM experience in other parts of the world
- Discussions on participants' lessons and major challenges
- Group work: Recommendations for mechanisms, commitments, responsibilities for knowledge exchange and learning
- Concretizing the way forward
- Evaluation and closing

Please refer to Appendix 1: Agenda

1.2 Key-notes

1.2.1 Activities to strengthen Trans-Boundary Water Resource Management in Africa

Presenter: Janot Mendler de Suarez, GEF IW:LEARN

Janot Mendler de Suarez led off by presenting "IW-LEARNing" to the participants. IW:LEARN is a programme within GEF IW charged with strengthening Transboundary Water Resource Management (TWRM) through the sharing of lessons and practical experiences that can be adapted and replicated. A lot of experience has been gained in Africa and IW:LEARN's mandate is to ensure that these lessons learnt are shared among related projects.

IW LEARN facilitates knowledge and information – sharing, adaptive management and replication of practical experiences, to accelerate and enhance achievement of results within regions as well as among GEF IW projects in other parts of the world. The role of IW:LEARN is therefore:

- Providing feedback mechanisms for GEF projects to learn from each other
- Establishing a sustained process of experience exchanges among projects and regions
- Making financial support available for stakeholder exchanges
- Generating GEF IW Experience Notes series to capture & disseminate the best lessons learned from projects
- Facilitating the exchange of ideas among participants
- Supporting regional and thematic structured learning processes among sub-sets of the GEF IW portfolio. In Africa, IW:LEARN is partnering with INWENT to facilitate regional learning among freshwater projects with an emphasis on IWRM, as well as with UNESCO to promote integration of groundwater and surface water management, with IUCN for freshwater and marine learning including freshwater and marine workshops in Africa on economic valuation, and also collaborating with Environmental Law Institute to organize regional workshops on public awareness and participation.

Question: What issues do Trans-boundary Rivers, aquifers, etc have in common and how can we exchange information to improve TWRM and increase shared benefits?

Response: (Answered question by referring to the PowerPoint presentation.) Lake Manzala was also given as an example of innovative water treatment techniques piloted in Egypt that GEF supported with the expectation that they could be replicated throughout the Mediterranean region and beyond.

1.2.2 Integrated Water Resource Management

Presenter: Mie Xie, World Bank Institute

More than 2 billion people live in river basins under "water stress" and global population is expected to increase to 10 billion in 50 years, therefore demand on water will increase further.

- Many regions withdraw more water than is locally renewable. Competition for scarce water resources is already a source of conflict among sectors, and this situation is going to escalate.
- Past approaches have failed and are fragmented, driven by demand. Therefore a crisis of scarcity and governance is calling for new approaches which go beyond national boundaries. A consensus has been reached that IWRM is a solution process.
- Four principles that could govern sound water management (adapted from the Dublin principles 1992) include: the IWRM "Comb": IWRM is a Process, not a Product, a tool not a blueprint, water resource development is both sectoral and an IWRM approach because both link all basin OBJECTIVES together. IWRM tool box has been developed by GWP (2003)
- When principles are implemented they become law. An example is France which has the IWRM principle reflected in French water laws.
- General lessons learnt are: involve those affected and address their concerns with information they understand, reforms must provide returns for the politicians who are willing to make the changes, there is no magical solution that fixes all problems, because the country contexts vary so much and institutional context matters greatly therefore even though fundamental principles apply, they need to be adapted to the specific country context.

1.2.3 NEPAD Coastal and Marine Ecosystems

Presenter: Ali Mohamed, NEPAD

Over the past three or four years, tremendous achievements in coastal and marine environmental management have been realized, including improvement of governance to break with past practices and do things differently. There is a need to seek new ways of doing things if the old system does not appear to deliver on the goals of the organization. NEPAD has taken governance reforms as one of the fundamental steps to propel the continent into the 21st Century.

However, the desired transformation of the lives and livelihoods of the wider community is not that obvious mainly because such impacts often take a long time to be realized. There is a need to better harness and share the experiences being generated from the numerous projects in order to provide lessons, to guide use and management of the resources. Networking and sharing of information has proven to be one of the major factors contributing to improvement of performance.

The NEPAD coastal and marine secretariat is in the process of putting together a comprehensive database on projects and programmes in the coastal and marine environment. There is a need for support in making the information necessary for this readily available.

1.3 Effective Sharing Of Experiences and Networking

1.3.1 Buzz Group work: elements of structured learning

To break the monotony of presentations, this session was run using buzz groups to discuss what participants understood as structured learning.

Questions put forward to the three buzz groups were:

What do you consider as important elements of structured learning?

What are your expectations for IW:LEARN in Africa?

What are your expectations for IW:LEARNing in this workshop?

Group Results:

GROUP I identified five elements in structured learning:

- Target group orientation: It is important to know your target group, hence choice of topical issues and subject issues depending on the target group.
- It is important to ensure that the choice of methodology or medium of communication match the comprehension of the target group.
- A decision has to be made on the balance between the use of theoretical and practical methods.
- Prioritization: develop synergies between people and projects
- Logistics and communication facilities: different aspects identified with regards to logistics and communication for example, conferencing, e-mailing culture to be cultivated

GROUP II felt that structured learning is "learning by doing":

- Documenting as you learn
- Sharing documented information
- Defining a framework
- a process of continuity
- some kind of accountability-everybody needs to feedback to somebody and there should also be a form of evaluation

GROUP III also defined five elements of structured learning:

- One common thematic Vision

- Common methods should be used
- Format must be validated by all
- Specific tools must be decided upon
- Information must be shared among all concerned (e.g. water basins)

1.3.2 Participants' expectations For IW:Learn In Africa - from buzz group discussions:

- More background or historical information on projects
- More informal fora for information sharing and experiences
- Examples on structuring of projects
- Specific information on outputs of GEF projects
- Availability of published materials on IW:LEARN projects
- Gain a repertoire of case studies (stories) on practical experiences in transboundary basins and ecosystems
- Facilitate transboundary management of data relative to water
- Deepen knowledge of problems and successes at the level of individual colleagues and co-participants
- Insight on management processes of different national GEF projects
- GEF structures and procedures
- Distance learning programs
- How IW:LEARN links to other GEF focal areas
- strengthening coordination
- strengthening partnerships
- maintaining a network of IW projects
- Technical and financial support
- Facilitate dissemination of good practices
- Share knowledge on good practices in IW management
- Linkage between national and regional projects
- How transboundary projects can be effectively managed
- Is distance learning useful for beneficiary communities?
- Improving modes for effective communication in states with poor IT

1.3.3 Participants' expectations for IW:Learning In this Workshop:

- Exchange d'experiences (exchange of experiences)
- Partager nos experiences (sharing our experiences)
- What is IW:LEARN network
- How is IW:LEARN supposed to assist me and my project?

- More information on types of synergies between ground water, surface water and marine
- affordable and implementable recommendations
- Reinforcement des liens entre acteurs (strengthening ties between actors)
- Constitution du réseau d'echange (forming an exchange network)
- Establishment d'un partenariat entre les projets GEF IW de l'Afrique (establishment of partnership among GEF IW projects in Africa)
- Connaitre les members du reseau IW:LEARN (to get to know other members of IW:LEARN network)
- L'identification des proposés d'echange et mobilté entre projets GEF et des synergies d'actions conjoints entre projets, et bassins (identification of exchange proposals and mobility among GEF projects and synergies of joint actions among projects and basins)

1.4 Case studies: African Experiences and Key Lessons Learnt

1.4.1 Transboundary Water Management in Shared Aquifer Systems

Presenter: Abdel Kader Dodo, Sahel and Sahara Observatory, Ilemeden Aquifer System

The Ilemeden aquifer system is shared among three West African countries: Mali, Niger and Nigeria. There is a lack of cooperation among aquifer sharing states therefore one state cannot understand what is happening in the other. This is critical because there may be a problem in one country but the cause of the problem may be in another country.

The general objective of the GEF project is to establish the capacity to identify, reduce and mitigate trans-boundary risks in the aquifer system.

There is an increased water demand in all countries because of a growing population which is disproportionate to the available underground water resource, and climatic change and variability leading to recurrent droughts alternating with frequent floods. Consequently there is experienced decrease in groundwater recharge rate caused by land degradation and deforestation in the water catchment areas. Deforestation has also caused silting of rivers, lakes, and pools leading to frequent floods on the lower course of the river.

Institutionally there is a lack of cooperation on aquifers despite the existing basin authorities and commissions in the region. The region suffers from lack of exchange of information between countries sharing and exploiting the same resources.

Consequences of climatic change include:

- Development of sand dunes
- Erosion of the catchment and hence silting in of the Niger River basin.
- Water pollution

The expected outcomes of the GEF project are:

- the establishment of joint mechanisms for identification of trans-boundary risk issues in the Ilemeden Aquifer System (IAS);
- A joint development and conservation strategy;
- A joint tripartite legal and institutional cooperative framework;
- Joint programmes for awareness, participation and inter-governmental communication.

Components of IAS project:

- Trans-boundary Diagnostic Analysis
- Strengthening the State of knowledge of the aquifer system
- Consultative Mechanism
- Awareness, Participation, Capacity Building
- The project structure includes: Steering Committee including the three countries and the partners, Implementing and scientific supervision agencies, national teams, scientific audits and experts.
- OSS (Observetoire du Sahara et du Sahel) approach promotes consultations among the technical, institutional and political arenas which leads to the sustainable management of trans-boundary aquifer systems

Challenges being experienced in the implementation of the project include:

- Quantification and Analysis of Trans-boundary risks
- Addressing lack of data and information raising a need for country capacity building
- Rational management of surface water and groundwater
- Institutional anchoring of the tripartite consultative mechanism for cooperation and coordination.

Lessons learnt include:

- Efforts of only one country cannot identify and reduce trans-boundary risks thus the need for basin awareness and cooperation
- Trans-boundary aquifers are dependent on investment strategies to gain better knowledge of groundwater flow patterns. Such studies are very expensive and have to run over a long time

- Appropriate binding legal and institutional consultative mechanism of trans-boundary aquifer systems is required.
- Need for countries to have common capacity building to speak the same technical language and share the same vision on the trans-boundary issues
- Need for involvement of appropriate stakeholders as trans-boundary groundwater crises have many faces.

Participants' discussion:

Question: To what extent has the information on groundwater influenced political decisions on ground water - that is, do politicians use this information?

Response: politicians are involved, but the project is on a more technical level. Identification is first quantitative. However the project implementers try to come up with a legal tool to influence political decisions. Presently there is no document on management of ground water but once the contours of the ground water are drawn, then a document can be published.

Question: if one state wants to update the database, are they updated automatically in all three states and do all countries have access to update, change or delete information in the database? What's the protocol?

Response: one state does not update without informing other states due to harmonization. Moreover, the protocol does not allow accessibility without a password. (Note: Considerable interest in the protocol for data updates was expressed by representatives from one country in the group.)

Question: How easily accessible is the data?

Response: data is for public consumption but needs a policy because it's not easy to gather and therefore it is not freely given.

Lessons Learnt by Participants on Shared Aquifer Systems case study

- Basin wide awareness needs to involve all levels
- Need Better knowledge and sharing of technical data
- Continuous Technical Capacity Building is important
- Consultations required at different levels in order to make a change
- Important to have trust and confidence for political support and cooperation in consultations
- How to outcomes: mechanisms and agreements can be used for consultations and lead to sustainable management
- One problem can have many facets depending on the stakeholders
- TDA should identify common risks

- Need for countries to collaborate; effort of one country is not sufficient to understand trans-boundary ground water
- Ground water has a knowledge backlog before sharing can begin
- Ground water information is fragmented
- There are always problems in the different levels of resource knowledge in different countries
- Data availability is a constraint
- Good database and analysis are relevant to consensus building
- Data remains the property of the originating or participating country and is not public
- capacity building needed to enable the countries to speak one language
- Trans-boundary aquifers need more attention from stakeholders
- Shared vision and language needed

1.4.2 Transboundary Water Resource Management in West Africa-Niger River Basin

Presenter: Ousmane Diallo, Niger Basin Authority

The natural environment in this region is under pressure because of:

- Human population growth putting pressure on the resource due to fast increase in resource demand
- Unsustainable resource use and development
- Decrease in river flow due to deforestation and desertification
- Decline in the ability of the river's ecosystems to supply crucially needed natural resources to the people
- Invasive aquatic species have spread, choking river channels
- Development opportunities directly related to water such as power, irrigation and navigation etc.
- Increase in trade, communication investments, enhanced labour flows, etc.

Challenges experienced include:

- Promoting development and poverty reduction
- Need for cooperation amongst people for the sake of their environmental development:
    - Moving from the currently practised unilateral to cooperative development
    - Laying a solid institutional foundation and an enabling environment for cooperation
- The TWRM Approach used in the basin is based on the three pillars of IWRM which include environmental sustainability, social equity and economic efficiency
- The shared vision and sustainable development action program to achieve a balance of compromises includes: environmentally moving from degradation to sustainability, politically

moving from dispute to cooperation and economically moving from fragmentation to integration

Response to these challenges is joint actions:

- Shared Vision with a participatory phased approach
- Joint effort among organizations
- Decision making tools
- Joint infrastructure development
- Project environmental objective is to reduce and prevent trans-boundary water related environmental degradation through cooperative integrated management of the basin, while enhancing public involvement
- Project development objective is to provide the riparians an opportunity to define a trans-boundary framework for sustainable development: strengthened capacity and better understanding of land and water resources of the basin.

The Lessons learnt for TWR development and management include:

- decision making: there are a large number of actors involved at different levels and with heterogeneous interests which are not necessarily environmentally viable
- The problems are more institutional - that is governance, rather than technical. There is a crucial need for dialogue, trust, confidence building and a long-term vision
- Moving from a river basin master plan (common approach) toward a more dynamic shared vision process (more pragmatic, participatory and attainable)
- Shared Vision process must have three major objectives: first political, to formulate a vision statement, second operational, to prepare a TDA/SAP and thirdly financial, to mobilize resources from both member countries and international donor partners
- Development partners commit to their side of the contract by putting aside any individual preferences for national investments
- GEF IW Projects contribute to shared vision and sustainable development through TDA/SAP Process:
- TDA/SAP process shows the way to build commitment to reforms and to actions through: political will, awareness, multi-stakeholder dialogue and finance identification.
- The execution of TDA gives opportunity to establish status and overall goals and to define long term ecological quality objectives in an interactive & participatory manner.
- The TDA/SAP process of the GEF Niger basin Project focuses on enabling environment, institutional roles, management instruments, monitoring progress and links to national policies. Direct active stakeholder involvement will enhance ownership and facilitate subsequent implementation.

Question: how do you deal with issues of governance when there are so many states and levels involved in one project?

Response: There are three levels of governance: regional, national and committees. Coordination units depend on the size of the basin in an individual state. There are also taskforces and technical staff in the countries, however coordination and transparency is still a great challenge.

Lessons Learnt by Participants on Water Resource Management in West Africa-Niger River Basin case study

- The fewer the project components, the greater the impact at national level
- Efficient and effective project management and coordination at national level determines the impact of GEF projects.
- Need to balance compromises amongst the three pillars of environment, politics, and socio-economics aspects of TWRM.
- Unsustainable resource use and development is a problem
- Dealing with invasive aquatic species caused by increased human activities in the river basins
- GEF projects contribute to shared vision and sustainable development
- Shared vision process can be more attainable if you have a common master plan and hence a common management process
- Political will and cooperation is the most important but also most difficult to attain in trans-boundary water issues, as such problems and obstacles are often met more at governance level than technical.
- Governance problems:
    - Lack of common approaches as each political situation is different from the other
    - There is no shared vision or commitment to shared vision at political level
    - The fewer the countries involved in the project the fewer the problems and the vice versa is also true. Unfortunately the more countries a water basin covers the more important the issues it deals with becomes
    - Shared vision approach is more dynamic than river basin master plan approach which is more technical.
    - Shared vision process should comprise of political, operational and financial objectives
- Apart from Governance issues major problems are also at institutional level

1.4.3 Trans-Boundary Cooperation in Senegal River Basin

Presenter: Toumany Baro, OMVS

The Senegal Basin is the second largest basin in West Africa after the Niger basin. The Senegal Basin authority (OMVS) includes four member states: Guinea, Mali, Mauritania, and Senegal. The river basin is managed by the Organization for the Valuation of the Senegal River (OMVS). In spite of dams that effectively manage the river flows, environmental problems do exist. The GEF project addresses key environmental problems. Each component is run by a project office based in Dakar.

At the beginning of the project, Guinea was not a member country, so the fact that four countries are now members of the basin organization, is itself a great achievement. There is a special component in the project that deals with sensitization of the population. This helps to bring about the much-needed public awareness for such a project to succeed.

The Key environmental issues in the OMVS are:

- Overgrazing
- Erosion and siltation
- Ichthyofauna degradation
- Rainfall decrease
- Water related diseases
- Salinisation
- River banks degradation

The overall objective of the project is to establish a participatory strategic framework for the sustainable management of the environment and water resources at the Senegal River Basin level.

The project has five components:

- Strengthening environmental management capacities
- Data and knowledge management
- Transboundary Diagnostic Analysis (TDA) and Strategic ACTION Plan (SAP),
- Micro grants, priority actions
- Information and Public Participation.

Key steps have been achieved on both multilevel stakeholders organizations (local, national, regional), and in activities implementation. More in-depth transversal or thematic studies on water resources, environment

and management issues are needed. A more operational level based micro-project system on environment preservation for poverty alleviation in the basin needs to be created.

Lessons learnt include:

- To achieve better trans-boundary management of the basin, it is crucial to involve all stakeholders.
- The necessity to have a regional SAP for the whole basin,
- Implementing accompaniment measures through micro grants for local communities
- Sensitization of all actors concerning the basin environment management

Lessons Learnt by Participants on the Senegal River Basin case study:

- A real TDA/SAP is needed for the OMVS project
- Environmental issues not of high priority in the communities: how do you achieve their participation?
- Usefulness of micro grants component for visibility
- Multi level stakeholder participation
- Creation of more operational micro projects
- Sensitization of all actors
- All actors need to be sensitized regarding the issues of basin management
- IWRM in Africa is complex therefore thorough understanding of root causes at national level is crucial for IW projects' impact to be significant
- Need for immediate interventions to meet livelihood needs of local communities as trans-boundary issues are addressed
- Regional SAP is necessary for a basin
- Coordination of IW projects at both regional and national level will only be efficient if done by experts from the region.

1.4.4 Transboundary Basins in Central and Northern Africa - Case study on the Nile Transboundary Environmental Action Project (NTEAP)

Presenter: John Omwenga, Nile Basin Initiative

Mr. Omwenga presented NTEAP as a program that was launched in May 2004 to manage the basin that stretches over ten countries from the great lakes countries in Eastern and Central Africa to Egypt in the northern tip of Africa. The basin is characterized by a high dependency ratio in Egypt, Sudan and Eritrea respectively. 91% of the irrigated land in the basin is in Egypt and Sudan.

Environmental threats in the basin include:

- Soil erosion
- Deforestation
- Siltation
- Wetlands degradation
- Floods and drought
- Water weed infestation
- Loss of species and ecosystems
- Sanitation concerns

Basin-wide causes of the environmental threats are:

- Policy, governance, institutional and capacity constraints,
- Insufficient environmental education and awareness,
- Limited access to environmental knowledge and information (including relevant scientific data),
- Unclear tenure and inadequate access to resources for local stakeholders,
- Inadequate management of protected areas and other environmental hot spots

NTEAP's objective is to provide a strategic environmental framework for the management of the Trans-boundary waters and environmental challenges in the Nile River Basin.

NTEAP major Components include

- Institutional strengthening,
- Community-level land and water conservation
- Environmental education and awareness
- Wetlands and biodiversity conservation
- Basin-wide water quality monitoring

NTEAP approaches:

- NTEAP is fully functional at PMU in Khartoum and in all of the NBI countries:
- Implementation is carried out through networks and organised working groups
- Steering Committee provides guidance and approval of work plans and budgets
- Prospects of cooperation are strengthened through meetings with high level government officials

Challenges encountered by NTEAP include:

- A very large basin with complex problems
- Agreement among countries on water quality testing and data exchange
- Legislations to protect forests, wetlands and parks & compliance

- EIA legislation and compliance
- Varying pace of implementation at national level
- National awareness and recognition that Nile is shared by 10 countries
- Implementation of Agenda 21
- Ratification and Implementation of the biodiversity, desertification and
- climate change conventions
- National focus on the conservation of natural resources of the Nile
- Basin (forests, wetlands etc)
- Consolidated information on Nile Basin can be found Nile River Awareness Kit

Some Lessons Learned in the Basin are:

- Start up activities take time and resources longer than expected.
- Relationship of regional organization and national level organizations is not straight forward
- Getting the attention of national level decision makers and the public at large requires concerted and persistent awareness-raising. Basin organizations are just one of thousands of other competing projects at national level.
- Showing national level partners the benefits or the added value of having trans-boundary organizations takes time and patience.
- Micro-grants activities help to get communities interested in trans-boundary cooperation since they address livelihood issues.
- Having all nationals of the cooperating countries participate in running the basin organization helps in capacity building, strengthening cooperation, and developing a culture of tolerance
- Engaging students in NBO activities promotes public participation and also brings in innovative ways of dealing with trans-boundary issues.
- Engaging networks, working groups at both national and regional level promotes better visibility and implementation of activities.

Question: Is there any water quality degradation study in the basin?

Response: Baseline and data studies have been done. However there is a big difference between what is available and what is not. Water quality maps drawn with what was available were not perfect due to lack of harmonization.

Question: Has the niche been accepted by national and regional players?

Response: Time was taken to discuss objectives. Currently they are trying to come up with broad guidelines, and also a protocol to make sure states can counter trans-boundary water quality monitoring and pollution.

Lessons Learnt by Participants on the Nile Basin Initiative case study:

- Is project the right approach for such huge problems like in the Nile valley?
- Conflict between national and trans-boundary imperatives
- How to balance the immediate community needs and environment's future
- Student participation builds foundation for future management
- Start up activities take time and resources
- Relationship of regional level and national level organization is not straightforward
- Micro grant activities and engaging students promotes public participation
- Ground water has to be included as it controls the quality and quantity of surface water and vice versa
- What is the concrete meaning of Environmental framework for such a big basin?
- How do you address compensation for upstream by downstream users and needs?
- How is the problem of noncommittal to agreed activities by member states being solved
- Inability to appreciate trans-boundary management of a resource by national governments
- Use of network on sector specialists
- Difficulty of attention of decision makers at national level
- River awareness Nile kit (CD) easier way to share data in Africa
- Micro grants to assist communities on livelihood issues
- Many more projects will be competing at national level therefore hampering policy adoptions at country levels
- Project activities may not necessarily address the goal of the IW project. Proper re-evaluation of proposed activities is important

1.4.5 Transboundary Basins in East Africa-Towards Integration

Presenter: Simon Thuo, GWP

Water scarcity and social stress in the Transboundary basins in East Africa are portrayed by:

- High rate of population growth along the water basins caused by the general population pressure in these countries
- Unpredictable rain and climate change
- Increased ice cover loss on Mount Kenya and Kilimanjaro consequently leading to drought and hunger in the transboundary river basins

Persistent poverty, low commodity prices, over fishing, high slum levels, increasing vulnerability, poor education, weak institutions, fragmented information which leads to water degradation causing pastoral versus pastoral and peasant armed conflicts.

- Separate treaties destabilising trans-boundary cooperation.

GWP's activities in "Water for Peace" operating regionally, bringing together water practitioners, journalists and politicians to review impacts and consider future options and multi-stakeholder processes leading to rapid consensus on underlying causes and solutions finding.

Challenges and Lessons

- Suspicion of GWP and its approach - that is, multi-stakeholder platform not catered for in laws therefore water and security authorities wary of platform being used to criticize performance.
- Stakeholder participation difficult to sustain beyond early enthusiasm, not enough time is spent in creating genuine and hence lasting awareness.
- IWRM needs inclusion of non-governmental actors in decision making, not well regarded in hierarchies of EnA.
- Rapid demand for creation of forums at watershed level exceeds GWP/CWP capacity to deliver; there is a need to create partnerships with institutions operating at this level.
- Competition between government departments caused by their sectoral orientation, pre-empts potential economic efficiency and synergies acquired through multi-sectoral use programs.
- Tension between specialists and stakeholders in government and NGO's, based on differentiated and divergent interests.
- Political support crucial but has its own pitfalls. It is very difficult for politicians to understand and see technical rationale. They tend to be driven by short term political gains.
- Hot spots galvanize will to act, but watch for unsuitable short term interventions that undermine long term sustainable processes.

Areas of future research

- Economic efficiency arguments need good information and thorough analysis
- Develop processes leading to the identification of best uses of land.
- Financial performance needs independent evaluation
- Need for trans-boundary forums to overcome intractable local conflicts on water.
- Development of basin wide benefit sharing as a valuable concept

Question: If IWRM level in each country is being built individually where is the link between the regional and national levels?

Response: different programs have been formed at different levels, for example the Nile Basin Initiative and the Lake Victoria Development Programme. It is now necessary to integrate the two programmes.

Lessons Learnt By Participants on Transboundary Basins in East Africa –Towards Integration

- Establishment of national priorities as part of Nile Basin Programme increases possibility for implementation and linking them with other related national activities.
- Linking IWRM with national socio-economic development strategies
- IWRM is a social process, reforming values
- Learnt how countries in east Africa region-GWP fare in terms of economies
- Political support crucial but has its own pitfalls
- Collaboration needs to be intergovernmental
- Each state has its specific issues
- IWRM needs inclusion of non governmental actors in decision making as NGO's are important actors in IWRM process
    - Case studies from Ethiopia, Eritrea, Sudan and Kenya are interesting and more practical
- Integrating of IWRM in the existing national development and planning process is the key to successful IWRM
- One of the challenges is to get riparian national governments to agree and share freely important planning data.

1.4.6 Benguela Current LME

Presenter: Lesley Staegemann, BCLME

The Programme goal is to integrate management, sustainable development and protection of the Benguela Current Large Marine Ecosystem by Angola, Namibia and South Africa.

Aims of Project include:

- Communication and co-ordination
- Synthesis and assessment of information
- Regional Workshops (Scoping and TDA)
- Transboundary Diagnostic Analysis (TDA)
- Strategic Action Programme (SAP)
- Project Brief
- Project Document
- Major multi-sectoral consultative process involving all key stakeholders

Major trans-boundary problems include:

- Decline in commercial fish stocks
- Uncertain ecosystem status and yield
- Inadequate capacity to assess ecosystem
- Deterioration in water quality

- Habitat destruction and alteration
- Loss of biotic integrity and biodiversity
- Harmful algal blooms

Root Causes of Problems are:

- Complex and varied ecosystems
- Poor legal frameworks
- Inadequate application of regulations
- Inadequate planning at all levels
- Inadequate finance and support mechanisms
- Inadequate capacity development and training
- Insufficient public involvement

Areas requiring action

- Sustainable management and utilisation of resources
- Environmental variability, ecosystem impacts and predictability
- Maintenance of ecosystem health and pollution

Objectives:
In the Strategic Action Programme challenges were spelt out and agreed principles were established. Broad objectives of the project are to establish a formal institutional structure for co-operation, facilitate understanding, protection and conservation and sustainable use of BCLME and to implement the Strategic Action Programme (SAP) and the "Ecosystem Approach" to ocean governance.

Lessons Learnt

- Decline in US$ against local currencies have impacted on budget for plans therefore having to re-prioritize
- TDA/SAP process is the key to building a viable Programme
- Proper stakeholder consultation must be maintained at various levels
- Where possible try to prioritize thematic activities selected for sub-projects during PDF process; this will in turn speed up tendering and selection process during early stages of the full project; more so allows priorities to be effectively formally endorsed upon submission and approval of the full project document.
- In the early implementation stages, PCU should help identify and develop linkages between different groups and institutions in different countries. This will dynamically shorten lead-time for such partnerships
- In setting up regional centres, use one country as a pilot model first. This allows mistakes to be made once without replicating; furthermore helps generate best practices in institutional structure, staffing and partnerships with other agencies and bodies.
- Capacity building and training should be incorporated into most projects. Attention needs to be paid to the issue of capacity retention

- Adequate time is needed for Partnership building

Question: what financing mechanism do you have in place in Benguela for the future after the GEF intervention?

Response: contribution by states, donors from private and public sectors. There are also 30 partnerships regionally and nationally

Lessons Learnt By Participants on the Benguela Current

- Importance of transparency
- Contract and implementation on www
- Identify and develop linkages between different groups in different countries early on
- Use country pilots as examples for regional www implementation
- IW projects should be managed by experts from the region where they are implemented. Local experts understand local political intricacies necessary for project success
- The biodiversity of resources of coastal marine basins
- Fall of the dollar forcing a review of project components
- One centre to be set up and experimented in order not to replicate the problems
- Distinction is made between fresh, and sea water and between surface and ground water - could solve many agriculture and fish problems
- Highlights symposium useful, tool and exercise
-
- TDA and SAP successfully conducted and SAP being implemented
- Mechanisms in place for self financing after the GEF funds have run out

- Relationship between BCLME and GCLME

1.4.7 The Guinea Current LME

Presenters: Jacques Abe and Parcy Abohweyere

The five broad modules of the LME approach include:

- Productivity of the Ecosystem
- Fish and Fisheries
- Pollution and Ecosystem Health
- Socio-economic conditions
- Governance

The region has 280 million people living on the coast, they are dependent on lagoons, estuaries, creeks and inshore waters for their livelihood. Water is important for their transportation of goods and people and also the source of animal protein in the form of fish and shellfish.

Pollution has affected the waters of the GCLME resulting in habitat degradation, loss of biological diversity, productivity and degenerating human health. Water resources management is essential as the health status of the water resource determines carrying capacity and functioning ability / integrity. Water quality deterioration is a threat to GCLME at local and regional levels. It chronically impacts mostly localized national issues which are common to all countries and increases with population ultimately requiring collective trans-boundary action.

Catastrophic events that have occurred include; Major oil spills which can have widespread trans-boundary consequences requiring co-operative management and sharing of knowledge, equipment and technology. Water resources issues of the GCLME include deterioration in water quality (chronic and catastrophic) Pollution from land based activities: eutrophication and harmful algal blooms resulting from high loading by nutrients and contaminants.
While most impacts are localized the problems are common.

The intense pressure on GCLME waters calls for serious commitment and preventive action at all levels: local, national and regional.

GCLME Project is to assist the countries to achieve environmental and resource sustainability by shifting from short-term sector by sector driven management objectives to longer-term multi-sector perspective and from managing commodities to sustaining the production potential for ecosystem-wide goods and services.
Various mechanisms employed to achieve Project goal which include:

- Establishment of the Regional Coordination Unit
- Implementation of the Strategic Action Programme (SAP).
- Establishment of Regional Working Groups
- National level mechanisms

Specific implementation strategies for integrated water management in the GCLME countries include:

- Regional Activity Centres
- Workshops
- Training and Capacity Building
- Institutional Strengthening
- Networking
- National and Regional Actions

- Institutional Arrangements

Implementation challenges encountered are:

- The implementation of the programs in many countries have been hampered by
- Lack of human and financial resources,
- Lack of scientific data, monitoring programs and the basic necessary institutional capacities,
- Fragmentation and lack of cooperative mechanisms,
- Policies and strategies and integrated development models.

Question: what are the lessons learnt from the implementation of this project?
Response: the results and difficulties encountered show that these difficulties can be encountered in other areas.

Question: what are the achievements so far in the implementation of the GCLME?
Response: challenges encountered were surmounted in various ways for example, training, manual production and improvement and water quality monitoring

Question: are there any linkages working together between marine and fresh water trying to address the pollution coming into the ocean?

Response: pollution in each country is handled in collaboration with the fresh water projects. Usually they are also the same people working with river and coastal water projects

Lessons Learnt By Participants on the Guinea Current

- increase of fishermen through aqua culture
- lack of adequate scientific data, institutional capacities and monitoring capacities and monitoring mechanisms are major challenges to effective management of many trans-boundary basins and ecosystems
- the project implementation happened with a lot of “lacks” which made the project implementation very difficult
- the project info on land based activities that impact on the LME appear not to be well known, research will be needed in these areas
- strong link between basin ecosystem health and marine ecosystem health
- International water projects should focus on processes other than short term outputs that are useless on long term basis

- Project duration often too short to achieve demonstrable impacts, therefore the project should strive towards long-term structures

1.4.8 Wrap Up Session

Facilitator Nathaniel Mjema pointed out a number of common factors cutting across most of the presentations and discussions:

- The amount of energy it demands to get all the support and agreement to start; therefore awareness creation
- Data may be available but to whom and for what, how often is it updated?
- Question of different interests: for example, one water system versus another, upper course of the water system versus the lower course.
- How are these programs designed, as many issues come into play? Thus how can these issues be integrated, at what level is it possible to integrate these different issues?
- Period from initiation to end, how do you deal with such short planning periods for such long term processes?
- Harmonization of standards in different countries. Notably the different level of technology in different countries.
- Different levels of systems involved from household through local governments, national governments and the regional levels.

Therefore the question that arises is how does IW:LEARNing harmonize all the levels of systems involved?

2 Day Two

2.1 Implementing IWRM Principles in a Transboundary Context

2.1.1 Feedback on Day One by Participants

Before thematic presentations for day two began, participants had an opportunity to reflect on the prior day's sessions. Those who commented considered the deliberations of day one informative, educative and generally good. Some were of the opinion that the day was too long. They felt well exposed to the issues of trans-boundary water resources management as presented and discussed. Some felt challenged by the issues which emerged from discussions as to how they can adopt them for more effective implementation of their projects at home.

2.1.2 Theme: Implementing IWRM in a trans-boundary context

The intention of drawing participants attention to the challenges and experiences of realizing the IWRM principles while taking into account different socio-political and economic environment presented by different countries sharing a given water resource.

2.1.3 Freshwater Vulnerability in Africa

Presenter: Salif Diop, UNEP

As an entry point Dr. Diop defined vulnerability as the degree to which a system is susceptible to, or unable to cope with, adverse effects of environmental change, including natural and socio-economic systems. In order to understand vulnerability in fresh water ecosystems, the basin approach should be adopted and if properly used it can:

a. Balance resource protection and utilization
b. Draw attention to all components in the hydrological cycle
c. May incorporate IWRM principles of equity, efficiency, sustainability in water resources management.
d. The approach seeks to maintain a balance between competing pressures

The second point raised in the presentation focuses on assessing vulnerability. Three clusters of parameters including physiography, socio-economy and management were identified. Physiography includes climate, ecosystems, surface water and ground water of the relevant basins. Socio-economy involves demography and economy while management involves legislation and the overall institutional knowledge. The same parameters have been used for all the basins studied although there were adaptations and mitigations in the key parameters, in these areas:

- Institutional and legislative framework

- Water Sector Reforms
- Managing (shared) waters and ecosystems
- Communities' responses to water stress
- Capacity building and Capacity enhancement programmes
- Data monitoring and data rescue
- Standardized assessments
- Monitoring for improved early warning systems and effective water management technologies
- Surface and groundwater storage and use
- Rainwater harvesting
- Improvement urban water supply and agricultural techniques
- Investment in wastewater treatment
- Improvements in rural water supply

After deciding on the parameters, phase one was carried from April 2003 to December 2005, whereby Sub-regional and basin assessments were done on North, West, Central, East, South. The framework for vulnerability assessment worked well for Africa, however a more detailed framework is needed for intermediate and comprehensive assessments. The publication on the assessments provides a snapshot of key issues of the African Region in the context of the Vulnerability for Water Resources to Environmental Change (VWREC) based on assessments of 8 major river, lake and groundwater basins in four sub-regions.

Phase I provided a basis for the following conclusions

a. Water scarcity is on the increase and the solution is adaptation and mitigation
b. Efforts should be put more on capacity building and competency development in vulnerability assessments of sub-regional research teams in carrying out rapid assessments.

Drawing on lessons from phase one, there is a solid foundation for the preparatory phase of comprehensive assessment (Phase II) which is a Comprehensive Assessment of the Vulnerability of Water Resources to Environmental Change in Africa using the Basin Approach. Participants raised the following issues:

1. Overexploitation of available surface and ground water resources may be managed through adopting technology for water recycling or re-use. There should also be a move towards technological changes, for example, use of solar and wind energy, desalinization, water harvesting and use of rural techniques. If we continue using conventional energy we will have to invest twenty times more.

2. Coordination and information sharing among different institutions is important to avoid duplication and benefit from already existing information. For instance Poverty Reduction Strategy could benefit a lot from the environmental data available at UNEP. It was also pointed out that documents produced by UNEP were available not only from their respective web site but also as hard copies to participants. It was further emphasized that the issue of information dissemination should be among the key resolutions of the workshop.

3. Updating of information is very important as global population is growing at such a rapid pace and hence the need to try to catch up with more up to date information.

2.1.4 Trans-Boundary Water Resources Management in the Western Indian Ocean: The Case of the Agulhas Somali Current LME

Presenters: Peter Scheren and Anthony Ribbink

Four key common problems face the trans-boundary marine resources in the Agulhas Somali Current: decline in harvests of marine and coastal living resources, degradation of coastal habitats (mangroves, sea grass beds, and coral reefs), and loss of biodiversity, overall water quality decline and contamination of coastal waters, beaches and living resources, as well as a shortage of and contamination of fresh water and contamination.

The problems listed above were attributed to the following factors:

- Rapid growth in coastal population and urbanization
- Lack of relevant policies, unclear legal framework and institutional weakness
- Inadequate knowledge on the marine resources and the required management approaches.
- Lack of management strategies
- Inadequate financing mechanisms and support and lack of investments

After realising the above outlined problems, the Agulhas and Somali Current Large Marine Ecosystem Program (ASCLME) under GEF was formulated, with UNEP and World Bank as the main implementers. UNEP implements The West Indian Ocean Land Based Sources of Pollution Project (WIO-LaB) while the Southwest Indian Ocean Fisheries Project (SWIOFP) is implemented by the World Bank. The SWIOF is a permanent body whose activities are expected to start in 2007 and shall run for five years. During that period, Trans-boundary Diagnostic Analysis and Strategic Action Planning activities will be carried out. At present agreements between states and World Bank and Memorandum of Understanding for how countries will relate are being worked on. In this presentation more focus was on the UNEP Project. - WIO-LaB.

- The ASCLME common program goal is to ensure long-term sustainability of the living resources of the Agulhas and Somali current while the main objective focusing on fisheries include:

- Develop the knowledge necessary to better manage the fisheries and biodiversity through capacity building and ecosystem studies.
- Understand the processes that drive the energy and economies of the Western Indian Ocean.
- Help countries achieve Millennium Development Goals.
- Carry out Trans-boundary Diagnostic Analysis for the overall Program
- Produce a Strategic Action Plan for the Program
- The specific objectives of the (WIO-LaB) addressing land based activities include:
- Improve the knowledge base and establish regional strategies for the reduction of stress to the marine and coastal ecosystem by improving water and sediment quality
- Strengthen regional legal basis for preventing land-based sources of pollution
- Develop regional capacity for sustainable, less polluting development, including implementation of the Nairobi Convention and its action plan.
- Emerging issues from the Agulhas Somali Currents Large Marine Ecosystems Program.

The following are some of the key issues emerging from the program which could be shared among the workshop participants.

Key recommendations from the study

- The future is in biodiversity more than in biomass. Marine biodiversity needs to be developed to avoid extinction and death of other sectors, for example tourism.
- Looking into the future, to rely on fisheries alone is short sighted.
- There is a need to develop a sustainable economy based on the wise management of the marine ecosystem for those who depend upon the sea
- Capacity building is taking centre stage and to attain this training, retention and continuity must take place.
- Awareness raising is done by for example organizing children's trips to ships and allowing ship access to students and teachers
- Various disciplines can be used to build capacity for example oceanography, biochemistry, socio-economics among many others
- Data is the most useful yet the most expensive investment
- Data and information should be returned to those who need to use it, more so data has to be shared, together more can be done

Areas where information is lacking:

- Origin of Agulhas current not really known but there are different theories
- The major system remains unknown yet is of such great importance, for example provision of nutrients for birds.

Challenges facing the Program

- The ASCLME is a large study area and a complex data environment
- Many data and metadata formats and standards have to be used
- Limited and slow internet access

- Insufficient human capacity to meet responsibilities
- Developing appreciation of value of off-shore research in the face of poverty.

Potential Solutions to the challenges

- Develop a long-term regional vision
- Consolidate data management
- Select priority short-term projects to contribute in achieving goals

2.1.5 Discussions and Lessons Learnt

Participants identified the following as the main lessons.

- Data acquisition, capacity building etc are the basic tools for the management of the program
- The agreement reached among states on data sharing is an important tool for implementation
- Good scientific data seem to be available but not used in socio-economic development strategies by respective countries
- There is a dilemma with respect to investing in and prioritizing off shore research when countries are facing poverty.
- If African regional initiatives are strategically planned and structured, they can act as a platform for GEF projects

2.1.6 Transboundary Cooperation in Southern Africa

Presenter: Eberhard Braune, University Of Western Cape, South Africa

Sharing lessons with respect to implementation of IWRM in a trans-boundary context: chances of success are said to increase as it crosses boundaries. An example is the SADC FRIEND project. This project focuses on ground water management in African Cities and involves eleven countries. In this project an integrated implementation approach was adopted because IWRM implementation principles call for an integration and development orientation. In general, bottlenecks to integrated approaches at the national level can often be overcome through sub-regional or regional approaches.

Emerging issues shared with the participants:

Achievements

- Hope to influence policy
- Terms of reference for South African national committee
- There is impact sub-regionally more than nationally
- Integrated drought management centre

Challenges

- Tremendous national bottlenecks of cooperative governance to overcome

- IWRM capacity building as part of implementation is challenging

Recommendations

- A bold government champion is required who relies on his network, rather than just his own resources
- Trans-boundary groundwater not given priority but if looked at as catchments or in areas where the water covers, much more would be accomplished.
- Integration between institutions for example UNEP and UNESCO gives better impact than individually
- Projects and programs should be implemented within existing institutions
- The formation of partnerships is an important implementation strategy
- National Committees could take up the important activity of integration at national level.
- Sub regional structures of the IHP could even act on behalf of SADC and AMCOW
- Besides appropriate structures, formalized networking should be put in place which must link project partners and development counterparts

2.1.7 Discussions and Lessons Learnt

Participants' comments focused on issues of capacity building, trans-boundary cooperation and linking regional institutions. Key suggestions are:

- Think globally, act globally ultimately gives better achievement. Trans-boundary issue resolution requires this mind set
- Implementation of project activities should use both national and regional task forces
- Project implementation can have considerable opportunities for training stakeholders and in enhancing multi-country partnerships
- SADC lessons on groundwater transboundary cooperation can help overcome national bottlenecks in cooperation
- There is a need to strengthen existing structures linking regional institutions with national committees and also to bridge policy makers and the scientific community

2.1.8 IWRM "Good Practices" From Case Studies in Other Parts of the World

Presenter Mei Xie, World Bank Institute.

This case of IWRM implementation is from the Tarim Basin in the Peoples Republic of China. The basin is one of the largest basins where IWRM has been tried out. It is a lake basin covering the driest and biggest province in China. From hydrological point of view the basin has small outlets that converge into one lake.

The background to the introduction of IWRM to Tarim basin is based on water resources management problems. Such problems included land reclamation in the upper water shed, irrigation expansion leading to maximization of water use and retention of water within the basin and low water flow downstream. The overall result from this was a reduced flow to lower basins, shortened river channels and serious desertification resulting in the merging of two deserts. In the early 90's, the government intervened to control the upstream activities in relation to water uses

Phase one of the basin management began in 1991 to 1997. The intervention was meant to manage water resources by establishing:

- A river basin body
- Introduction of water saving technologies by rehabilitating irrigation schemes and expanding irrigated areas
- Promotion of livestock development in parallel to crop production as support to livelihood.

Although poverty amongst the people in the basin was reduced by 70% the core problem had not been resolved and did not fulfil the needs for water management. This was mainly because phase one focused only on the major rivers and not the tributaries.

Phase two (1998-2005) was focused on institutional control. There was only basin level institution. A Basin Water Resource Commission was formulated which had links to prefectures and also with farmers. During phase two the following IWRM instruments introduced and used:

- Enactment of new legislation from river based bureaus to basin based bureaus
- Development funds going through the bureau and major water regulating structures
- Rehabilitation of irrigation systems
- Introduction of new technologies for managing water quality
- Poverty reduced and income increased
- River releasing water downstream

Key lessons emphasized that: Institutional set up must be made to match local conditions found in the individual basin. It was therefore recommended that each basin must find its own institutional set up for managing its rivers.

2.1.9 Lake Chad Basin Commission

Presenter: Mohammed Bila, LCBC Technical Advisor

The Lake Chad Commission was created in 1964 with a vision that by 2025 Lake Chad would have become a common heritage. Since river systems contribute 90% of the flow to the lake it was thus important those rivers are properly managed. Due to challenges from population increase and climate

changes there was a need for a program to improve water resources management within the basin. This gave rise to the GEF Project to assist the Lake Chad Commission in achieving the vision.

Before drafting the project PDF Consultants identified the following as issues calling for the project.

Issues in relation to climate change

- Shrinkage of the Lake
- Drought and desert encroachment

Issues in relation to Institutional framework and management practices

- Inefficient IWRM at national and regional levels leading to bad practices for example bad reservoir operation, poor management structures low skilled and inadequate technical manpower among others.
- Abandoning of effective traditional resource management practices
- Poor decision making in unsustainable development decisions,
- Poor data management and lack of an effective system for monitoring the quantity and quality of water and
- Absence of effective early warning system and mitigation measures
- Absence of regional as well as national standards for monitoring water quality and quantity
- Absence of cost-sharing mechanism among
- Water policies exists but based on weak legal framework
- Weak coordination
- Weak economic situation of member states and persistently poor rural economy
- weak stakeholder participation

Key objectives for the GEF Project:

- Overcome barriers to the concerted management of the basin,
- Complete a Trans-boundary Diagnostic Analysis and prepare a descriptive framework for the concerted water management across the basin and
- Prepare a Strategic Action Plan for long term implementation of priority actions to address trans-boundary issues.

Under these objectives four outputs have been targeted. Lessons generated through producing each output is highlighted and summarized in the table below.

	Output	Challenges	Lessons
1	Establishment of project.	The schedule was very tight and the team was relatively small	Wining the confidence of existing institutions and working in partnership with existing NGO's speeds up implementation activities.
2	a) Enhanced regional policy initiatives and institutional mechanisms to address trans-boundary issues. b) Institutional Assessment Study completed Eight Point Action Plan is due for discussion.	Getting the commitment of countries to implement recommendations of the LCBC Assessment.	
3	Strengthened engagement of stakeholders. Status is local initiatives out of community based proposals selected in all riparian states.	Support to local initiatives is a lengthy process.	Capacity building takes time and there is need to build trust through demonstration of accountability and ensuring that all selected initiatives are technically, financially and socially feasible.
4	A completed TDA and a synthesis of a framework for concerted management of the basin. 1) Trans-boundary Problems have been harmonized and prioritized from National TDA reports. 2) The prioritized trans-boundary problems include: Changes and variability of hydrological regimes and fresh water availability, Water pollution, Invasive species, Decreased viability of biological resources including fish, Loss of biodiversity, Loss and/or modification of ecosystems and	To ensure that studies are addressed from the trans-boundary point of view and can be integrated into the TDA/SAP process	

sedimentation in rivers and water bodies as a result of upstream land degradation

- The report is to be presented to the Commission in early November 2006

Discussion pointed out that initially the Lake Chad Basin Commission (LCBC) was to implement but did not have the capacity. Therefore IUCN implemented the project. Communities have been mobilized and they have submitted proposals. There are management plans existing and priority areas have been identified.

Lessons Learnt By Participants from the Lake Chad Presentation

Institutional framework

- Structured institution such as NGO working with the commission helped in achieving some measure of success.
- Although aim was for LCBC to execute pilots (to confirm ownership), the capacity to execute projects was lacking, so an NGO (e.g. IUCN) was contracted for pilot projects
- There is a need to reinforce the commitment of national teams to meet the project implementation challenges.
- NGO participation was seen to be fruitful to the program implementation

Implementation approaches

- Consultation with stakeholders using participatory methods is a very important tool for facilitating implementation
- Applying IWRM approaches is a lengthy process that requires patience, understanding and tremendously dependent on commitment of member states
- Use of local experts creates incentives for successful implementation and integration of IWRM into national development planning process
- Most GEF IW projects in Africa may build capacity for IWRM but in future increased capital investments in IWRM might provide real solutions to Africa's problems
- GEF IW programs should build capacities in the region (Africa) through promotion of involvement of local experts in project coordination and implementation

2.1.10 Lake Manzala Engineered Wetland, Egypt

Presenter: Dia El Din El-Quosy, GEF Lake Manzala project manager

Background

There is a need to optimize the use of water resources in situations where water is scarce. Arid countries, such as Egypt (among other Middle Eastern countries), are facing a water scarcity crisis, which requires optimizing the use of all available water resources. Due to water scarcity, reuse of drainage water is becoming an increasingly important water source in Egypt. However, large quantities of water in the drainage network can not be used as they contain high contaminant loads.

Brief on Lake Manzala

Lake Manzala is located in the north eastern edge of the Nile delta in Cairo in Egypt. The Lake receives highly polluted water of Bahr El-Baqr drainage as well as water from two other drains and two pumping stations. And due to this the Lake has been severely impacted by pollutants inflow depressing oxygen levels therefore causing a decline of aquatic diversity in the Lake. Fish produced by the lake or fish farms in the area, are not suitable for human consumption.

Brief on the Wetlands Project

In the early 1990's, a project for constructing an engineered wetland, at the Bahr El-Baqr drain outlet, was approved with the following objectives:

- Assess feasibility of an engineered wetland system to improve environmental conditions of Lake Manzala.
- Assess feasibility of an engineered wetland system to improve water quality so that it becomes suitable for different uses.
- Assist in transferring wetland technology to Egypt and other neighbouring countries.

With these objectives in mind the project is designed to:

- Provide local employment
- Serve as a training centre for water management and low cost wastewater treatment technologies, project planning and design
- The project is exploring the possibilities of reuse of the wetland effluent for aquaculture and for irrigated agriculture

Project implementation status

- The project is at operation, monitoring and evaluation phase and it is hoped that it can generate lessons and expertise of value to the African context.
- A training program under UNESCO on this area is being offered at the University of Lodz in Poland.

Emerging lessons from the project implementation

- **C**onstructed/engineered wetland technology can be considered as one of the infrastructure solutions for improving sanitation in Africa.
- The cost of this method is affordable compared to the cost of other methods. The cost of water treatment using constructed wetland technology is about 10% of other types of technologies.
- Constructed wetlands can offer cheaper solutions to waste water management and should be promoted in Africa

2.2 GROUPWORK

Four working groups were formed. Introduction by the moderator:

- The GEF Projects presented by the workshop participants are at different stages in the project process, some are at the formulation stage while others are being implemented.
- There are different lessons (related to project management) from each stage?
- The task for the groups is to answer the question:

What can we share for: Project inception, planning, approval-validation, implementation, monitoring and evaluation.

Although there are several themes which call for practical experiences, two areas were pointed out by the participants as the key areas where lessons were really required and experiences shared:

Political support and data management.

- Under political support, participants were guided by the following questions:
    - *How did you enhance public participation and governance*
    - *How did you mobilize political support at different levels or stages in the project*
    - *How did you speed up ratification of protocols/ MoU's*
    - *How did you get the countries to honour their commitments*

- The following questions were relevant under data management
    - *How did you agree on a common database*
    - *How did you derive common (impact and outcome) indicators and how did you monitor them*
    - *How do you ensure that data and information is available to stakeholders, including global policy makers*

2.2.1 Presentation of Results from the Group Discussions

GROUP I: Rivers Niger and Senegal and Western Indian Ocean GEF Projects

This group of participants decided to draw lessons of experience on political participation, mobilizing political support and good governance.

Experience from the three projects is that Political Participation and enhancing political support was realized through the following strategies.

- Shared vision process was worked out with participation of umbrella organizations from many projects

- Draft TDA reports were prepared by experts and later was improved by country experts and or validated by national workshops.
- Official endorsement of project was done at ministers meeting
- Co-financing decisions
- Official letters in each country
- Micro-projects were used to achieve public participation down to grass roots

Mobilizing political support

- Should be achieved upfront so that it is easier to maintain
- Essential to ensure countries stick to commitments (finance and facilities)
- Reporting mechanisms (also to ministers) agreed upon with project and annual plans as basis for reporting.
- Appointment of national focal points and Regional steering committees and secretariat is important in order to steer the process at country and national level.
- Lack of national feedback reporting may constrain the process
- After endorsement awareness program through media and in (African languages)

Common data-base and ensuring data availability and accessibility to different actors

- Make relevant assessments to guide data collection of relevant useful data
- Carry out awareness campaigns about the information needs and availability
- Have in place good meta level data
- Data and information dissemination through Regional and national focal points

Unresolved issues with respect to data availability

- Whether or not data should be freely available at country level
- How to cope with the situation that participating countries have different capacities in the different aspects of the projects being implemented.

GROUP II: NILE BASIN

Participants examining the Nile Basin Initiative case study had very systematic discussions based on the different stages of the project cycle, starting with inception stage to monitoring and evaluation. Experiences from the Nile basin Initiative project are outlined:

Lessons on political support under project Inception

- Allow time for consultation and dialogue to agree on issues and how they can be resolved
- Get commitment and/or will of the key actors and partners

- Avoid unnecessary bureaucracy
- Mediate between economists and technical managers

Lessons on political support under project Planning

- Be careful with project documents; expedite but do not hurry; understand financing partners formats and requirements
- Get champions to lead and motivate; watch out for sectoral interests (sector institutions may compete)
- Beware of possible failure of team work

Lessons on political support under project Approval-Validation

- To avoid unnecessary delay by incorporating default acceptance periods
- Equal rights between donors and recipients
- Involve decision makers early enough to enhance awareness and agreement

Lessons on political support under project Implementation

- Give project managers authority
- Strengthen monitoring and auditing
- Question decisions etc early

Lessons on political support under project Monitoring and Evaluation

- Tracking matrix is a good tool for early feedback
- Get a good credible team responsible for monitoring
- Harmonize and standardize monitoring procedures
- Introduce and apply monitoring indicators

Lessons on data and information availability

- Focus on hot issues confronting the countries
- Apply micro-grant to localize benefits and interests
- Strengthen project managers decision making
- Create and use different networks for e.g. media, professional, consultants etc
- Support exchange programs for example for farmers, students, fishermen etc
- Involve high level political participation through lobbying , workshops and
- Materials

Issues under discussions on data and information management

- Agreements on common database are being discussed and a common regional database accommodating other Nile basin projects have been agreed upon.
- Common method of sampling, testing and reporting is to be agreed upon in November 2006.
- A protocol on data sharing is being formulated to be discussed by March 2007

Challenge facing the Project

Nile River Council of Ministers has provided a forum for policy adoption. However composition of the ministers is not in line with the issues in the particular project.

GROUP III: AQUIFERS

Lessons on enhancing Political support

- Convene the technical task force to deliberate on issues before seeking political decision
- Establish an Inter-ministerial committee through multi discipline approach
- The technical team must be dynamic in formulating strategies
- Then discover trans-boundary risks and if possible to talk to political decision makers
- Establish a focal point for each country
- Sign protocol to implement commitments
- Request C.V of participants when forming a technical ministerial committees including representatives from all the relevant ministries
- National technical team must be dynamic and it informs higher officials through direct contact, bulletins or writing of memos
- Monitoring is being done by ministries by enforcing the existing activities

Lessons related to data and information management

- Users may have passwords to access data through networking, however data is available to workers through request-printed version for example e-mail
- centre of excellence exists in each country
- For trans-boundary issues one must have similar measurement of variables
- Database can be separate but data collection methodology must be the same
- It is important to clarify to participating country on the need of specific scientific data
- Convince the different governments on the importance of a sound database
- Be transparent through continuous consultation
- Each country has its own indicators. Participating countries work together and harmonize indicators and prioritize them within the this TDA process
- While monitoring and evaluating respect the standards for example the water table .
- Consider the different levels of systems and process involved (community, national and regional).

Lessons on development of strategies

- deduce strategic elements necessary to realize the said objectives
- for each strategic element establish the requirements for implementing the strategy
- regular sensitization can speed up the strategy formulation process
- Speed of implementation depends on the dynamism of the local technical team
- follow a work plan

GROUP IV: Large Marine Ecosystem Projects (BCLME, GCLME, WIO-LAB)

The group with participants working with the Large Marine ecosystems sat together and generated the following lessons.

1. Project inception took a long because of the different consultations which had to be carried out. They suggested that the project inception period should where possible be shortened.

2. At the planning stage, PDF block process, SAP, TDA and project DCC processes took too long. Lesson learnt are: first, it is difficult to involve inputs from countries involved and secondly it is a complex process. BCLME program has initiated a TDA/SAP processes and are keen to generate lessons which can be available to other projects dealing with LMEs.

3. Experience from the LME shows that approval for the project document was also time consuming and too complex, but this is necessary for the project to succeed.

4. Experiences related to project implementation varied from one LME to another. Among the challenges reported is that there were many activities to be carried out at the same time. There were attempts to develop centres of excellence in each country. For example, the BCLME set up regional centres at the national level and used one country as a pilot in order to reduce repeating the same mistakes in the other countries. The piloting contributed towards generating best practice in institutional structure especially partnerships with other agencies and bodies.

5. Establishment of Project Coordination Unit during the early stages of implementation assisted in the identification and development of linkages between different groups and institutions in different countries

6. Monitoring and evaluation is carried out through the following ways. The Project Steering Committee (PSC) meets every two years. Project implementation reports are produced annually and include quality

and quantity indictors, progress of sub projects and overall program is also evaluated. At present a Mid-term evaluation report is half way through. Specifically, the BCLME publishes newsletters semi annually.

7. Every country has its own data base

After the group's presentation, participants raised a number of questions focusing specifically on mobilization of political support at the different stages of the projects. It was noted that, ensuring political support throughout the project cycle is a difficult task but the LMEs used the national focal points particularly the PSCs at the initial phase of the program.

With respect to getting the different countries to honour their commitments, it also reported that it was done through signing protocols and interim agreements.

2.2.2 Group Discussions: Task 2: Development of Effective Strategies

Having looked at the experiences and lessons learnt in the different groups, each group was required to deduce the important strategic elements necessary to realize the identified objectives, for instance participation, or mobilizing political support, and for each strategic element to establish the requirements to implement the strategy.

	Program	Objective	Strategic elements	Requirements
1	**AQUIFERS**	**Participation**	**Regional level** Task force	a. Convening and formation of task force b. Review prioritization and harmonization
			National level National experts at	a. Identification and meeting of experts at h level b. Review of concerns and prioritize them and
			Community level User associations	a. Stakeholder identification for example government b. Identification of concerns **c.** Selection of representation to national level
		Common database	**Regional level** Appropriate accessibility to critical data	a. Harmonization b. Data collection to take place **c.** Data processing
			National level Critical data	a. Motivation to dig historical data b. Collection and generation of new data c. Updating national data base
			Community level Accessibility to boreholes (themselves)	a. Enforce existing laws to encourage commu **b.** Encourage communities to collect data on t
	NILE BASIN	**Participation**: awareness, involvement and empowerment	**Regional Level** a. Communication b. Networking c. Exchange program d. Shared benefits	**Transparency** a. Channel to reach the audience e.g. campaig b. Effective coordination: clarity of pu arguments, security considerations, work messages, inter-sectoral impact issues and translation, proposal support for example utilization
			National Level a. Communication b. grants	
			Community level a. communication b. micro-grants	
		Political support	**Regional level** a. IFI and AMCOW; AMCEN b. Parliamentary forum	a. Seminars b. Regional Programs c. News Letters
			National level a. Top management b. Committees of parliament	Position and strategic papers
			Community level a. Local governments b. CSO'S	
		Data management	**Regional level** a. Coordination mechanism on methodology b. Infrastructure for database	a. Develop protocol on data sharing b. Capacity building c. Funding d. Domestication of the protocol e. Funding and capacity building , orientati wildlife clubs
			National level a. CBS to formulate system of collection for compliance b. Infrastructure	

		Community level a. Simple data collection system	
Senegal and Niger Basins	Participation To enhance stakeholder participation and ownership	**Regional level** Involve national representatives and regional NGO'S	a. Identification of national institutions, l and basin specific) b. Identification of regional NGO's for av building
		National Level Should involve stakeholders at the community and local level	a. Identification of key stakeholders b. Awareness creation for the stakeholder **c.** Building capacity
	Political support For project financing, endorsement of protocols, legal and institutional reforms and political will to support demands of the project	**Regional level** Involve the minister in the country who will be representing the country at the regional level	To sensitize the minister at the involved at the r
		National level Have a lobby group for political sensitization of the politicians at the national level	Sensitization by preparing briefs etc
		Community level Involve chiefs and local leaders	a. Identification of community leadershi **b.** Confidence building
Large Marine Ecosystem Programs	**Equity and transparency**	**Regional level** a. Committee of ministers b. Steering committee c. Allocation of (pp) funds to be agreed among member countries and made equitable d. Allocation of scholarships from regional and national fund : ensure –equity and transparency e. IAEA to work with the Program in the region and train people f. Have in place a good project coordinator g. Availability of a group of multilingual experts h. Use of data and information to foster participation i. Tendering should ensure capacity building, transparency, sustainability and cost effectiveness	

National level

Use paid national project managers and assistants WIO-LAB and GCLME to ensure participation of experts from all 16 states in demo projects which shows equity

3 Day 3 Technical Site Visits

3.1 Feedback on Lake Naivasha Ecosystem Field Trip

Introduction

The workshop schedule gave participants a full day out with the following objectives in mind:

a. To demonstrate the challenges in managing a fresh water Lake with many users and stakeholders.
b. To introduce participants to the issues related to practicing IWRM around Lake Naivasha and its catchment.

Lake Naivasha is the second largest freshwater Lake in Kenya, declared a Ramsar site in 1995. The Lake is an important source of water for Naivasha township and other smaller settlements, livestock farming, irrigated agriculture especially horticulture. The Lake ecosystem is also famous for geothermal power production.

The technical visit was coordinated by the Kenya Wildlife Service Training Institute located in Naivasha. Two presentations were made to the participants by KWS Training Institute staff after which site visits were made to a thriving flower farm and the Ol-Karia Geothermal Power Plant.

3.1.1 Human Impacts on the Lake Naivasha Ecosystem

Presenter: Prof. George Otiang'a-Owiti, Kenya Wildlife Service

The key message is the need to increase efforts towards conservation of Lake resources. Recommendations include:

- Monitoring water abstraction from the Lake by users-through a metering system
- Restoration and facilitated recovery of macrophytes
- Development of strategies to prevent further destruction of the remaining papyrus by humans and wildlife
- Reduction of the number of settlements around the lakeshore and effective land use planning practices should introduced
- Conservation education and awareness for the communities
- Regulate and facilitate sustainable artesian fisheries activities
- Assessment and monitoring of concentrations of specific chemicals in lake water

3.1.2 Challenges Facing IWRM Practice within Lake Naivasha Ecosystem

Presenter, Robert Ndetei, WWF – River Malewa Conservation Project

Participants noted these key issues from the presentation.

- There is a very wise use of appropriate bio-indicators on the health of the Lake.
- Conflicts between people and livestock over the use of the water resources are increasing largely due to unplanned development within the Lake ecosystem.
- Attempts to formulate a management plan have been constrained by lack of participation of some stakeholders, leading to blocking the implementation of the existing plan through court of law.
- The government institution's strength and capacity for control and regulation could be improved
- It seems as if there is no comprehensive water balance reports to assist in managing water demands.
- There is a need for a strong institutional reform focusing on existing laws and enforcement mechanism
- More efforts are needed in managing the lake water resources in accordance to Ramsar principles.

3.1.3 Visit to Nini Flower Farm, Naivasha

Workshop participants were received by the farm manager who briefed the participants on the development of the farm, which was established in 1997 and covers about 20 hectares, employing 670 people. The farm cultivates roses for export market, primarily to Holland, France and Japan.

The Nini farm draws ground water and consumes about 1,600 litres a day. In order to conserve the soil, plants are not grown on the ground, rather they are planted in raised plastic boxes with blended coconut husk as substrate for the roots. Integrated pest management methods are used on this farm while striving to reduce levels of class one chemicals that are the most highly toxic, to class four which is more environmentally friendly. Social responsibility activities that the farm has been involved in include construction of a health clinic, and orphanage home. As only one farm was visited, it is not possible for a holistic view of the effects of flower farms on the Lake environment. Artesian fishery activities were observed in the area and this calls for a closer monitoring for contamination from possible pest control substances used by flower farms.

3.1.4 Visit to the Ol-Karia Geothermal Plant

At the Ol-Karia Geothermal plant participants were received by the CEO who made a brief presentation on the history of the plant, current activities and future plans. Participants noted the following points from the presentation and the site visit which followed after the presentation:

1. Kenya like other African countries relies on biomass as the main source of energy (68%) and thus leading to deforestation, although only 15.3 per cent of the population is accessible to electricity.

2. The use of geothermal is environmental friendly and the energy is non-renewable. However environmental monitoring is necessary considering the fact that the Ol-Karia plant is within the Hells gate National Park, which is a protected area. This means rehabilitation of the areas where construction has take place should be by as much as possible using indigenous plants only.

3. Steam can be used in greenhouse projects and also for maintaining temperature in the greenhouse projects

4. If properly planned the Geothermal power can be easily used to develop remote areas.

4 Day 4

4.1 Synthesis: Implementing Effective IW:Learning in Africa

4.1.1 Climate Change and Its Implications on Water Resources Management

Habiba Gitay, World Bank Institute

Climate change is a green house effect. It brings out changes in numerous environmental parameters, impacting on water resources renewal and distribution, and thus, leads to changes in land use and land cover, increasing greenhouse gases and therefore enhancing greenhouse effects.

For 420,000 years, the carbon dioxide concentration in the atmosphere has remained within tight bounds. Due to human activities it has evolved since the pre-industrial era and the developed world is not yet de-carbonizing its economy. As a consequence, projected temperatures during the 21st century are significantly higher. Evident chain reaction and changes can be observed and expected in various sectors and at environmental level:

- Land and oceans have warmed, sea levels have risen, many coastal wetlands would become vulnerable and therefore fisheries will be adversely affected
- Precipitation patterns have changed bringing about droughts and heavy rains, some areas are projected to become wetter, others drier, a pole ward migration of isotherms is noticed; a decrease in crop yields is expected in the tropics and sub-tropics while they will increase at high latitudes

Carbon dioxide concentrations, temperature and sea level will continue to rise long after emissions are reduced. People affected by climate related disasters have increased. Actually, climate variability is considered as a major impediment to development. Impacts and ability to cope with them are worst in developing countries due to lack of knowledge, technology and institutions for adapting to change. The best step to addressing future changes is to tackle these here and now.

4.1.2 Participant Discussion

The impacts of US emissions, about 50%, on developing countries: Emission is a question of environmental security and a lot of discussion is going on how to bring back the US to the discussion.

The impact on groundwater: A lot of work is being done on ground water vulnerability and a lot of awareness is needed to make the policy makers informed.

Pressure on our resources, both from population increase and climate change, is increasing. Decision makers need to be sensitized and enlightened; however, it takes a political will to formulate policies that will seek to address the issue of resource vulnerability due to these pressures.

4.1.3 The Role of Civil Society in Trans-Boundary Water Management

Kariuki Mugo, African Civil Society Network on Water & Sanitation (ANEW)

Currently the role of civil society in transboundary water management is limited across the globe. In Africa some indigenous CSO are participating in addressing particular issues but at small scale. This takes exception in comparison with other regions across the world and other areas where the CSO participate (human rights and politics). The rationale is that transboundary water resource is a public good. The roles of the CSO are:

- To offer civil diplomacy
- To initiate stakeholder dialogue
- To provide links, to establish networks,
- Focal points for active public participation, focal points for data collection
- To provide technical support,
- To provide capacity building at grass roots and community levels
- To participate in implementation, bringing own resources directly for co-funding and lobbying government for budgetary allocations
- To establish accountability
- To form social action for a fora for ensuring riparian rights of all are respected across the basin

4.1.4 Discussion

CSO focal point in West Africa and definition of a civil society in the management of trans-boundary river basins or aquifer needed to be clarified, as well as whether the riparian community concern, talking about Naivasha community, is taken into account.

East, West, South and North Africa have each a focal point. The focal point for West Africa is Ghana. A CSO is defined at grassroots level as any simple water system should have a voice and that voice is CSO. It can either be a CBO, NGO or any other grouping.

ANEW is not an NGO but a network. It is in the process of forming a focal point for Kenya. National issues can only be addressed by national; however, ANEW is collaborating with IUCN to address some of the issues.

4.1.5 Introduction to www.iwlearn.net and IW:LEARN technical Support to GEF IW Projects

Sean Khan, UNEP

IW LEARN is building a knowledge management infrastructure for GEF. UNEP aims at environmental knowledge to promote international cooperation, to keep under review every environmental situation and to promote acquisition and exchange of environmental knowledge.

UNEP catalyzes a distributed network of different organizations or partners, known as ecoMundus, through content syndication. Features of this tool that can be adapted for GEF IW projects include a project calendar that shows the plan and topic, a project database, and an omni search tool. Location of all

workshop documentation (agenda, participants, photos) can be found at http:www.iwlearn.net/abt_iwlearn/events.

4.1.6 Participant Discussion

More information on how to cope with infrastructure deficiency for accessing internet, ways to work together with the UNESCO ground water program, IGRAC, and methods to monitor the use of information in the network were given.

The toolkit developed by UNESCO gathers groundwater information. However, the website will need to be updated and this is possible: ecoMundus will be able to get the information coming through the IGRAC website. How to access internet is a challenge even in UNEP. There is not enough money to assist in project but UNEP through ecoMundus can assist to some extent in hosting websites.

WWW.IWLEARN.ORG is now set up to show all the information on documents recently accessed. Monitoring who downloads what is possible, but there is currently huge dependence on user feedback: registration is required prior to downloading the metadata, and this can easily be followed up. GEF IW Experience Notes are also available for sharing valuable information and experience, and GWP tool box has additional information on integrated water resources management.

4.1.7 Opportunities for Knowledge Exchange:

Leveraging Synergies through Cooperation and Collaboration among Projects and In Africa - The IW:Learn Perspective
Janot Mendler de Suarez (GEF IW:LEARN)

To improve this learning process, GEF IW LEARN is expecting proposals and commitments coming out of this workshop. It has the possibility to organize one additional workshop if the participants recommend it, and suggestions for regional activities are welcome for follow up planning.

Public participation is a pan-African concern. IW:LEARN has budgeted for regional public participation activities with the Environmental Law Institute. Perhaps it would be useful to work with INWENT to do two public participation activities? IW:LEARN can also support peer-to-peer learning exchange visits between projects. Proposals require a clear objective for the specific learning to be gained by one or both parties to the exchange visit, and , IW:LEARN will only fund travel for the proposed peer learning activities. For example, a learning exchange could be a mini-group replication of this workshop: river basin managers could get together and meet with an organization dealing with a common priority management issue.
The D-list (distance learning information sharing tool) is another knowledge-sharing mechanism in Africa looking for ways to foster communication between different groups and although based in the Benguela Current countries, is also looking for ways to bridge between coastal regions in Africa. Participation is open to anyone and you can join or sit in on thematic discussions or start your own discussion threads.

Also, IW:LEARN would like to support on-going networking among African projects. Participants should contact Sean Khan about setting up a regional roster of experts' database for African projects, give names and details of specialists in your project region that would be useful to know about and you would want to be in the database. We can set up a dedicated area for African networking, where you could send project outputs that you think would be useful to access for others.
IW: LEARN also maintains thematic e-lists for all of the GEF IW projects in each of the thematic groups: river basin projects, lake basin projects, aquifer/groundwater projects, and large marine ecosystem projects. These E-lists function for GEF and IW:LEARN to disseminate information, but can also be used by you to share useful information. It would be useful to have a regional calendar for Africa and projects should send updates for this calendar on a regular basis so everyone can see at a glance what is happening that is relevant to water resource managers in Africa.

4.1.8 Comments:

Mie Xie
This workshop also has another key objective: to agree on the subject for the next activity, which will be on specific aspects of public participation in water governance

4.1.9 Group Work:

The purpose of this group work was to come up with proposals to improve exchange of experiences and learning, to implement effective IW:LEARNing in Africa. Specifically, participants were split into 3 small groups and asked to discuss mechanisms, commitments, and indicators for proposed activities.

1.1 Tasks presentation

During 2 days and the field visit, participants had the opportunity to:
- discuss keys issues the different projects faced,
- share ways to address them
- share and benefit from lessons learned.

To benefit from others' lessons learned so as to improve and enhance projects performance, various means and ways for projects to keep in touch, to continue or enhance learning were presented.

TASK 1 (10 mn): In your group, discuss:
- *Is it worth continuing with sharing experiences?*
- *What would be the best way(s) to do this (mechanisms)*

Report in plenary:
- *your group's proposal*
- *the (appropriate or optional) mechanisms to implement it*

TASK 2 (45mn):
In your group, discuss :
- *What are the requirements to implement each mechanism*
- *How to assess the learning / follow-up progress (indicators …)*

Report in plenary :FOR EACH MECHANISM-
- *the commitment each project or participant could / should make*
- *the sharing of responsibilities that could be agreed upon*

4.1.10 Group Reports

TASK I:
The participants all agreed that it is worth sharing experiences and proposed some mechanisms to attain this goal: workshops, internet, newsletters, exchange visits …

TASK 2:

a) Group 1

Mechanism	Requirements	Indicators
Workshops	• Topic of the workshop • Funding for the workshop • Procuring of necessary services • Logistics	Number of degree of decisions made
E-mails	• Need a contact database	Number of responses to e-mail

	• E-mail facilities • ICT officers • Commitment to respond to e-mail	
Websites	• Webmaster • Hosting services	No of website hits

Topics of importance to be discussed in each of these mechanisms are:

- General topics
- Procurement procedures
- Project designs
- Financial management
- Communication
- Public participation

Clarification: Commitment to respond to e-mail means replying immediately or acknowledging receipt. This can be achieved by participants cultivating an e-mail culture or improving it. Indicator of this would be the number of emails received within a certain number of days for example. It was agreed one day to a week was a reasonable time for one to have responded to an e-mail.

b) Group II:

The mechanism this group proposed is Focus Workshops

Requirements:

- A budget: money is needed to cater for the travel expenses, accommodation and other workshop expenses
- Demand for the workshop: the workshop should address specific issues or concentrate on burning issues.
- Good structure for the meeting: this is to ensure that there is good interaction between participants
- Commitment of projects to participate

Indicators

- Achievements of measurable benefits depending on the goal of the workshop
- Improved delivery of project goals and outcomes
- Improved efficiency in project implementation

Projects commitment

Projects will prove their commitment by:

- Committing time to participate
- Allocating budget to participate in workshops
- Willing to share information and lessons learnt

This group focused mainly on workshops as it found it to be the key mechanism.

Comment: one of the participants did not agree with the workshop to be the most effective mechanism. In his opinion all mechanisms complement each other

c) Group III

Mechanism	**Requirements**	**Commitments**	**Indicators**
Internet	To be connected	availability of computers	Exchange between projects (reports) and results
Workshops	critical number of participants, facilitator, coordinators, interpreters, convenient and appropriate venue	Human resources	
News letters	Publication	publishing	materials to be published
inter project			

exchange visits			

Topic:
This group pointed out that sharing of information was important because every project had its areas of strength.

Clarification: the different strengths projects may have is known among the project staff not between the different projects but it can also apply. More, it would need evaluation which cannot be done at the workshop

4.1.11 Proposals from the Three Groups

a) In terms of mechanisms:

- All the three groups mentioned workshops as a mechanism to be used
- Two mentioned e-mail
- Two mentioned websites
- Newsletters, meetings and fora were only mentioned once
- Inter-project exchange was only mentioned once
- Website can continue to be used
- Workshops will happen sponsored by IW:LEARN, InWEnt and WBI
- Two more workshops were suggested however it would depend if there will be demand for the workshop therefore demand would decide how many workshops and topics would be developed and this through e-mail.

b) In narrowing topics for discussions for future workshops:

Topic for discussion	Number of votes
Public participation and awareness	13
Data management	12
TDA/SAP process	10
Integration of fresh and marine water	7
Project design, cycle and management, financial management and monitoring and evaluation	7

Comments:
TDA stands for Transboundary Diagnosis Analysis. It aims to identify environmental concern of an area then get all its stakeholders to identify the problem and prioritize them.

Project management, cycle and designs are more of training than a workshop. But that depends whether it is a general training or a specialized training for example GEF training.

4.1.12 Recommendations from Participants:

a) Workshops

- Ask IW:LEARN to get somebody to coordinate this process (organizing workshops and launching of process etc.);
- 80% of technical papers for workshops should reach organizers in about a month's time for selection and duplication
- a follow up workshop could require a feedback report before workshop
- agree on content of workshop before workshop, focus on a few topics
- the number of workshops after the current one should be demand driven and dependant on IW:LEARN.

b) Sharing of information and what one should do with that information:

- There should be a way that each project should outline what they have learnt and what they will do with the lessons and later give feedback on the changes in their projects brought about by the lessons learnt

c) Newsletters

On the issue of news letters, it was found that each project has its news letters. It was therefore suggested to :

- send them to IW:LEARN;
- Those who do not have newsletters should type out the news to IW:LEARN;
- IW:LEARN will publish news submitted in GEF IW Bridges

Another suggestion is that those with news letters should invite others to appear in their newsletters

d) Inter project exchange

- For inter project exchange, a project that is keen to invite another project can approach IW:LEARN for financial support if necessary.

Comments

IW:LEARN could assist in follow up, strengthening the process as a support service for the projects
IW:LEARN will have two more workshops (in 2007 and 2008).
The experience note on the IW:LEARN website is for every participant to write which IW:LEARN believes may be useful for another project. Funding for a project may even be tagged to this.

4.1.13 The Way Forward From GEF IW:Learn and InWEnt

a) IW:LEARN

Participants identified the following topics for learning exchange proposals:

- Communication strategies
- Project management
- Fresh and marine waters

IW:LEARN ask projects / participants to:

- Express demand as, concerning project management, training will depend on demand.
- Encourage African projects to highlight major successes during the GEF international conference to be held in 2007 in South Africa
- fill in forms on who they would like to partner with and the reasons why for learning exchanges

IW:LEARN will:

- Provide aspect of IW:LEARN IT and services to link to other resources and partners
- Create an Africa networking page on the IW: LEARN website
- In partnership with INWENT, support a GEF learning project on water resource management relating to IWRM, water governance, infrastructure, investment decisions, etc.
- This project aims to also address TWRM at the parliamentary level. Project managers can assist in identifying people in leadership positions who could engage parliamentarians in learning about issues relating to transboundary basins.

There may also be opportunities for technical learning exchange and twinning between North American and African lake basins.

b) INWENT

INWENT will organize, next year, a workshop for participants of different basins to learn from and teach each other. InWEnt requires from the participants to:

- define the topics and the focus of the workshop next year. Inputs of next years workshop will include issues covered in this workshop
- set the bench marks and indicators
- Participants are the resource persons

INWENT will

- partner with IW:LEARN, GEF and WBI
- resolve the issue of language barrier
- put all presentations on IW:LEARN website
- set up a photo gallery in the website

The final word has been given by Mei Xie, from the World Bank Institute. She attributed the success of the workshop to the participants, and found the workshop enlightening.

Ousmane Diallo, from Niger Basin GEF funded project invites IW:LEARN to assist to the project steering committee meeting in Ouagadougou in December 2006.

CLOSURE OF WORKSHOP

5 Appendices

5.1.1 Appendix 1: Agenda

Strengthening Transboundary Water Resources Management in Africa

GEF IW: Learn Activity B 1.2

1st Pan-Africa Structured Learning Workshop, 30 Oct to 2 Nov 2006, Nairobi

Workshop Agenda

Sun 29th		Participants arrive in Nairobi (Safari Club Hotel, Nairobi)	InWEnt
	from 5 p.m.	Registration. Briefing Dinner will be announced upon arrival at hotel lobby	

Mon 30th	***Conference Venue: UN Complex Gigiri, UNEP Conference Room Three***	
9.00 h	**1 Official Opening and Welcome** Representatives from UNEP, WBI, GEF-IW:LEARN, InWEnt	UNEP, GEF, WBI, InWEnt
9.40 h - 10.15 h	Workshop Orientation: Facilitation team: objectives, expected outputs, agenda, methodology, participants introduction to each other	
	Tea	
10.35 h	2 **Keynotes** • GEF IW:LEARN activities to strengthen transboundary water resource management in Africa (GEF IW:LEARN) 20 min • IWRM principles (WBI) 20 min	Janot Mendler de Suarez Mei Xie
	3 Effective Sharing of Experiences and Networking	
11.10 h 12.00 h	• Elements of structured learning (45 mins) • Expectations for IW:LEARNing in Africa (30 mins)	Plenary and buzz groups
12.30 h	*Lunch*	InWEnt team
	4 African Experiences and Key Lessons Learnt	
13.15 h	• Transboundary Water Management in Shared Aquifer Systems (20 mins) • Transboundary WRM in West Africa - Case presentation (NBA) (20 mins) • Transboundary Cooperation – Case presentation Senegal River (OMVS)	Abdel Kader Dodo Ousmane Diallo Toumany Baro
	Tea	
14.15 h 14.40 h	• Transboundary basins in Central & Northern Africa - Case presentation (Nile) (20 m) • Transboundary basins in East Africa – Towards Integration (GWP-East Africa) (20 m) • Benguela Current LME • Guinea Current LME	John Omwenga Simon Thuo Lesley Staegemann Jaques Abe & Parcy Abohweyere
	Evening Reception at the UNEP recreational centre, UN Complex *Return to hotel by approx. 22 h (flexible)*	
18.00 h		

Tue 31st 8.30 h	**5 Implementing IWRM Principles in a Transboundary Context** • Feedback form Day 1 (15 mins) • Introduction of Day 2 programme (5 mins) • Freshwater vulnerability in Africa (UNEP) (20 mins) • Agulhas Somali Current LME (25 mins) • Transboundary Cooperation in Southern Africa (UWC) (20 mins) • "Good Practices" from case studies in other parts of the world (WBI) (20 mins) • Lake Manzala Engineered Wetland (15 mins)	Participants Salif Diop Anthony Ribbink & Peter Scheren Eberhard Braune Mei Xie Dia El Din El-Quosy
10.10 h 10.30 h	*Tea* • "Lessons learnt" from case studies (facilitators) : Introduction to a structured discussion and reflection, add in points from the boards in plenary, buzz groups and introduction to group work.	InWEnt team Plenary, buzz groups
12.30 h 13.30 h	*Lunch* • Group-work task introduction: Development of strategies to address key issues in TWRM (e.g. stakeholder participation; water governance; shared water benefits; cross-cutting issues: environmental flow, health, HIV, etc.)	Group work; plenary
16.00 h 17.15 h 17.30 h 19.00 h	• Presentations by groups (20 mins x 4 grps) • Introduction to the technical site visit (15 mins) *Return to hotel by bus* *Dinner at hotel at your leisure*	discussion Participants Facilitators
Wed 1st Nov 7.00 h 21.00 h	**6 IWRM Technical site visits** *Objectives: Learn about conflicts and trade-offs in implementing IWRM at micro-basin level* - Lake Naivasha: Water governance challenges towards implementing IWRM (organised by the Kenya Wildlife Service, KWS-Training Institute Naivasha; - Geothermal energy production in the Rift Valley (KenGen) *Dinner – Aangan Restaurant, Nairobi on the way back from Naivasha* *Return to hotel*	InWEnt with partners in Kenya
Thu 2nd 8.30 h	**7 Synthesis: Implementing Effective IW:LEARNing in Africa** • Reflection and feed-back from field trip – buzz groups (30 mins) • Climate Change and its Implication for Water Resources Management (WBI) (30 mins) • Civil Society in Transboundary Water Management (by ANEW) • Introduction to www.iwlearn.org and support to projects (30 mins)	Participants Habiba Gitay Kariuki Mugo Sean Khan
10.15 h 10.40 h	*Tea* • Opportunities for knowledge exchange leveraging synergies through cooperation, and collaboration among projects and in Africa – the IW:Learn perspective (15 mins) • Participants to discuss (in groups) mechanisms, commitments, Focal Points & responsibilities to promote the following potential avenues for learning & knowledge exchange: - Networking – e.g. calendar, website, e-dialogue, newsletter etc	Janot Mendler de Suarez Group work

12.30 h 13.30 h	- Workshops - Informal consultations - Partnerships *Lunch*	Participants
15.30 h	• Results form groups on recommendations, commitments and next steps • Response from GEF IW:Learn & InWEnt on the recommendations • Completion of workshop evaluation form **8 Closing remarks by the Executive Director UNEP and IW:LEARN**	UNEP
Fri3rd	*Departure*	I

5.1.2 Appendix 2: Participant List

List of participants - GEF IW:LEARN Structured Learning Workshop on Transboundary Water Resource Management
1st Pan African Workshop held at UNEP Complex, Nairobi from 30 October - 2 November 2006

No	Name	Surname	GEF Project	Organisation/ Institution	Position / Function	Proffession/ Educational Background	Tel	Email	Address
1	Jean Patrice	Jourda	Joint Mgt of Coastal Aquifer System of the Gulf & Guinea	University of Cocody, Ivory Coast	Professor	Dr. Sc. Hydrogeologist	+225 22420345 22522445 270	jourda_patrice@yahoo.fr patrice.jourda@gmail.com	University of Cocody, ABIDJAN/ UFR-Strm/22 BP 582 ABIDJAN 22
2	Johnson	Kitheka	West Indian Ocean WIO-LaB Project	UNEP/GEF WIO-LAB Project Management Unit, UNEP		Hydrology and Oceonology	+254 207621248	johnson.kitheka@unep.org	P.O Box 47074, Nairobi
3	Peter	Scheren	West Indian Ocean WIO-LaB Project	UNEP/GEF WIO-LAB Project Management Unit, UNEP	Project Manager	Environmental Management	+254 207621270	peter.scheren@unep.org	P.O Box 47074, Nairobi
4	Tamiru	Alemayehu	Ground Water Vulnerability Mapping of Urban Water Supply Aquifers	Addis Ababa University, Ethiopia	Professor	Hydrogeology	251 911227720	tamalem@geol.aau.edu.et	Addis Ababa Univ, P.O Box 1176, Addis Ababa Ethiopia
5	Ms. Parcy	Abohweyere	Guinea Current Large Marine Ecosystem	Nigerian Institute for Oceanography and Marine Research	Chief Research Officer	Fisheries Socio-Economist	+234 18930749 or +234-1-802-300-6855	parcyochuko@yahoo.com	Wilmont Point Road Bar-Beach P.M.B 12729, Victoria Island Lagos, Nigeria
6	Dia El Din Ahmed Hussein	El Quosy	Lake Manzala Engineered Wetland Project Egypt EGY 93	National Water Research Centre	Deputy Chariman (former); Project Manager	PhD Irrigation, Drainage and Water Management	+00202 - 5212176	lmewp@menanet.net	34 Nirco East Degla, Flat 11-Maadi, Cairo

7	Kouassi Joseph	N'Guessan	Reversing Land & Water Degradation Trends (NBA)	Niger Basin Authority	Head Operation Division	Civil Engineer	+227 20723102 +227 20315239	jnguessan@abn.ne	NBI, P.O Box 729 Niamey, Niger
8	Ousmane Soulemaney	Diallo	Reversing Land & Water Degradation Trends (NBA)	Niger Basin Authority, Executive Secretariat	Regional coordinator GEF Project; Shared Visions Officer	MSc Water and Environment	+227 20316315	osdiallo@abn.ne	NBI, P.O Box 729 Niamey, Niger
9	John	Omwenga	Nile Transboundary Environmental Action Project (NTEAP)	Nile Basin Initiative (NBI)	Water Quality Lead Specialist	Chemist, Water Engineer	+24 9183784206	johno@unops.org	P.O Box 2891 Khartoum, Sudan
10	Toumany	Baro	Projet de Gestion des Ressources en Eau et de l'Environnement du Bassin du Fleuve Senegal	Organisation Pour la Mise en Valeur du Fleure Sénégal (OMVS)	Expert Régional en gestion de Ressources en Eau	Ingenieur Hydrotechnicien	Tel: +0221 842 87 71	toumany.baro@omvs.org; ttbaro@yahoo.fr	46, Rue Carnot - BP 3152; Dakar, République du Sénégal
11	Ms. Lesley Ann	Staegeman n	Benguela Current Large Marine Ecosystem Programme	BCLME, UNDP-GEF	Director; Activity Centre for Environmental Vulnerability (EVAC)	Marine Biologist	Tel: +27 21 4023418	bclmeevg@deat.gov.za	Envinmental Variability Activity Centre, c/o, MCM Private Bag X2, Roggebaai, 90
12	Jacques	Abe	Guinea Current Large Marine Ecosystem	GCLME/UNIDO	Environment Expert; Assoc.Professor	Oceanography, PhD	Tel: +233 21781225 or +233-243630649	jacquesabe@yahoo.com or j.abe@gclme.org	1 Akosombo Str. Airport Res. Area, PMB CT 324 Accra, Ghana
13	Anthony	Ribbink	for: Agulhas Somali Currents Large Marine Ecosystems	Southern African Institute for Aquatic Biodiversity. Progamme Manager	Programme Manager	Aquatic Scientist, PhD	Tel: +27 466 035830	a.ribbink@ru.ac.za	South African Institute for Aquatic Biodiversity, P/Bag 1015, Grahamstown
14	Ebernard	Braune	UNEP/UNESCO Africa Groundwater	University of the Western Cape	Professor	Hydrologist	+27 21 8033527	ebraune@uwc.ac.za	15 Murray Park, 269 Glaudina Road, Murray Field, Pretoria, 0184

			Initiative						
15	Yaw	Opoku-Ankomah	Addressing Transboundary Concerns in the Volta River Basin and its Downstream Coastal Areas	CSIR - Water Research Institute	Director (Ag)	PhD. Hydrologist	Tel: +233 21775476	vrbp@africaonline.com.gh	P.O.Box KD 485, Kanda, Accra, Ghana
16	Moham med	Bila	Reversal of Land and Water Degradation Trends in the Lake Chad Basin Ecosystem	Lake Chad Basin Commission		BSc Geology, Hydrologist, PGD Comp.Scienc e	Tel+ 235526925	mohammedb@unops.org	Chad
17	Abdel Kader	Dodo	Managing Hydrogeologic al Risk in the Ilullemeden Aquifer System (SAI)	Observatory of the Sahara and the Sahel (OSS)	Regional Coordiant or, IAS Project	PhD. Hydrogeologi st	Tel: +216 71206633	abdelkader.dodo@oss.org.tn	Observatory of the Sahari and Sahel Bd du Yasser Arafat Bp 31, 1080, Tunis
18	Ms. Hajaniri na	Razafindrai nibe	Agulhas Somali Currents Large Marine Ecosystems; Inwent trainer/ moderator	Service d'Appui a la Gestion de l'Enviromement (SAGE)	Marine Resource s Managem ent Expert	Marine Biologist	Tel: +261 202268157	hajanirina.sage@blueline.mg	Madagascar
19	Harrison	Ong'anda	South West India Ocean Fisheries Project	Kenya Marine and Fisheries Resource Institute	Research Officer	Marine Ecologist, GIS Specialist	Tel + 254 41475157	honganda@kmfri.co.ke	P.O Box 81651, Mombasa
20	Imasiku	Nyambe		IWRM Centre School of Mines University of Zambia	Coordinat or for IWRM; Assoc. Professor	Hydrogeologi st, Sedimentolog ist	Tel + 260 294086	imasikunyambe@yahoo.co.uk or inyambe@mines.unza.zm	University of Zambia, Geology Department, P.O Box 32379 Lusaka
21	Munyao Muthuka	Musyoki	Challa-Jipe Ecosystems in Pangani Basin	Coast Development Authority	Head Water Departme nt	Hydrogeologi st	Tel +254-041222440 6 or 072 464350	cda@cdakenya.org or musyoki@cdakenya.org	P.O Box 1322-80100, Mombasa, Kenya

22	Alex	Simalabwi		Global Water Partnership GWP Southern Africa	Regional Project Manager IWRM Planning	Civil Engineer	Tel +27 128459139	a.simalabwi@cgiar.org	141 Cresswell Street, Weavind Park, 0184, Pretoria
23	Simon	Thuo		Global Water Partnership GWP-Eastern Africa	Regional Coordinator East Africa	Civil Engineer	+25641 321424	sthuo@nilebasin.org	c/o Nile Basin Secretariat, P.O. Box 192, Entebbe, Uganda
24	Sean Andrian	Khan	UNEP IW:LEARN task manager	Division of Early Warning and Asseesment, UNEP	Taks Manager		Tel +254-20 62 3271	sean.khan@unep.org	P.O. Box 30552, Nairobi
25	Ali	Mohamed	NEPAD	Coastal and Marine Secretariat, NEPAD	Regional coordinator		Tel: +254 20 273338	ali@nepadkenya.org	Liaison House, State House Avenue, P.O.Box 62084, 00200 City Square, Nairol
26	Ms. Janot Reine	MENDLER de Suarez	GEF IW:LEARN	GEF IW:LEARN	Deputy Director and Project Coordinator		Tel: +1508 3585204	janot@iwlearn.org	139 Rice Road, Wayland, Massachusetts, USA
27	Ms. Mei	Xie	GEF IW:LEARN	World Bank Institute	Senior Water Resources Management Specialist	Water Resources Management	Tel: +2024 588851	mxie@worldbank.org	1818 H Str. NW. Washington DC,20433
28	Thomas	Petermann	IW:LEARN PAL Project Activity Leader - Activicity B 2.1	InWent-Capacity Building International, Germany	Senior Programme Manager, Environment and Natural Resources	Land and Water Management, PHd	+49 (0) 33 202 845-202	thomas.petermann@inwent.org	InWent Zschortau, Lindernstr, 41, 04519 Rackwitz, Germany
29	Anton	Earle	Inwent trainer/moderator	Africa Centre for Water Research	Director; Inwent trainer and moderator	Water Resources Management	Tel: +27 21 4244821	antonearle@acwr.co.za	47 On Strand, Cape Town, 8001, South Africa www.acwr.co.za

30	Fred	Lerise	Inwent trainer/moderator	University College DAR, UCLAS; Consulting Environment and City Planners CECP	InWEnt Trainer and Moderator; Director CECP	Land Use and Rural Development Planner	Tel + 255 754826899	lerise@uccmail.co.tz	Tanzania
31	Nathaniel	Mjema	Inwent trainer/moderator	Baobab Consulting and Training	InWEnt Trainer and Moderator; Development Planner and OD Coach	Development Planner	Tel+255 272 643623 or +255 787386325	nmjema@hotmail.com	Box 746 Tanga, Tanzania
32	Ms. Poziswa	Manyase		Africa Centre for Water Research	Office Manager	Public Mangement and Law	+27 21 424 4738	poziswa@acwr.co.za	47 On Strand 3rd Floor, Room 303, Cape Town South Africa
33	Ms. Waithera	Gaitho	UNEP	Division of Early Warning and Asseesment, UNEP	UNEP Intern	International Studies		cgaitho@yahoo.com	P.O. Box 30552, Nairobi 00100, Kenya
34	Patrick	M'mayi	UNEP	Division of Early Warning and Asseesment, UNEP	Programme Assistant		+254-20-623905	patrick.mmayi@unep.org	

Day visitors and resource persons

35	Thomas	Chiramba	UNEP	Dams and Development Project, UNEP	Project officer	Civil Engineer	Tel+254-20 762 4769	thomas.chiramba@unep.org	UN
36	Salif	Diop	UNEP	Division of Early Warning and Asseesment, UNEP	Head, Ecosystems Section		+254-20 7622015	salif.diop@unep.org	P.
37	Emmanuel	Naah	WIO-LaB Project	UNESCO	Regional Hydrologist	Hydrologist		e.noaah@unesco.org	UN Na
38	Konrad	von Ritter	GEF IW:LEARN	The World Bank Institute (WBI)	Sector Manager Environmentally and Socially Sustainable Development		Tel: 202-458-0477	kritter@worldbank.org	
39	Ms. Habiba	Gitay	GEF IW:LEARN	The World Bank Institute (WBI)	Consultant "Climate Change Implications for Water Resources"			hgitay@worldbank.org	

40	Kariuki	Mugo	*through AMCOW*	African Civil Society Network on Water and Sanitation (ANEW) Coordinator; Maji na Ufanisi (Water and Development);				kariuki.mugo@majinaufanisi.org	P.
41	Nancy	Githaiga	*through AMCOW*	African Civil Society Network on Water and Sanitation (ANEW) Coordinator; Maji na Ufanisi (Water and Development);				nancy.githaiga@majinaufanisi.org	P.
42	Raphael	Otiena	UNEP	Division of Early Warning and Asseesment, UNEP	Programme officer				P.
43	Olivier	Deleuze	GEF Coordinator	Division of GEF Coordinator	Coordinator		Tel: +254 20 7624686	olivier.deleuze@unep.org	P.