

# PROJECT REPORT

## WORKSHOP

### BRIDGING RESEARCH, TECHNOLOGY AND DEVELOPMENT: SUSTAINABLE WATER RESOURCE MANAGEMENT IN EASTERN AFRICA



4<sup>TH</sup>-8<sup>TH</sup> DECEMBER 2006

TIWI BEACH RESORT, MOMBASA - UKUNDA, KENYA

#### ORGANIZERS

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## 1. SUMMARY

1. The EAWA workshop was held at the Tiwi Beach Resort from 4 – 8<sup>th</sup> December 2006. It was attended by more than 130 participants drawn from Kenya, Uganda, Tanzania, Zambia, Burkina Faso, Cape Verde, Ethiopia, Sudan, Austria, France, Germany, The Netherlands, and the United Kingdom. The chief guest was His Excellency Mr. Roland Hauser, who is the ambassador of Austria in Kenya.
2. The sponsors of this workshop were the Africa Water Facility (AWF) and the Austrian Development Agency (ADA). The organizers of the workshop were the Eastern Africa Water Association (EAWA), Africa Water Facility (AWF), Egerton University, and the Austrian Academy Sciences.
3. The main theme of the workshop was to bring forth research application and reduce the gap between research and development.
4. The structure of the workshop included acquiring knowledge from experts through plenary presentations, discussions and also excursion visits. The aims and activities formulated for this workshop therefore brought forth a nouvelle conceptual model which focuses on an inclusive approach where all stakeholders are involved in the translation of research findings to development processes in Eastern Africa.
5. After discussions and comments from the participants, the following five key issues, some of which were cross cutting, were found to be of great concern to the people of Eastern Africa.
  - **Appropriate/demand driven research**  
Research ideas should be multidisciplinary and originate from the needs of the community who are the key stakeholders. However, appropriate research is not only demand-driven by the user communities, but the researchers must also give necessary information to guide the community.
  - **Information and communication**  
Research findings should be communicated to the stakeholders in a well packaged manner through translation in understandable language targeting the end-users.
  - **Resource mobilization**  
Successful and appropriate research requires mobilization of human capacity for research, capital facilities and the budgetary allocations.
  - **Monitoring and Evaluation**  
For quality management and tracking of the impact of research, continuous evaluation through establishment of independent body should be mandatory.

- Policy Integration

Policy guidelines should be established through involvement of all the stakeholders and disseminated to the users for the proper management and utilization of the resources. This reduces conflicts and misunderstandings on common/shared and transboundary resources.

6. This workshop report emphasizes future research priorities, where research gaps have been identified, knowledge dissemination approaches refined for application and improvement of the livelihood of the people in the region.

## 2. INTRODUCTION

Population growth and exponentially increasing resource demands are typical features of the East African region and an enormous challenge for the sustainable management of water resources. Water resources and ecosystem services have become consequently limiting factors, however, technological solutions, which have been implemented in developed countries successfully, are frequently not suitable in the East African context. Therefore, there is a strong necessity that East African countries develop locally adapted knowledge and strategies for the management of water resources. East African research institutions are providing knowledge and know-how to society, however, the high demand for innovation and improvement of livelihood can not be fulfilled.

The East African region shares common problems in the sustainable management of water resources. Highly diverse climatic conditions, reaching from humid to arid areas, combined with strong seasonal patterns are distinctive features of the East African region. In recent years, climatic conditions are reported to have changed towards more pronounced extreme values and increased stochasticity. As a result, water resources are becoming heterogeneously distributed both at the spatial and temporal scale. At the same time, the demand for freshwater resources is exponentially rising in Eastern Africa, due to the enormous population growth. However, technical solutions applied in developed countries successfully, are frequently either not suitable or sustainable. Therefore, there is a strong necessity that East African countries develop locally adapted strategies for the management of water resources.

The overall goal of the workshop was to improve the impact of research and technology towards efficient support of public development efforts in Eastern Africa, within the thematic area of aquatic ecosystem resource management. The project goal was achieved by initiating a communication and cooperation process of East African stakeholders and policy makers at various levels. Interlinkages between knowledge producers, knowledge users and policy makers fostered participatory innovation-oriented networking (ensuring coupling of science-push and demand-pull). This innovation approach to research provides the conceptual basis for defining future research priorities/policies; improving both the livelihood of people and targeting sustainable environmental management strategies in order to provide resources and options for future generations. The project has been initiated by East African research institutions and the organizational structure ensures that East African stakeholders are in the “drivers-seat” from project planning, till dissemination phase.

East African institutions dealing with higher education and research are facing challenges at several levels such as policy and funding, management structures, scientific output, quality of educational programmes, brain-drain, linkage with society, politics and economy. However, these institutions, together with the local stakeholders, implementing agencies and policy

makers report on limited availability of suitable expertise, innovations, and adequate problem-solutions. One hypothesis for this inadequacy is that research are financed and done on topics which are chosen and supported by donors and therefore their output and applicability have limited relevance to the local needs. Thus “intellectual capital” is crucial to empower developing countries and provide competitive advantages at globalised markets for goods and services; ensuring economic growth, employment, social security and environmental sustainability. The central question is: how can research and technology contribute most efficiently towards poverty reduction and sustainably improve the living standards of the East African people?

The workshop aimed at bridging research and technology towards the efficient support of public development efforts in Eastern Africa. The overall goal of the workshop focussed on strategies to upgrade the livelihood of East African people via sustainable management of aquatic resources and services. The workshop interlinked relevant stakeholders, policy makers and donors in order to orientate research efforts towards regional demands and to support regional policy planning processes.

The objectives of the workshop were:

1. to develop strategies to enhance the impact of research and technology towards sustainable management of aquatic resources;
2. to impart knowledge for strengthening the capacity of stakeholders in developing and implementing collaborative action plans and extension projects; and
3. to identify approaches for supporting policy development and implementation.

To achieve the above objectives, three categories of strategies were identified as follows:

- Strategies to enhance the impact of research
- Strengthening capacities of the stakeholders
- Supporting policy development and implementation

### 3. STRATEGIES FOR THE ENHANCEMENT OF RESEARCH IMPACT

#### 3.1 Promotion of Participatory research

The involvement of all stakeholders in research through Community Action Plans is necessary to ensure ownership and sustainability of development initiatives. Ideal participation should involve every member of the community irrespective of gender, socio-political and economic status, geographical or other considerations. There is also need to jump start the communities in order for them to realize that they have the potentials and freedom to identify and seek solutions to their own problems. Some of the challenges facing participatory research are:

- a) Sustainability of the projects, especially after the withdrawal of donors.

- b) Community acceptance and ownership of the projects for their common good.
- c) Prioritization of community needs based on their vision.
- d) Existence of community divides in terms of gender, ecological, economic, religion and political aspects.

### 3.2 Promotion of Trans-disciplinary research

Trans-disciplinary research involves going beyond areas of specialization as opposed to between disciplinary areas which entail interdisciplinary concepts. Elements included in transdisciplinary research are partnership, vertical and horizontal scaling and participatory action research among others. The solutions to the challenges that will be confronted in applying trans-disciplinary concept in research include the application of techniques such as soft skills, empathy, ability to manage conflicts, application of philosophy of science, communication and mediation techniques, and participatory methods. There is therefore need to reorganize research to meet the communication gaps in science, strengthen scientific project management and capacity for utilization of locally available resources.

### 3.3 Communication: Repackaging of information

Constraints in research information flow and exchange for development do exist. These include, among others, inadequate information gathering strategies leading to poor information availability and knowledge gaps between specialists and research end-users. Therefore communication strategies need to be in place to address these challenges through fostering an integrative approach between researchers and other stakeholders. Furthermore, research findings should be communicated to the community in a well-packaged form which can be understood by the end users. This may involve translating the results into local languages as well as using other modes of communication such as videos, posters and drama. To aid in information dissemination, there is need for creation of data inventory and information centres which should be accessible to all.

### 3.4 Sensitization and marketing research findings

Effective marketing of research results is essential for both the scientists and the end users to know and understand the research activities taking place. Marketing approaches which should be used involves formal mechanisms such as information outreach (media high lights, workshops and appropriate public gatherings among others). The formation of independent advisory groups, commissioned work or policy task forces and the involvement of wider society in discussing research related issues may also contribute to the enhancement of sensitization. In addition, strong advocacy to encourage stakeholder participation should be enhanced to build trust among all stakeholders. The undertaking of all these approaches should be guided by patience and sensitivity, communicating effectively with concise and non-technical packaging of the information by the researcher to the end users.

### 3.5 Demand driven research

For development to take root, the end users must have a vision which is guided by their overall needs. They should be able to identify and prioritise these needs. In some cases, there is need to jump start the end users in order for them to know that they have the potential to develop themselves.

It is important to note that many communities have a dependency syndrome, and high expectations from the development partners, researchers and the administration. Lack of involvement and participation by any of the above stakeholders may result to project failure. Therefore, there is need to work with the end users and not for them; since working for them perpetuates dependency. Despite the need for external resources, they should be directed to support immediate end user needs.

### 3.6 Prioritisation of research needs and resource allocation

Research activities in Africa have been hampered by low budgetary allocation and uncoordinated research activities by governments. There is need to allocate adequate operational budget for focused research through mobilization and optimization of locally available resources. However, priority should be given to action-oriented research aimed at solving immediate problems especially those related to water utilization and conflicts emanating from water and water based resources that are persistent in Africa.

Funding structures should be established through diversification of internal and external sources. For example the use of water fees downstream to finance conservation activities upstream, compensation mechanisms for people who protect the ecosystems, that is, plough back money generated from the resources to benefit all the stakeholders in the water shed. In addition, there is need for allocation of resources for institutional capital investments and human resource capacity to carry out research and technological regulatory activities on the appropriate use of water and water resources.

### 3.7 Training and capacity building for integrated skills

There is lack of proper institutional framework for research in most institutions in Africa. As a result most of the researchers lack integrated skills for formulation and implementation of research, and dissemination of research findings. Most researchers have academic background which focuses on research publications as the benchmark for their success, thus weakening their integrative skills. Their research does not therefore address the 'real world' needs. However, for the researchers to have reasonable impact through their research outputs, they should apply integrative research approaches. Towards this end, institutions of higher learning and middle level colleges should design programmes on integrated research management in their curricula. These programmes should target training of skilled facilitators



and young scientists to strengthen the capacity for researchers whose research output would impact positively on the livelihood of the East African people.

### 3.8 Monitoring and Evaluation

Most projects do not have the element of monitoring and evaluation and as such there is uncertainty of quality of the research findings. Monitoring and evaluation of the projects is necessary in all the research phases and should include feedback loop for follow-ups and supervision with clearly defined targets, milestones and deliverables. Therefore, there is need to identify the indicators for tracking research impacts, incorporate monitoring and evaluation in all project phases, and to intensify the link between monitoring and strategic budgeting.

## 4. STRENGTHENING CAPACITIES OF THE STAKEHOLDERS

Strengthening stakeholder capacities covers a wide scope which includes networking, information dissemination, training, empowerment and gender mainstreaming. All these are targeted towards actualization and application of research findings. However, information from most research projects is not only inaccessible and scattered, but also in versions which are not user friendly. To ensure smooth and efficient implementation of research findings, information exchange and dissemination mechanisms are necessary in capacity building at different levels of stakeholders. Since institutions of higher learning are mandated to generate, store and disseminate information, the establishment of resource centres within them will enhance accessibility of information for sustainability. In addition, other strategies that may be employed to strengthen capacities of stakeholders may include networking/co-operations, gender considerations, capacity building and resource mobilization and integrated research projects management.

### 4.1 Networking and co-operations

Networking and co-operation between stakeholders is essential for the success and sustainability of projects and programmes. Such co-operations will enhance the exchange of expertise, technologies and diversification of funding which are crucial ingredients for development. However, interactions between stakeholders in most research projects are normally poor due to knowledge disparities, societal divides, lack of institutional policies and lack of opportunities for such interactions, among others.

Internal and external partnerships between governments and private sectors play an important role in enhancing resources management and sustainability of projects and programmes. These interactions could be public-government, private-public and/or public-private-government partnerships, especially under the North-South and South-South Dialogues. This calls for establishment and strengthening of national, regional and

international associations through networking researchers, communities and other professionals.

#### 4.2 Gender considerations

Most research undertakings have failed due to lack of consideration of stakeholders characteristics which are usually divided on the basis of gender, ecological, religious, economic and tribal. Gender mainstreaming is necessary for sustainable management of resources. Therefore mechanisms should be established to address issues hindering gender equality/equity in participation, diversification of resources/income generating activities, enhancing women education to improve livelihood and conservation among others. In addition, other stakeholders' education and training in governance is necessary to bridge gender divide at all levels.

#### 4.3 Capacity building and resource mobilisation

There is need for mobilization of human resources in terms of time, material and creation of innovative ways of generating funds such as the establishment of community-based micro-finance schemes. This can be achieved through enhancement of the stakeholders' entrepreneurial and financial management skills to improve their economic status. Stakeholders exchange visits, field days, and extension services are appropriate means to achieve the above goals. Facilitation in physical planning and streamlining of management structures need to be incorporated in the design of research projects to enhance adoption and ownership of projects by the communities. To enhance ownership, there is need to create forums for exchange of information through discussion forums, exhibitions, brochures and fliers, workshops and conferences, technical reports, newsletters, radio and television coverage, newspapers and T-shirts, among others.

#### 4.4 Integrated Research Project Management

Stakeholders' involvement in formulation and implementation of research projects enables them to realise and conceptualise the problems facing them and be part of the solution seekers. Such involvement requires integrated decision making and problem solving geared towards re-orientation and generation of a new sense of living. This can be achieved through integrated management of programmes and projects by designing and implementing research programmes/projects which have interdisciplinary and transdisciplinary approaches. This calls for training of researchers in skills of integrated research project management.

## 5. SUPPORTING POLICY DEVELOPMENT & IMPLEMENTATION

In many African countries there is little evidence that policy development benefits from research findings, mainly due to poor linkages between the researchers and policy makers. Research may influence policy on issues where consensus exists among experts, issues without strong moral dimensions, high political costs and high public interest, or where the power of interest groups and advocacy is limited and where the policy makers have trust with the involved institutes.

Policy research is required to assist the policy makers to make better policy choices so as to achieve the desired outcomes. For this to be realistic, researchers must correctly understand and interpret the needs and agenda of the policy makers. Researcher should provide guideline information, state the research problems and suggest ways of solving these problems; then persuade the policy makers to support or oppose the existing proposal by offering concrete specific benefits of the research proposal. To enhance the role of research in supporting policy development and implementation, the following strategies are proposed.

### 5.1 Participation of stakeholders in research policy development and implementation

All stakeholders should be engaged early enough starting from the conceptualization of research problem, proposal writing, implementation and evaluation of research findings. Stakeholder participation builds trust and ownership in the research findings. Multi-disciplinary research teams are necessary in order to integrate sectoral needs into the research agenda.

In cases where policies exist, their implementation tends to be poor leading to low impact on the livelihood of communities. In order to realise the impact of existing policies, a strong management authority is necessary. This authority should be characterised by strong political will, competent and appropriate capacity, public recognition and support of the authority, and the determination of the authority to perform its regulatory role and enforcement.

The key question however is: Why is there little impact of research on policy development and implementation? This could be attributed to the proliferation of non-demand driven academic research, perceived low researchers' credibility, trust, accountability and inclusiveness, which are critical ingredients in promoting the linkage between researchers and policy makers. Other reasons include politicization of research issues which results to poor research prioritization and funding.

A further challenge is the limited feedback mechanisms between policy makers and researchers. Therefore communication between researchers and policy makers needs to be

enhanced through multidisciplinary and transdisciplinary stakeholder meetings. In addition, there is need to make research more focused on immediate end user needs (demand driven).

## 5.2 Linking researchers and policy makers

Linking researchers and policy makers is one of the major steps necessary for the understanding, interpretation and implementation of research findings. This linkage, however, tends to be poor due to inadequate communication of research findings to policy makers and lack of knowledge by the researchers on the type of information required by the policy makers. This challenge can be minimized through engagement of policy makers in dialogue, intensively and effectively marketing research findings (out reach programmes), and repackaging of information through translations and simplification of research findings into understandable appropriate manner (policy briefs) for the policy makers. Also the provision of accurate and timely information to policy makers will enhance reception and internalization of the results.

## 5.3 Promotion of policy-oriented research and research-oriented policy

In order to make use of research findings in policy development or review, there is need to develop policy-oriented research. This would involve promoting country owned and driven research agenda embedded within a clear national and institutional research framework. There is strong need to empower the end users through awareness creation, lobbying and advocacy where their interests are not being catered for. This will also involve setting up research priorities and allocating adequate resources towards meeting these priorities.

Research oriented towards policy formulation is uncommon due to inadequate capacity and unfocussed research. Explicit effort should be made to focus research on the likely future needs in policy thereby securing the future by developing intervention measures. This can be solved through strengthening of appropriate legal and institutional framework by training and networking of stakeholders.

## 5.4 Policy harmonisation/integration

In situations where management of resources overlap different sectors, or shared between communities or nations, conflicts may arise if no proper harmonisation of policies is made. There is, therefore, need to harmonise the policies for trans-sectoral resources which should involve all stakeholders. For the trans-boundary resources, corporate arrangements should be made to cater for national interests. However, states will only co-operate if the shared vision, and the perceived benefits outweigh the costs of investing in that co-operation.

### 5.5 Dissemination of research developed policy

Poor research-policy information transfer contributes to the poor implementation of the policies. To enhance linkage between research, policy and development, there is need to develop linkage models such as agency outreach through workshops in which the government, industry, academia and the policy makers discuss issues that impact on the livelihoods of end users. To have more influence on policy, the researchers should also prepare simplified policy briefs for public consumption. In addition, establishment of researched knowledge management systems in which information is stored, reviewed, easily accessible, and user friendly can enhance dissemination of research findings for policy and technology transfer.

## 6. WAY FORWARD

This report addresses challenges that impede the bridging of research and technology for development. It further provides strategies and recommendations which could be used to promote and re-orientate the approaches of research for the benefit of the end-users. The nouvelle model of linking stakeholders through participatory and transdisciplinary approaches requires attitude change amongst stakeholders, mobilization and optimizing use of cost-effective available resources. These demands for concerted effort amongst all stakeholders to impact research outputs for development towards improvement of the livelihood of the East African people. The workshop output dictates that research projects undertaken in the region should emphasise on participatory and transdisciplinary approaches to intensify interactions among the stakeholders. This can be achieved through restructuring of curricula towards incorporation of policy development, capacity building in integrated research project management, and establishment of resource centres within institutions of higher learning for information accessibility.