

A photograph of a flooded agricultural field. The water is a muddy brown color. Several large, dense clumps of green water hyacinth plants are floating on the surface. The background shows more of the flooded area under a bright sky.

African Centre for Technology Studies

ACTS

ANNUAL REPORT 2006

**Rewarding,
but
Challenging
Period**

Contents

Message from Executive Director	1
About ACTS	2
Overview	3
Energy and Water Security Programme	5
Capacity strengthening in LDCs for adaptation to climate change (CLACC)	5
Activities	5
CLACC Project	6
European capacity building initiative (ECBI) for government negotiators	6
Achievements	7
Development and adaptation days at COP12	7
Activities in 2006	8
Other activities in 2006	8
Integrating vulnerability and adaptation to climate change into sustainable development policy planning and implementation	8
Success in fulfilling the ACTS strategic plan	9
Advanced international training programme on integrated transboundary water resources management for the Lake Victoria basin	9
Science and Technology Literacy Programme	10
ACTS science and technology policy institute	10
Description of the Courses	11
Introduction to Biotechnology and Biosafety	11
Sustainable Food Security Systems	11
The Millennium Development Goals	12
Innovation systems: a new guide to the achievement of the millennium development goals	12
Agriculture & Food Security Programme	13
Policy analysis in energy and environment	13
The way forward	13
The RABESA Initiative	13
Expected outputs	14
Publication and dissemination of project outputs	14
Project meetings	14
International Assessment	15
International assessment of agricultural science & technology for development (IAASTD)	16
Expected impacts	16
Key challenges	16
Executive Director's Office	17
The Governing Council	18
The Governing Council members	18
Human Resources	19
Staff list December 2006	19
Research associates/consultants	19
Finance and Administration	20
ACTS summarized audited financial statements	20
List of Donors	21
Publications and Outreach	21
Books and monographs	21



Rewarding but Challenging Period

*ACTS Executive Director
Prof. Judi W. Wakhungu*

The year 2006 was one of the most hectic in recent memory. We were mid-way in implementing the 'ACTS' *Strategic Plan 2004-2008: Harnessing Science and Technology for Sustainable Development*. It was a period that provided the Centre with an opportunity to fine-tune various programmes and their respective deliverables. We strove to achieve this variously through science and technology policy research and analysis; policy outreach; and capacity building. We convened several workshops and training courses at our headquarters in Nairobi, as well as numerous African cities including, Addis Ababa, Cairo, Dakar, Entebbe, Kigali, and Lusaka. This year, our administrative and organizational skills were extended to coordinating international workshops at distant locations such as San Jose, Costa Rica, and Buenos Aires, Argentina.

It has never been so urgent for African leaders to understand the subtleties of implementing sound policies for guiding the science, technology and innovation system. The continent is faced with several challenges. These include vulnerability to the extremes of climate change, environmental degradation, and biodiversity loss. In addition, the severe poverty and hunger that most Africans endure, worsens.

Science, technology, and innovation have a vital role to play in solving these problems. In 2006, ACTS worked closely with African governments and regional bodies to sensitize them, from our perspective, on options for addressing these challenges. Our involvement in policy formulation and outreach included collaborating with ASARECA and PBS to provide technical support to COMESA in implementing the Regional Approach to Biotechnology and Biosafety Policy in Eastern and Southern Africa (RABESA). Furthermore, the Centre provided training and capacity building in science and technology policy analysis through the ACTS Institute.

The Centre also played a leading role in organizing side events and participating in the Twelfth Session of the Conference of the Parties to United Nations Framework Convention on Climate Change (UNFCCC) 2006. The main event organized by ACTS and CLACC was the "Development and Adaptation Day". In the run up to the UNFCCC COP12/MOP2 meeting in Nairobi, ACTS was involved in various preparatory processes with Climate Action Network International, and the Government of Kenya's Technical Committee on Climate Change.

The Centre was also engaged heavily with the ongoing International Assessment of Agricultural Science and Technology for Development (IAASTD). ACTS provided technical and logistical support to IAASTD as the sub-global institute for Sub-Saharan Africa.

Overall, we encountered challenges particularly on the fund-raising front in 2006, but there were also many rewards. ACTS will build on those challenges and cherish the rewards in the coming years. I would like to thank our development partners for their support, and look forward to even greater cooperation in the years to come.

Prof. Judi W. Wakhungu
Executive Director

ACTS is a Nairobi-based international intergovernmental science, technology and environmental policy think-tank that generates and disseminates new knowledge through policy analysis, capacity building and outreach. The Centre strives to rationalize scientific and technological information to enable African countries make effective policy choices for improved living standards. ACTS works with partners and networks including academic and research institutions, national governments, UN bodies, regional and international processes and NGOs. ACTS' research and capacity building activities are organised in four programmatic areas: Biodiversity and Environmental Governance; Energy and Water Security; Agriculture and Food Security; and Science and Technology Literacy. Cross-cutting themes include gender issues and human health.

on Agenda 21 and related conventions on biological diversity and climate change. The subsequent period, 1997-2002, focussed primarily on bio-safety in a regional context, conservation of genetic resources in the midst of erosion of biodiversity, and the potentials of biotechnology.

ACTS works and collaborates with scholars and institutions of national, regional and international repute like the University of Edinburgh, the Open University, Penn State University, the Jomo Kenyatta University of Agriculture and Technology (Kenya), the Graduate School of Environmental Studies at the University of Strathclyde (United Kingdom), department of Environmental and Biosystems Engineering of the University of Nairobi, the United Nations Environment Programme, the United Nations Development Programme, the Secretariat of the Convention



ACTS' members include the governments of Kenya, Malawi, Malta, Uganda and Ghana, as well as the World Agroforestry Centre (ICRAF) and the Third World Academy of Sciences (TWAS). ACTS Programmes have evolved over years in response to shifting national, regional and global development agendas and challenges. In 1988-1993, the Centre invested its energies and resources into demonstrating the feasibility of independent policy research on science, technology and environmental issues. These formative years coincided with the United Nations Conference on Environment and Development (UNCED) process. The Centre played a key role in building the capacity of African countries to negotiate the provisions of the international agreements which were concluded at UNCED. The second phase (1994-1997) of the ACTS programme development was dominated by formulation and implementation of programmes and projects

on Biological Diversity, the African Conservation Centre, the World Resources Institute, the World Bank and the World Conservation Union (IUCN). It also works closely with governments, both members and non-members, in all areas of its research, capacity-building and outreach activities. It maintains a formidable global team of associates who are called upon as needed to carry out and participate in some of its activities. Besides partnerships with governments, international and National NGOs, academic and research institutions, and UN bodies, new partnerships and collaborative arrangements are gradually emerging between ACTS' many regional and sub-regional organizations and processes such as the East African Community (EAC), the Common Market for Eastern and Southern Africa (COMESA), Southern Africa Development Cooperation (SADC) and New Partnership for Africa's Development (NEPAD).

While harnessing science and technology for Africa's development remained at the core the Centre's programmatic focus in 2006, ACTS' continued to put great emphasis on ensuring flexibility in response to emerging challenges and policy processes at the national, regional and international levels. This flexibility and responsiveness forms a critical operational strategy for ACTS, in light of the fluidity of the policy research work that constitutes the Centre's focus. It ensures that ACTS remains relevant and strategic to its core clients – the governments – but also to its partners, like the New Partnership for Africa's Development (NEPAD), the United Nations Environment Programme (UNEP), the World Agroforestry Centre (ICRAF), the Third World Academy of Sciences (TWAS), as well as a host of other national and international institutions. It also helps to maintain the importance of ACTS work to Africa's development, congruence with national priorities, and maximization of efficiency and effectiveness by building on previous ongoing activities.

Significant milestones and impacts across all the programme areas were realized in 2006. The ACTS Institute of Science, Technology Policy Analysis exceeded expectations in terms of the quality and quantity of courses offered and the number of participants from different African countries. In total five courses in areas of sustainable food security systems, innovation systems and the Millennium Development Goals (MDGs), energy and the environment, biotechnology and biosafety policy analysis and research into use, were taught between January and December 2006. The curriculum has been refined and considerable improvements made in pedagogy and delivery.

Institutional linkages between ACTS and the Department of Environmental and Biosystems Engineering (DEBE) at the University of Nairobi were reinforced in 2006. In addition ACTS enjoyed a high level of technical backstopping and collaboration from internationally accredited institutions such as the University of Edinburgh, the Open University and Strathclyde University.

Another important achievement was the liaising with the University of Nairobi for the purposes of exploring the possibility of developing a joint doctoral studies programme. In October 2006, ACTS provided an inaugural doctoral studies seminar to 12 prospective candidates. The prospective students are currently in the process

of developing proposals for doctoral studies in Technology Studies at the University of Nairobi.

Under the Biodiversity and Environmental Governance Programme, ICRAF and ACTS hosted the African Regional Workshop for Compensation for Environmental Services (CES) Global Scoping study. The study entailed valuation of nature's regulations and support cultural services with respect to provision of environmental services that will contribute to global economy. The outputs of the study were incorporated with South Asia and Latin America experiences. The outputs of the workshop were submitted to IDRC to inform the Rural Poor Environmental Programme (RPE).

The Regional Approach to Biotechnology and Biosafety in Eastern and Southern Africa (RABESA) and the International Assessment of Agricultural Science & Technology for Development (IAASTD) project are the flagship projects with a regional focus that ACTS successfully implemented in 2006 under the Agriculture and Food Security Programme. The broad objective of RABESA is to carry out a balanced review and documentation of the technical information required to inform the Common Market for Eastern and Southern Africa (COMESA) and the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) on regional biotechnology and biosafety policy choices and options. In 2006, research findings of the project on the implications of genetically modified organisms on trade, food security and access to emergency food aid were published and disseminated widely to inform the RABESA policy process. The RABESA regional workshop was held in May and this particular event was a major milestone in the project calendar. The main output from the regional workshop was a communiqué outlining a set of negotiated regional policy options and arrangements for handling commercial planting of GM crops, trade in GM products and emergency food aid containing GMOs.

ACTS continued to provide technical support to IAASTD as the sub-global institute for Sub-Saharan Africa. A series of key meetings crucial for the implementation of the project were held. The second sub-global authors' meeting was held to review the content and progress of the assessment reports. Other meetings were the third bureau and the global authors meeting held in Costa Rica and the third sub-global authors meeting held in Ethiopia. Lead authors and review editors

for the Global and sub-global assessment reports were selected. The Global Assessment report and Sub-global reports were posted on the web for peer review by governments, institutions and individuals.

ber 2006. The aim of the workshop was to build the capacity of African Negotiators and provide them with relevant information on pertinent issues for Africa on climate change in preparation for COP 12.



Energy and water security was the most vibrant programme as evidenced by a wide range of activities and projects. The activities took various forms of partnerships, both bilateral and multilateral. ACTS was engaged in regional level discussions as well as participation in international policy processes. With global attention on the climate change agenda, ACTS was engaged by DFID to conduct a Scoping Exercise on Climate Change and Development in Kenya and East Africa. The exercise resulted to preparation of four reports that informed DfID and IDRC research programme on Adaptation to Climate Change in Africa. ACTS in collaboration with the International Livestock Research Institute (ILRI) carried out a continent wide mapping of vulnerability to poverty and climate change in Africa. One of the key outputs of the mapping was a vulnerability map showing areas where climate change impacts will be greatest and the kind of information and resources needed to deal with the challenges identified.

Under the auspices of the European Capacity Building Initiative (ECBI) for Government Negotiators, ACTS in collaboration with the International Institute for Environment and Development and the Oxford Climate Policy, held the second Eastern and Southern Africa regional workshop for government negotiators in Naivasha in Septem-

In preparatory activities leading to COP 12, ACTS participated in the Kenya Government's Technical Committee on climate change, the committee of the Whole and hosted and chaired the Kenya Climate Change Civil Society Forum in the initial stages. The Capacity Strengthening in the LDCs for Adaptation to Climate Change (CLACC) Fellowship programme resulted in more effective participation of Fellows in national climate change policy processes and adaptation initiatives including representation at the UNFCCC conference. Under the aegis of the CLACC project, ACTS provided technical input into the national preparations for the United Nations Framework Convention on Climate Change (UNFCCC's) Conference of Parties (COP 12). This included input into preparation of the Africa Position Paper and writing of a booklet on *"Response to Climate Change and Opportunities for Sustainable Development"*. ACTS actively participated in COP 12 side events including the *Development and Adaptation Days* jointly organized and hosted by ACTS, IIED, IISD, the Ring Alliance and SEI. Finally, ACTS continued to provide leadership as the lead implementing agency for the UNEP/GEF project on integrating vulnerability and adaptation to climate change into sustainable development policy planning and implementation.

Water and energy are among the most essential resources for sustainable development in Africa. Yet the majority of African households today lack access to basic forms of modern, reliable and affordable energy and safe water supplies. This is happening at a time when there is considerable decline in the investment costs associated with efficient technologies required to harness energy and water resources for sustainable development. The Centre's Energy and Water Security Programme seeks to respond to the increasing challenge of having access to safe, reliable, affordable energy and water supplies in Africa. It draws on and has evolved from work previously carried out under the auspices of ACTS' Climate Change Programme.

Capacity strengthening in LDCs for Adaptation to Climate Change (CLACC)

It is recognized that adaptation to the impacts of climate change will require long-term efforts to strengthen the adaptive capacity of each society. Capacity building for adaptation to climate change is particularly important to least developed and developing countries including the small island states. This project had the objectives of strengthening the capacity of civil society in LDCs to adapt to climate change and fostering adaptive capacity among the most vulnerable groups. It aimed to establishing an information and knowledge system to support countries to deal with the adverse impacts of climate change and mainstream the National Adaptation Pro-



In 2006, various climate-change related activities were successfully implemented. In the run up to the United Nations Framework Convention on Climate Change (UNFCCC's) twelfth session of the Conference of Parties also serving as the second meeting of parties to the Kyoto Protocol (COP12-COP/MOP2) meeting in Nairobi, ACTS was involved in various preparatory processes with Climate Action Network-International, the Government of Kenya which was the hosting the conference, among other stakeholders including the civil society. The major projects under this programme are set to continue into 2007 and beyond. Several new activities have come up within some of the projects that were implemented in 2006.

gramme of Action (NAPA) process with key non-governmental stakeholders.

Activities

In 2006 there were activities geared towards building the capacity of various stakeholders to better understand the climate change phenomenon, its current and future impacts, and their potential roles in mitigating and adapting to climate change and its impacts at the international, regional, national and local levels. The activities under the CLACC project covered 12 LDCs in Eastern, Western and Southern Africa, as well as south East Asia. These included involvement of CLACC Fellows in the preparations of the NAPA document at national levels. Most of these coun-

tries have completed their NAPA documents and are awaiting implementation, a few others are in their final stages and should be completed in early 2007. The participatory research on climate change and human health are almost complete. Most countries have held workshops to share their preliminary research findings and obtain feedback from various stakeholders. Research reports should be finalized and submitted to the International Institute for Environment and Development (IIED) and London School of Hygiene and Tropical Medicine who are offering technical advice, and backstopping the project in early 2007.

There has also been engagement in regional level discussions as well as participation in international policy processes including UNFCCC's Subsidiary Body Meetings and Conference of Parties.

The CLACC Fellowship programme has resulted in more effective participation of Fellows in national climate change policy processes and adaptation initiatives including participation of CLACC Fellows at the twelfth session of the Conference of Parties held in Nairobi in November 2006.

Other activities included establishment of climate change information resource centers at ACTS and other CLACC partner institutions. These aim to provide current information on climate change issues such as adaptation and mitigation initiatives amongst other programmes. ACTS also established a *Tiempo* Readers' Panel to facilitate analysis and sharing of information about climate change impacts and adaptation initiatives in the developing world. *Tiempo* is a climate and development bulletin published by the International Institute for Environment and Development, the University of East Anglia and the Stockholm Environment Institute-York. The panel consists of interested stakeholders from diverse backgrounds including representatives from the civil society, academic and research institutions, government ministries and departments. The idea of the readers' panel is to enhance interest in climate change and seek ways to mainstream climate change into different sectors and encourage sharing of information and knowledge across various groups and come up with relevant and applicable solutions to climate change problems in the respective countries and regions.

Under this arrangement, panel members receive on a regular basis, copies of the *Tiempo* Bulletin through CLACC partner institutions for reading and review to ensure they are up to date with what is going on at the international level. The readers are then expected to provide feedback on articles that have been featured and encouraged to submit articles focusing on the developing countries' experiences for publishing. It is hoped that the *Tiempo* reader panels will facilitate broad sharing of country experiences on climate change as well as innovative ideas on climate change adaptation and mitigation programmes between the developed and developing countries.

CLACC Project

Under the CLACC project, ACTS was actively involved in UNFCCC's climate negotiations held in Nairobi. Various activities were undertaken, notably the administration and logistics of the Development and Adaptation Days on November 11-12, 2006. This event was jointly organized and hosted by ACTS, IIED, IISD, SEI and other RING Alliance members. One facet of this project is the opportunity it afforded ACTS to review the climate change and human health case for Uganda and the subsequent attendance at the reporting workshop. It also enabled ACTS to set up a resource information centre on Climate Change and a civil society forum. Another notable achievement from the CLACC project is ACTS' participation in the establishment of a civil society forum on Climate Change in Kenya of which ACTS is co-Chair.

European Capacity Building Initiative (ECBI) for Government Negotiators

The ECBI Regional Workshop Programme aims at establishing a level playing field between delegations, particularly North-South and South-South, in the United Nations climate change negotiations. Other major obstacles that the project aims at addressing are mutual misunderstanding and a lack of trust between industrialized and developing countries. At present, the regions covered are East and Southern Africa, West Africa (Francophone) and South East Asia.

The overall aim of the regional workshops is to discuss upcoming negotiation issues of regional importance, with a view to facilitating negotiation positions for subsequent UNFCCC sessions. An-

other aim is to introduce participants from mainstream ministries to the climate change problem, with particular focus on its regional aspects. Finally the programme facilitates networking, especially between the climate change negotiators and their mainstream colleagues.

The Eastern and Southern Africa Regional workshop was organized and hosted by ACTS on 28-30 September 28-30, 2006 in Naivasha, Kenya. It brought together government officials from the environment sector within the region who are involved with their countries' climate negotiations. Other mainstream government officials from key government ministries such as finance, economics and national planning participated in the workshop. Participants exchanged views

and experiences about climate change policies and discussed key issues of common interest in the region.

In collaboration with its partners, ACTS organized and hosted a series of Pre-COP workshops in the run up to COP12. The Least Developed Countries (LDCs) and Small Island Developing States (SIDS) workshop was held on 2nd and 3rd of November in Nairobi. This was followed by the Post 2012 workshop on the 4th of November at the same venue. The objectives of these workshops were to strengthen the negotiating capacities and the implementation of the convention and to explore options for the Post 2012 regime after the end of the first commitment period under the Kyoto Protocol.



Achievements

1. ECBI government negotiators workshop successfully held and summary workshop report produced.
2. Pre-COP LDC junior government negotiators workshop and LDC-SIDS meeting successfully held.
3. Regional and international networks in the climate change arena have been expanded.

Development and Adaptation Days at COP12

The "Development and Adaptation Days at COP12" event took place in Nairobi, Kenya, from 11-12 November 2006. The event was organized and co-hosted by the African Centre for Technology Studies (ACTS), International Institute for Environment and Development (IIED), International Institute for Sustainable Development (IISD), Stockholm Environment Institute (SEI) among other RING Alliance of policy research organizations. The side event was organized with support from the International Development Research Centre (IDRC), Swedish International Development Agency (SIDA), and the German Federal Ministry for Economic Cooperation and Development (GTZ). The event was held in parallel with the Twelfth Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC) and the second meeting of the parties to the Kyoto Protocol that took place in Nairobi from 6-17 November 2006.

The event was held in the context of a growing call for knowledge sharing on the links between climate change, development and poverty. The purpose was to provide a platform for individuals and organizations working on the issues of development, climate change and adaptation to climate change to exchange experiences, discuss challenges and emerging ideas on reducing the vulnerability of those who are and will be experiencing adverse effects from climate change in developing countries.

Other Activities in 2006

- Climate Action Network International (CAN) COP12 planning meeting: September 2006, Nairobi. Logistics and planning of CAN- International activities during COP 12 were made.
- CAN Africa COP 12 preparatory meeting: September 2006, Nairobi. African position for COP12 was articulated. Common agenda areas and issues for COP12 discussed and a strategy for African CSOs' effective engagement with CAN-I and COP12 process developed.
- CLACC Climate Change and Health Study reporting workshop, September 2006, Kampala. A report of the preliminary results of Uganda's climate change and health case study was delivered and feedback obtained from various stakeholders.
- Workshop on mainstreaming adaptation in development policy and access to energy was organized by ACTS in collaboration with Leadership for Environment and Development (LEAD International) and Climate Action Network (CAN International) in September 2006, Nairobi. The workshop sought ways to integrate climate change adaptation into energy policies and programmes.
- A workshop on Conflict, Adaptation to Climate Stress, and Vulnerability was hosted by ACTS in collaboration with the University of Oslo in October 2006, Nairobi. The workshop reported on the above titled study and sought ways to reduce communities' vulnerability to climate change through conflict minimisation.
- Inter Press Service News Agency Workshop on Reporting Desertification- October 2006, Nairobi. This aimed at discussing effective communication and reporting on desertification and other environmental issues. ACTS delivered a presentation titled 'Gender and Desertification'.

Integrating Vulnerability and Adaptation to Climate Change into Sustainable Development Policy Planning and Implementation

This project funded by the Global Environment Facility (GEF) through UNEP seeks to respond to the establishment of the GEF's new Strategic Priority on Adaptation (SPA). It emanated from requests to UNEP by governments in Southern and Eastern Africa during a workshop held in September 2004 under the aegis of the SPA. The objectives of this workshop were to explore current understanding of and experience with integrating vulnerability to climate change into sustainable development planning, and to launch the development of potential pilot projects that would further explore these issues.

After the workshop, five countries submitted proposals for the completion of specific adaptation pilot projects. UNEP reviewed these proposals against a set of standard criteria developed to ensure consistency with the SPA objectives and the project's goals, and selected three pilot projects to be implemented over three and a half years (June 2005 to December 2008) as follows:

- Kenya – Increasing Community Resilience to Drought in Makueni District;
- Mozambique – Community-based Fire Management Strategy in Central Mozambique; and
- Rwanda – Reducing the Vulnerability of the Energy Sector to the Impacts of Climate Change.

The project will promote the mainstreaming or integration of vulnerability and adaptation to climate change into sustainable development plans and planning processes through pilot demonstration projects undertaken in Kenya, Mozambique and Rwanda. Through its activities, the project will:

- Generate capacity in each pilot project country to implement adaptation measures in the field that will reduce their vulnerability to climate change;
- Increase capacity in each country to generate and use information about climate change to effect change in relevant development policies; and,
- Increase knowledge of the linkages between development planning and climate change, including policy process and methodologies.

The key milestones during 2006 include the following:

- Finalization of the UNEP/ACTS project document;
- Finalization of implementation plans for the three pilot projects;
- Preliminary assessments on information needs of policy makers have been conducted and baseline indicators developed for the project
- Inception of the fieldwork and/or implementation phase of the project;

- Downscaling indicator data to guide choice of livelihood activity for adaptation to climate change. For instance in Kenya, climate forecasts/weather information for October – December short rains in Makueni has been down scaled with subsequent production of brochures in both English and Kikamba languages and distributed to the project site. This activity aims at guiding choice of crops to be planted and timing of agricultural activities; and
- Project management team meeting at the margins of COP 12 to review status of workplans, monitoring and evaluation tools, upcoming MOUs and contracts and roles and responsibilities with regard to project management
- The project management team (UNEP, ACTS and IISD) made a one day visit to Makueni district, Kenya at the margins of COP 12 to familiarize with the project site and/or project activities and the people/organizations behind implementation of field activities. The team met with the District Steering Group (DSG) and representatives from the target community. The DSG under the leadership of the Arid Lands Resource Management project and mandated (in partnership with the Kenya National Academy of Sciences) to implement project activities, draws membership from government departments including the ministries of Agriculture, Water Resources Management, Environment, among others. The community exuding confidence about the success of the pilot project expressed the opinion that project activities be extended to other areas with similar or related conditions.

Success in fulfilling the ACTS Strategic Plan

The project will contribute to outputs 1, 2 and 3 of section 3.2 of ACTS Strategic Plan: Better policies and institutional frameworks for decentralized energy and water services; increased understanding and appreciation of appropriate technologies for efficient energy and water supply; and enhanced awareness of sustainable solutions to water and energy insecurity among relevant stakeholders. (ACTS Strategic Plan is available on our website).

Advanced International Training Programme on Integrated Transboundary Water Resources Management for the Lake Victoria Basin

Water is essential to all kinds of human development and livelihood support systems. Most freshwater systems have been found to transcend many political and administrative boundaries. As such the available freshwater and the benefits they generate are usually shared among individuals of different nationalities, various economic activities and sectors, as well as different intrastate jurisdictions as well as sovereign states. The management of such water systems is, thus, very critical.

The Integrated Transboundary Water Resources Management for the Lake Victoria Basin is a training programme targeting middle to high level personnel working on water issues that are transboundary in nature. At the centre of this training is Lake Victoria, whose waters are contributed by 5 nations in the eastern Africa region. These countries are Burundi, Kenya, Rwanda, Tanzania and Uganda. Therefore 30 participants were selected from the 5 countries.

The training programme is sponsored by the Swedish International Development Agency (SIDA) and is run by Ramboll Natura of Sweden in collaboration with the Stockholm International Water Institute (SIWI) and the African Centre for Technology Studies (ACTS). The course is offered in 5 modules.

Module 1 participants established a working group in their own institutions and discussed their individual project's topic. Module 2 is an intensive 2-week training that was carried out in Nairobi with a 2-day fieldwork in Rwanda. Module 3 entailed participants working on their individual projects in consultation with the working groups constituted by the participants in their own institutions. Module 4 was an intensive one-week training in Sweden that gave a comparative analysis of transboundary issues from the Nordic Countries' perspective. And finally, Module 5 will be a wrap-up of participants' individual projects presentation of the findings of the individual projects by the participants in their own institutions. Work on this training programme started in September 2006 and will run until April 2007.

The major output of this training programme is high-level officers trained in transboundary water issues, particularly international water law, benefit sharing, hydropolitics, transboundary water negotiation skills, among many other skills. This training programme contributes to output 3.2.1: "Better policies and institutional framework in water services", and output 3.2.3: "Enhanced understanding and awareness among relevant stakeholders, particularly in water use and management".

The above activities have enabled ACTS to have greater impact on climate change issues in Eastern Africa and beyond. Several opportunities for substantive work have emerged in this area and will be pursued actively. In the coming year, we will seek ways to research and provide information on energy and water access in the region. We also aspire to influence national and regional policies on energy and water issues. The training programmes in the Integrated Trans-boundary Water Resources Management for the Lake Victoria Basin is due to continue in 2007, enhancing the role of ACTS as a capacity building institution for science and technology in Africa.



ACTS headquarters on the ICRAF campus and are accredited by the University of Nairobi.

The initiative to create the Institute was timely and critical. It came at a time when the role of science and technology (S&T) in economic development is increasingly being recognized not just in the developed world, but in developing countries, as well. More than ever, development institutions, not least the World Bank, are increasingly accepting and demonstrating strong correlations between the percentage of GDP spent in research and development and GDP per capita. Furthermore, S&T is increasingly becoming part of the agenda of both the international community

ACTS Science and Technology Policy Institute

ACTS Science and Technology Policy Institute is an effort by ACTS to consolidate and build upon past experience in the area of capacity building since ACTS ran a similar programme in biodiversity policy analysis and management between 1994 and 1998. The need for the Institute is a function of the perceived failure of higher education system in many sub-Saharan African countries to provide holistic training that would enable practitioners to effectively function as managers and policy analysts in areas that are fundamentally interdisciplinary. The aim is to build capacity of key stakeholder groups in important developmental areas of science and technology policy and environmental management. So far, the institute has run six courses in various disciplines including Biotechnology, and Innovation. The participants received a week of intensive training in each course and were awarded certificates that we hope will be accredited by the University of Nairobi. The courses were catered to technical and management staff in non-governmental organizations (NGOs), government ministries, research institutions and consultancy firms. They are run at

and policy makers in developing countries. These strengthen prospects for the viability of the S&T Institute and for ACTS to realize its vision of "Better living standards for all in Africa through harnessing Science and Technology for sustainable development." The strategic expectation here is that through the Institute, ACTS will be better placed to influence change and complement other strategies adopted by the African Governments to realize the Millennium Development Goals (MDGs). In addition, the Institute will strategically act as a cost-recovery mechanism for ACTS and reduce the Centre's over-reliance on donor funding.

The Centre has undertaken market research and participated in other relevant programmes. It has been found that though there are many capacity building courses across Sub-Saharan Africa (SSA), most of these are designed as fairly narrow activities dealing with provision of specific skills. There still are no programmes dealing systematically with policy analysis capacity. As a result of these experiences ACTS decided to establish the Institute to meet the same need but to do so in a more cost-effective manner.

Description of the Courses

Introduction to Biotechnology and Biosafety

A policy analysis training course designed with reference to the High-Level African Panel on Modern Biotechnology of The African Union (AU) and the New Partnership for Africa's Development (NEPAD). It was designed to introduce those involved in policy formulation and members of other stakeholder groups to the complex issues associated with biotechnology development in Africa. Using carefully selected case studies, participants were encouraged not only to appreciate the problems associated with balancing the risks and benefits of biotechnology, but were also required to place these insights directly into a policy context through simulation exercises. Central to the course were the current deliberations of the High-Level African Panel on Modern Biotechnology, which was then meeting under the auspices of the African Union (AU) and the New Economic Partnership for Africa's Development (NEPAD). Participants were asked to imagine themselves as advisers to this panel, particularly in terms of a series of key issues of capacity building that require policy interventions at national level. This was done both in class as a simulation exercise as well as in written form as a policy brief for those who intend to take the course for credit. Relevant reading was provided before the course began. Resource persons were drawn from international and national sources of expertise. Central to the course was the recently published report of Task Force 10 of the Millennium Development Goals (MDG) project.

sive analysis of the problems associated with balancing the risks and benefits of food production, storage, processing, marketing and consumption. The capacity of participants to formulate strategic interventions and place the same into a policy context was built through simulation exercises and interactive debates.

The course gave an overview of issues of food security systems in the region. Reference was made to the Green Revolution and how the agricultural agenda has evolved over the past 50 years or so. There was also some discussion of the role of science, technology and innovation in this context. Finally a case study from India on biotechnology poverty-focused development was presented

Another aspect of the training dealt with food security and human nutrition. A case study was presented to stimulate critical analysis and participants were then split into 4 break out groups and asked to report back on their findings in the late afternoon session

A module reviewing the case of the role of education and research was also included in the course. The case of the Earth University in Costa Rica was presented after which breakout groups worked on the issue of the applicability of this model to East African conditions.

Focus was placed on the institutional context within which food security policy can be better understood. There was a review of issues of food storage and processing and issues of scale and mechanisation. Participants were asked to place themselves in an imaginary context. Each participant group was



Sustainable Food Security Systems

This course was held from January 23-27, 2006. The course was designed to introduce those involved in policy formulation or implementation to the complex issues associated with food security in Africa. A total 32 participants were drawn from a wide variety of stakeholder groups in Kenya and Uganda. Using carefully selected case studies they were taken through an in-depth and comprehen-

asked to form themselves into an advisory committee/panel representing an East African government on the issues of food security policy over the next five years. Subsequently, participants were asked to prepare policy briefs for consideration by the government on policy measures and steps aimed at addressing food security concerns. The policy from all the groups were then presented as written documents on the final day of the course.

Innovation Systems: A New Guide to the Achievement of the Millennium Development Goals

The course was held on March 20-24, 2006. The Millennium Development Goals has 8 goals in all ranging from poverty eradication and universal primary education to combating endemic diseases such as HIV/AIDS and malaria and ensuring environmental sustainability. Many of these goals have been broken down into specific "targets" for achievement by 2015 and have given a quantitative aspect to the resolution of the main issues of international underdevelopment. In order to operationalize progress the UN Secretary General commissioned the UN Millennium Project, a series of Task Forces charged with addressing sectoral and thematic areas. This training course concerned one of these—Task Force 10 (TF10) whose remit has been to explore how best to mobilise technological innovation in the service of achieving all the MDGs. The course introduced participants to the work of TF10 by concentration on one overriding aspect of its activities—the building of an understanding of how innovation can inform appropriate public policy for development.

The Innovation Systems approach has been suggested as one mechanism to consider in this context. Originating in 1980's industrial science policy studies as a tool designed to understand better the economic success of the newly industrialising countries (NICs) of South and East Asia; it has recently become the focus of a number of science policy studies in an African and South Asian context. It may be defined as the network of agents whose interactions determine the innovative impact of knowledge interventions including those associated with scientific research. The concept is now used as a kind of shorthand

for the network of inter-organisational linkages that apparently successful countries have built up as a support system for economic production across the board. In this sense it has been explicitly recognised that economic creativity is actually about the quality of "technology linkages" and "knowledge flows" amongst and between diverse agents. Where the interactions are dynamic and progressive great innovative strides are often made. Conversely where systemic components are compartmentalised and isolated from each other, the result is often that relevant research bodies are not at all productive. In extreme cases they have ceased to provide any innovative output at all.

It may readily be seen therefore that the notion of an innovation system is not a theory. It is rather a metaphor designed to broaden the perspective of scientists and their research. But as such it requires an understanding that goes beyond natural science as conventionally pursued. This course was designed as an aid in this respect. It began by returning to how science and technology policy is conventionally understood. This reveals a growing tension between the stated aims of S & T organisations and their capacity to achieve these aims. The tension has revealed itself in various forms including strategic policy changes at institutional level. The course then introduced participants to a series of case studies that illustrate the properties of successful innovation systems in the agricultural and educational spheres. These explored the roles of other bodies such as NGOs, the private sector and trade associations. They also looked at overseas aid and how it can best be deployed. After two of these case study presentations, participants were asked to split into participatory groups and reflect on the following generic issues:

- What types of linkages appear to be most valuable for technological change in client sectors?
- How should scientific body best build an innovation systems perspective into their project planning and execution?
- What implications are there for S/T governance?
- What implications does this changed perspective have for wider management considerations, such as project selection procedures and personnel appraisal?
- What implications are there for higher education policy?
- How should public policy address the contrasting roles of national R&D policy and foreign technical assistance?
- What other insights does the perspective provide?

During the course, participants were given appropriate resource materials including written-up versions of case studies and copies of the final report of TF10 of the MDGs.

Policy analysis in Energy and Environment

This course was designed to introduce participants in policy formulation and/or implementation to the complex issues associated with sustainable energy supply and utilization in Africa. Using carefully selected case studies participants were taken through an in-depth and comprehensive analysis of the problems associated with balancing the risks and benefits of various energy sources.



The capacity of participants to formulate strategic intervention and place the same into a policy context was built through simulation exercises and interactive debates.

The course began with an overview of energy, development and environment before going on to address specific issues by way of a series of case studies. These comprised bio-energy from agroforestry; interactions among hydroelectricity generation, distribution/utilization and the environment; and possibilities with regard to solar energy. Finally participants were required to act as a Policy Commission dealing with future sustainable energy options. The Policy Commission was asked to focus specifically on supplementation of traditional energy sources by renewable resources and to suggest a maximum of four specific policy mechanisms to achieve this. In addition it was asked to itemise these mechanisms, anticipate what institutional changes would be required as a result and suggest also benchmark indicators that could be used as monitoring and evaluation guideposts at all stages of policy execution. It was also asked to specify the most important renewable resources that would be appropriate for a country such as Kenya or Tanzania. Participants were split into four breakout groups. Each group was required to present its findings as a power point presentation (30 minutes maximum duration) and a 3/4 page written document.

The way forward

In 2007, the institute will revise its curriculum as necessary, based both on participatory evaluations of previous courses, and changes in technology, international environmental governance frameworks, and African domestic policies. A market survey will also be carried out and accordingly this will inform the business plan.

The RABESA Initiative

The Regional Approach to Biotechnology and Biosafety Policy in Eastern and Southern Africa (RABESA) is a project that was initiated by COMESA. Its origin can be traced from the directives of the COMESA Ministers of Agriculture meeting in 2001 in Kampala. The directive to explore mechanisms of harmonizing biosafety policies in the COMESA region was triggered by concerns that current and future proliferation of GMOs may impact adversely on trade, food security and access to emergency food aid in unprecedented ways. In 2003, COMESA approached the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) seeking technical guidance and policy advice on how to address and manage biotechnology/biosafety issues at a regional level. The interaction between COMESA and ASARECA was immediately followed by endorsement of the RABESA initiative at the COMESA/ECA Maize Trade Policy Conference in Nairobi in September 2003. For purposes of generating technical data to inform the objectives of the project, six case study countries -Kenya, Uganda, Tanzania, Ethiopia, Egypt and Zambia were selected from the COMESA/ASARECA region.

The Eastern and Central Africa Programme for Agricultural Policy Analysis (ECAPAPA), the Program for Biosafety Systems (PBS) and the African Centre for Technology Studies (ACTS) have

been technically supporting COMESA in the implementation of RABESA. The project is financially supported by the United States Agency for International Development (USAID).

From the outset, RABESA was designed with the overall objective of documenting a balanced review of technical information required to inform COMESA's regional biotechnology and biosafety policies responsibly. Specifically, the objectives were to undertake stakeholder analysis in the ASARECA and COMESA countries highlighting opportunities, challenges, views and positions related to their engagements in trade, GMOs and food security. Another objective was to estimate the impacts of GMO crops on farm income in the ASARECA and COMESA region. The project was to critically look at the commercial risks that member countries would face in the destination markets in the regional and international arena if permission to plant GMO crops was granted. The area of precautionary GMO principles on access to emergency food aid and food security and the need to identify regional biosafety policy options for decision-making on issues of GMOs and trade in ASARECA and COMESA countries was also examined.

Expected outputs

What were the expected outputs from RABESA? The research component of RABESA was structured to generate a body of knowledge on the implications of biotechnology on trade and food security. The need to analyze the potential costs and benefits of adopting GMO crops at farm level was realized, not to mention the creation of capacity for informed decisions on trade in GMO products and emergency food aid. Identification of a range of feasible policy options and choices for harmonization and cooperation in matters of biotechnology and biosafety in the ASARECA and COMESA countries is the core output expected from the project.

Activities in the RABESA project

Publication and dissemination of project outputs

Outputs that address the broad and specific objectives of RABESA have been published. Most of the outputs have been posted on the project webpage for wider circulation. All the documents published were subjected to a review and approval process by the institutions involved. Most

of the documents were translated and published in English/French to accommodate language needs in the Anglophone and Francophone COMESA and ASARECA countries. The documents published under the project are:

1. Projected Farm Income Gains in the COMESA/ASARECA Region from Commercialization of Bt Maize (*RABESA report I*)
2. Projected Farm Income Gains in the COMESA/ASARECA Region from Commercialization of Bt Cotton (*RABESA report II*)
3. Food Aid Import Policies In the COMESA/ASARECA Region: The Costs and Benefits of Current Policy Options (*RABESA report III*)
4. Commercial Export Risks from Approval of Genetically Modified (GM) Crops in the COMESA/ASARECA Region? (*RABESA report IV*)
5. RABESA Regional Workshop Policy Options Paper.
6. Policy brief on *Biotechnology, Trade and Commercial Export Risks in the COMESA/ASARECA region*
7. Economic analysis work on farm income gains from GM crops and commercial export risks (in press)
8. A French compendium which is a consolidation of RABESA reports I, II, III and IV (in press)
9. Proceedings of the RABESA regional workshop proceedings (in press)

The above publications have been circulated widely to stakeholders in the areas of biotechnology, agriculture, trade, food security and environment. For instance, all the participants that attended the RABESA regional workshop were issued with copies of the publications. In September 2006, the publications were distributed to the ASARECA Committee of Directors following a request from the ASARECA Executive Secretary. The publications have contributed to enhanced understanding of GMOs in the context of trade, economic gains and access to emergency aid. The French compendium will be disseminated widely and used to facilitate PBS interventions on biosafety in West Africa.

Project Meetings

A series of meetings were regularly held to monitor project implementation progress and gauge the extent to which the objectives and desired outcomes were being realized. The meetings made

the implementation of RABESA a very consultative, interactive and inclusive process that benefited from the input of all the institutions involved. The regional workshop preparatory meeting held on February 27-28, 2006 in Nairobi. The meeting discussed a wide range of issues touching on preparatory activities, technical matters and logistics for the regional workshop. The last one was the pre-regional workshop meeting held on May 29, 2006. The meeting reviewed the regional workshop agenda, revised the objectives, refined presentations and drafted guidelines that facilitated group discussions at the regional workshop.

National workshops

The RABESA national workshops that commenced in September 2005 were concluded in January 2006. The last two national workshops were held successfully in Cairo, Egypt and Addis Ababa, Ethiopia. The meetings provided a forum for presenting and discussing RABESA country findings. Stakeholders' thoughts and country positions on the need for a regional policy on biotechnology and biosafety were captured. The conclusion of national consultative meetings culminated into a regional workshop for the COMESA/ASARECA countries. The key outputs generated from the national workshops were proceedings and specific recommendations that fed into the regional workshop deliberations.

The Regional workshop

The holding of the RABESA regional workshop on May 30-31, 2006 in Nairobi was a landmark event in the implementation cycle of the project. The workshop was attended by over 90 participants from 17 countries. Deliberations at the regional workshop focused on a range of regional policy options for approving commercial planting of GMOs, trade in products that may contain GMOs and handling of emergency food aid with GM content. The main outputs from the regional workshop were proceedings and a communiqué outlining a set of negotiated policy options and arrangements. The communiqué contains regional policy options for handling commercial planting of GM crops, commercial trade policy and emergency food aid policy.

The recommendations will be presented at the high level COMESA Council of Agricultural Ministers meeting to be held in March 2007 in Su-

dan for consideration and subsequent policy action. The Council of Ministers is the second highest policy making body after the Heads of State. Apart from the communiqué, a comprehensive report of the proceedings in English and French has been prepared and is being distributed to stakeholders.

Impacts and the way forward

In terms of impacts and contribution to policy debates and processes in Africa, RABESA is the first initiative to bring together COMESA/ASARECA countries to discuss matters related to regional cooperation on issues of biotechnology and biosafety. The project conceptualization, design and inclination have added a lot of value to policy research work on biotechnology and biosafety previously conducted in the region. RABESA is the first project in Africa to sharply focus on the potential impacts of GMOs on trade and food aid. The technical data that has been generated and analyzed under the aegis of the project has clarified and answered many questions and concerns that had preoccupied the minds of policy makers and other practitioners within and beyond the region.

RABESA is already informing the establishment of other similar regional approaches in the continent. The most remarkable and outstanding impact related to this is the creation of the Regional Approach to Biosafety in Southern African Countries (RABSAC). The RABSAC initiative has borrowed a lot from RABESA in terms of project design and implementation approach. RABSAC covers Malawi, Mauritius and South Africa and is supported by PBS and coordinated by the Agriculture and Natural Resources Policy Analysis Network (FANRPN). Successful implementation of RABESA phase I has paved way for RABESA II to commence. This phase will focus on the implementation of the regional workshop recommendations. Emphasis will be placed on harmonization of biosafety policies, guidelines and procedures to facilitate trade, increase agricultural productivity, promote food security and ensure food safety.

International Assessment of Agricultural Science & Technology for Development (IAASTD)

ACTS continued to provide technical support to the IAASTD as the sub-global institute for Sub-Saharan Africa. The objective of IAASTD is to under-

take global and five sub-global assessments of the role of agricultural knowledge, science and technology in reducing hunger and poverty, improving rural livelihoods, and facilitating equitable, environmentally, socially and economically sustainable development.

This is a unique inter-governmental process with multi-stakeholder partnership effort co-sponsored by FAO, GEF, UNDP, UNEP, UNESCO, the World Bank and WHO with participation of governments, scientists, the private sector and civil society. It is overseen by a Bureau comprising governments (30) and civil society (30), with a distributed Secretariat based at the World Bank, FAO, UNEP, UNESCO and four Regional Institutes (ACTS, ICARDA, IICA and the World Fish Center). It includes hundreds of experts from all relevant stakeholder groups with good geographic balance.

The process takes a multi-thematic focus, embracing nutritional security, rural livelihoods, human health and environmental sustainability. It is multi-spatial: comprising the global and sub-global assessments with an intellectually consistent framework. Multi-temporal: looking at the historical to long term (till 2050) perspectives. Lastly, the process



integrates both local and formal knowledge, assessment of policies and institutional arrangements as well as knowledge, science and technology.

In the year 2006, ACTS organized a series of meetings including three sub-global authors meetings held in Kenya, Senegal and Ethiopia. The foci of these meetings were for authors, in conjunction with the review editors and secretariat, to review and discuss the government and expert review comments from the bureau and start to re-draft the assessment. In addition, the authors in conjunction with the secretariat started to draft the summaries for decision makers.

The final inter-governmental plenary is scheduled for January 2008. Outputs will include: a series of Global and Sub-Global assessments, each with a summary for decision makers and a synthesis report on key themes.

The primary users and direct beneficiaries will

be decision makers in national and local governments, the private sector, international agencies, the Global Environment Forum (GEF), Multi-lateral Environmental Agreements, the scientific community, civil society organizations including producer groups and consumer groups.

Expected impacts

The report will help national governments and civil society weigh the costs and benefits (environmental, social, and economic) of technology, policy, management and funding options. It will also measure the progress in achieving sustainable use objectives and identify effective practices for natural resource management; identify practices related to AKST in hunger and poverty reduction. This report will help all stakeholders form a consensus on controversial issues, by providing a common source of information, e.g., the impact of emerging technologies on human health and the sustainable development agenda. Finally, it will focus research on questions that have significant policy implications and are characterized by scientific uncertainty, and hence provide a framework for prioritizing funding for research, especially in the public sector

Key challenges

The task at hand provides various challenges. Some of the challenges include ensuring robust, comprehensive and expert, government and stakeholder peer review of all assessments and Summaries for Decision Makers (SDMs) and ensuring that all important issues are covered. Another challenge is to ensure appropriate balance of controversial issues. Other difficult issues to be faced is permitting proponents of all perspectives to be heard but not influence the outcome of the assessments in any particular direction. This is particularly important in dealing with the issues of transgenics and trade and markets. It is really challenging to retain objectivity in how the information is assessed and presented. It is imperative to ensure that these are evidence-based assessments. ACTS in collaboration with all the partners and associates in this assessment is equal to the task.

In the year 2006, The Executive Director (ED) Prof. Judi Wakhungu, accelerated her efforts to secure funding for the various projects of the Centre. In line with this the ED traveled extensively to consult with development partners. The office continued to provide the needed leadership and direction to ACTS as set out in the Strategic Plan. Much of focus was directed to the ACTS Science and Technology Institute. Several courses were held in 2006 with participants drawn from countries who are signatories of the ACTS Charter.

The ED attended several meetings and seminars all over the world. For example, the ED together with David Wafula, met and had discussions with Dr. Peter Singer and Dr. Deborah C. Burgess. The discussions centred on the work Dr. Singer and Dr. Burgess are doing on the "Programme for the Grand Challenges in Global Health Initiatives" funded by the Bill and Melinda Gates Foundation. The discussions focused on developing countries' views and perspectives with respect to the ethical and cultural issues arising from the Grand Challenges in the Global Health Initiative. In September, the ED attended an INNOGEN Annual Conference entitled 'Genomics for Development? The Life Sciences and Poverty Reduction and presented a keynote paper on the topic: "Agricultural Science for Development". This conference took place in London, UK. In October she was in Cape Town, South Africa for the Institute for Security Studies (ISS) Council meeting. In November, she attended the Global Authors' Meeting III of the International Assessment of Agricultural Science and Technology (IAASTD) meeting in San Jose, Costa Rica and the Lemelson Foundation Board meeting in Los Angeles, USA. The Sub-Saharan Africa meeting of IAASTD was held in the same month in Addis Ababa, Ethiopia and the ED Chaired the meeting.

The Technical Adviser to the ED, Prof. Norman Clark, has been influential in two new potential ACTS projects. One that is now funded is with UNU-MERIT and FAO through the LINK initiative. The project assignment focuses specifically on exploring the nature of innovation response capacity in relation to livestock related emergencies in East Africa. It will use case studies in Kenya, Ethiopia and Sudan to both provide a better empirical base to the concept of response capacity as well as to draw out some tentative lessons for policy in the region. The assignment is linked to IGAD and thus has good policy uptake channels. In the second, ACTS has been short listed (two out of four) as the lead organisation in a DFID-funded international consortium on energy and development aimed at improving the equity of energy access for the poor as one key to achieving the Millennium Development Goals. If successful, the ACTS ED will serve as Director of the consortium, which will be in operation for five years.

Prof. Clark has continued to work closely with both Edinburgh and the Open Universities in a variety of respects including the INNOGEN programme. This has now been extended for a further 5 years. In this context he has presented papers to a range of conferences and workshops throughout the year as indicated below.

The technical adviser continues to assist the ED with the day to day oversight of research activities. He has published or been involved in several publications and activities during the year. These include the following:

- Member of the Millennium Development Goals (MDG) Task Force Team 10 on Science, Technology and Innovation.
- Adviser to the NEPAD secretariat in Pretoria.
- Lead Author in the International Assessment. Report of Agricultural Knowledge, Science and Technology for Development (IAASTD), World Bank, Washington.
- Member of the Edinburgh University/Open University ESRC research programme into the Social and Economic Impact of the New Genomics (INNOGEN).
- Associate Editor of the International Journal of Technology Management and Sustainable Development.
- Adviser to ILRI.
- Associate with the UNU/MERIT LINK Programme on Rural Innovation and Poverty.
- Adviser to the DFID-funded "Research into Use Programme", NR International.
- "Livestock R&D in East and Southern Africa: an Innovation Systems Perspective with Special Reference to the International Livestock Research Institute (ILRI)" IJTMSD with J Smith & M Hirvonen.
- "Client-Driven Biotechnology Research for Poor Farmers: A Case Study from India" IJTMSD, September (2006) with G P Reddy and A Hall.
- "Re-Visiting Agricultural Science for Development: A Conceptual Exploration" IDS 21 (forthcoming 2007).
- "Biotechnology and Biosafety Policy in Africa: An Empirical Exploration" with John Mugabe and James Smith (Routledge; forthcoming 2007)

The ACTS Governing Council (GC) is the supreme policy organ. The primary duties of the Governing Council are to interpret policies and formulate principles which guide the design of the activities of the Centre; conduct periodic reviews and approve the Centre's budget and audit of accounts, admit new members of the Centre who are not Founding Subscribers, appoint members of the various committees, appoint the Executive Director as well as monitor the programme performance. The GC also ensures that operational plans and control processes are in place and working. During the year 2006, there were twelve members of the Governing Council as detailed below. Members of the Council are drawn from sovereign states, inter-governmental organizations, academic/policy research institutions, corporate and non-governmental organizations as well as a representative appointed by the host country (Kenya). The GC meets once a year. The Executive Committee of the GC is the body that monitors the management and financial affairs as well as the execution of the programmes of the Centre, it meets 5-6 times a year. Other committees of the Council are the Nominations and Programmes committees.

The Governing Council Members

Prof. Ratemo Michieka

Chairperson of the Governing Council
P.O. Box 66527-00800 Nairobi, Kenya

Mr. Bruce Scott

Chair of Executive Committee
Director of Partnerships and Communication
International Livestock Research Institute (ILRI)
P.O. Box 30709 Nairobi, Kenya,
Email: b.scott@cgiar.org

Mr. Ivar Baste

Vice-Chair of Governing Council, Chair of Nominations Committee and Member of Executive Committee
Chief, Environment Assessment Branch, Division of Early Warning and Assessment
United Nations Environment Programme
P.O. Box 30552, Nairobi, Kenya
E-mail: ivar.Baste@unep.org

Prof. G.B.A. Okello

Member of Executive and Programme Committees of the Council
Representing the Third World Academy of Sciences (TWAS)
P.O. Box 24916 Nairobi, Kenya
E-mail: aas@africaonline.co.ke

Mr. Brent Swallow

Chair of Programme Committee and member of Executive Committee
Theme Leader, Environmental Services
World Agroforestry Centre (ICRAF)
P.O. Box 30677 Nairobi, Kenya
Email: b.swallow@cgiar.org

Prof. Mohamed H. Abdel Aaal

Member, Nominations and Programme Committees
Vice-Dean, Environment and Community Service
Faculty of Agriculture, Cairo University
12 Emil Nashid St. Pyramid Road Giza, Egypt
Email: mohaal@aucegypt.edu

Mr. Alick K. Manda

Member of Nominations Committee
Head of the National Research Council of Malawi
P.O. Box 30745 Lilongwe 3, Malawi
Email: akmanda@yahoo.co.uk

Prof. Judi W. Wakhungu

Secretary to Governing Council
Executive Director, African Centre for Technology Studies (ACTS)
United Nations Ave., Gigiri
P.O. Box 45917-00100 Nairobi, Kenya
E-mail: j.wakhungu@cgiar.org

Mrs. Margaret Maimba

Government of Kenya Representative
Member, Executive Committee,
Head, Department of Environment and Earth Sciences, National Council for Science and Technology
Ministry of Education, Science and Technology
Utalii House
P.O. Box 30623 Nairobi, Kenya
Email: mwgachigua@yahoo.com

Prof. Alfred A. Oteng-Yeboah

Member of Programme Committee
Deputy Director General (Environment & Health Sector), Council for Scientific and Industrial Research
Agostino Neto Road, Opposite Chinese Embassy
P.O. Box M.32, Accra, Ghana
E-mail: otengyeboah@yahoo.co.uk

Ambassador Pius Y. Ng'wandu

Member of Programme Committee
Executive Chairman, YASEKON International
P.O. Box 75430, Dar es Salaam, Tanzania
E-mail: yaseba7432000@yahoo.co.uk
Chief Executive
Malta Council for Science and Technology
Villa Bighi, Kalkara CSP12, Malta

Ms Violet Matiru

Member of Executive Committee
Acting Executive Director of Environmental Liaison Centre International (ELCI)
Muringa Road, Off Ngong Road
P.O. Box 72461, City Square Nairobi, Kenya
E-mail: violetm@elci.org

Human Resources

The Centre currently employs 17 people in its various programmes and projects. There is also a growing base of associates and consultants. The bias is towards recruiting researchers that are able to en-

hance the Centre's competence in the fields of science, technology and capacity building. In this respect, the Centre has retained the services of qualified researchers to expand the human resource base. It is also routine for researchers to proceed for further studies in order to enhance their skills. Many of them return to the Centre while some opt to remain in the pool of associates that ACTS draws on. In this way ACTS maintains a network with past and present employees.

During 2006, Mr. Brian Otiende joined ACTS in May as a research assistant after working as an intern in the research and publications department. Ms Cynthia Awuor and Mr. David Moindi joined the organization in September as research fellows to work in the Climate Change and Energy projects. At the same time Mr. Benson Ochieng', a Research Fellow, left ACTS at the expiry of his contract.

Ms. Sarah Keino, a graduate of Maseno University joined ACTS in October to intern in the Finance Department while Ms. Serah Nderitu, a graduate of the University of Nairobi, joined ACTS in December to intern as a Research Assistant.

Two Visiting Fellows joined the organization. First, is Mirjam Steglich, a UNU-MERIT researcher, who joined ACTS in December to conduct research on the nature of and constraints to rural innovation and the attendant policy implications. She started her assignment in August 2006 in the LINK East Africa Rural Innovation Policy Studies Hub in Addis Ababa. Second, Mr. Bob Bell, a graduate student of Prof. Calestous Juma at Harvard, came back to ACTS in December to continue with the research work he started in 2005 on biotechnology development in East Africa for economic transformation.

Below is the full list of ACTS employees as of December 2006:

Staff List December 2006

Judi Wakhungu	Executive Director
Norman Clark	Director of Research & Technical Adviser to ED
Anna Ogalo	Information Systems/HR Manager
Ronald Ajengo	Finance Manager
David Wafula	Research Fellow
Cynthia Awuor	Research Fellow
David Moindi	Research Fellow
Elvin Nyukuri	Research Fellow/Librarian
Andrew Adwerah	Research Assistant
Brian Otiende	Research Assistant
Joan Kariuki	Research Assistant
Susan Murunga	PA to ED
Tom Ogaga	Procurement Officer
Fridah Nkirote	Accounts Assistant
Harrison Maganga	Communications & PR Officer
Mary Muthoni	Publications Officer
Johnson Njenga	Driver

In addition to staff with fixed contracts, ACTS engages other people on contract or consultancies to provide specialized but periodic services for limited peri-

ods of time in the various projects and programmes. In 2006, the following personnel were engaged:

Research Associates/Consultants

Prof. Lawrence Gumbo – Consultant and Resource person for the Science and Technology Institute.

Resource persons for Biotechnology/Biosafety courses:

Prof. James Ochanda, UoN
 Prof. Eugene Terry, ICRAF-ILRI
 Dr. Gospel Omanyara, AATF
 Dr. Francis Nang'aya, AATF
 Dr. Margaret Karembu, ISAA-AfriTech
 Prof. James Smith, University of Edinburg

Resource persons for Sustainable Food Security Systems course

Prof. Michael Okoth, UoN
 Prof. Judith Waudu, Kenyatta University
 Mr. Protase Echessa, Consultant

Resource persons for Innovation Systems/MDG's course

Prof. James Smith, EU
 Mr. Maurice Bolo, ATPS
 Becky Hanlin, EU

Resource persons for Energy and Environment course

Eng. Jennifer Gache, Ken-Gen
 Prof. Cathy Stokes, Strathclyde University, UK
 Prof. Michael Okoth, UoN
 Prof. Chin Ong', ICRAF

Resource persons for Innovation Systems/RIU course

Prof. James Smith, EU
 Dr. Henry Kiara, ILRI, Kenya
 Dr. Dan Kisauzi, NIDA Uganda

Resource persons for ACTS/ITWRM Training course on Integrated Transboundary Water Resources Management

Mr. Ambrose Oroda, Consultant on ACTS/ITWRM project on Integrated Transboundary Water Resources Management
 Mr. Bjorn Hansson, ITWRM
 Dr. Simon Mulwa Mutie, JKUAT
 Mr. John Rao Nyaoro, Ministry of Water & Irrigation
 Dr. Stephen Obiero Anyango, KU

Other Consultants

Ms. Damaris Kinyoki, Consultant on ACTS/UNEP MOU on Science Initiative
 Mr. Albert Simiyu Murambi, Consultant to review ACTS/IISD MOU
 Mr. Joseph Nyangon, Consultant on web page development
 Dr. Michael Nzunga, Consultant on French translations
 Mr. John Sibi-Okumu, Editor

Finance and Administration

Finance and administration unit continued to provide valuable support to programme activities. As a result, there was minimal disruption to programme activities; expenditures were kept within budget, and donor funds were utilized for intended purposes.

During the year, the unit completed the design and implementation of a computerized budgetary control system. This system will improve budgetary controls in addition to enhancing financial reporting. Other functions that have been computerized during the year include procurement and accounts payables.

Summarized Audited Financial Statements

1. Income and expenditure statement		2006 US \$	2005 US \$	
Income				
Grants		1,329,920	703,071	
Consultancy		422,333	152,574	
Sundry		29,072	55,208	
Total Income		1,781,325	910,853	
Expenses				
Programme		1,385,734	620,114	
Administrative		292,580	253,976	
Total expenses		1,678,314	874,090	
Surplus / (Deficit) for the Year		103,011	36,763	
2. Balance Sheet		2006 US \$	2005 US \$	
Assets				
Non-current Assets		1,389,255	1,342,150	
Current Assets		837,678	563,749	
Total Assets		2,226,933	1,905,899	
Equity & Liabilities				
Capital & Reserves		1,599,725	1,441,638	
Current Liabilities		627,208	464,261	
Total Equity and Liabilities		2,226,933	1,905,899	
3. Cash Flow Statement		2006 US \$	2005 US \$	
Cash generated from operations		116,729	379,316	
Cash used in Investing activities		-7,072	-33,131	
Increase in cash and cash equivalents		109,657	346,185	
Cash and cash equivalents at beginning of year		482,748	136,563	
Cash and cash equivalents at end of year		592,405	482,748	
4. Statement of Changes in Reserves				
	General Fund US\$	Endowment Fund US\$	Capital Fund US\$	Total US\$
At 01 January 2005	86,638	1,272,833	7,110	1,366,581
Surplus for the Year	36,763	-	-	36,763
Interest on Endowment	-	40,556	-	40,556
Received during the year	-	-	1,247	1,247
Equipment Depreciation	-	-	-3,509	-3,509
At 31 December 2005	123,401	1,313,389	4,848	1,441,638
At 01 January 2006	123,401	1,313,389	4,848	1,441,638
Surplus for the Year	103,011	-	-	103,011
Interest earned	-	52,504	-	52,504
Received during the Year	-	-	7,072	7,072
Equipment Depreciation	-	-	-4,500	-4,500
At 31 December 2006	226,421	1,365,893	7,420	1,599,725

List of Donors

ACTS relies on donor funds to carry out its programmes. We would like to sincerely thank the following partners without whom we would not have realized the objectives for the year:

1. United States Agency for International Development (USAID)
2. The World Bank
3. Norwegian Agency for Development Cooperation (NORAD)
4. United Nations Environment Programme (UNEP)
5. Ramboll Natura AB
6. World Agroforestry Centre (ICRAF)
7. Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)
8. International Institute for Environmental Development (IIED)
9. Stockholm Environment Institute (SEI)
10. International Livestock Research Institute (ILRI)
11. The Lemelson Foundation

Publications and Outreach

The ACTS website was revamped and rebuilt to reflect the needs of ACTS and take advantage of new technology and software. It has an intranet for update of news and events. This function is designed to be the major outreach tool for all programmes and projects. The Centre has embarked on a project to digitize some of ACTS' past publications and post them on the web for easy access.

There was an increase in the number of workshops, training courses and conferences organized by, or attended by ACTS staff. During such events, the public relations and publications department take an active role in networking with participants and disseminating publications. Where possible, arrangements are made to invite relevant ministers to officiate at opening ceremonies and articulate government policies. This affords ACTS the opportunity to interact and convey information to relevant government officers.

The use of the media has also played a pivotal role in disseminating the Centre's outputs. During most of the major workshops, conferences and training seminars the public relations department invites major media houses to participate in the meetings or report on the proceedings for the wider public. We have had success with both local and international electronic media with ACTS staff being interviewed on current matters of science and technology, the environment and the emergent agricultural technologies like biotechnology and biosafety.

The Centre believes in building both the mind and body of its staff. We went to the Ostrich Farm out in Kitengela in Kajiado District (40 kilometers from Nairobi) to indulge in various activities that included a football match, tennis, ostrich riding and lots of nyama choma (barbecue). It was agreed all round (including some staff family members) that all had a lovely time and the opportunity was created for bonding and recreation. It was suggested that such events be held regularly.

Books and monographs

Nightingale, D.L. and Western, D. 2006. *The Future of the Open Rangelands: An Exchange of Ideas Between East Africa and the American Southwest* by. Nairobi: ACTS Press.

Paarlberg, R., Wafula, D., Minde, I and Wakhungu, J.W. 2006. *Projected Farm Income Gains in the COMESA/ASARECA Region from Commercialization*

of Bt Maize. Nairobi: ACTS Press. Paarlberg, R., Wafula, D., Minde, I and Wakhungu, J.W. 2006. *Projected Farm Income Gains in the COMESA/ASARECA Region from Commercialization of Bt Cotton*. Nairobi: ACTS Press.

Paarlberg, R., Wafula, D., Minde, I and Wakhungu, J.W. 2006. *Food Aid Import Policies in the COMESA/ASARECA Region: The Costs and Benefits of Current Policy Options*. Nairobi: ACTS Press.

Paarlberg, R., Wafula, D., Minde, I and Wakhungu, J.W. 2006. *Commercial Export Risks from Approval of Genetically Modified (GM) Crops in the COMESA/ASARECA Region*. Nairobi: ACTS Press.

Sikoyo, GM, Nyukuri, E. and Wakhungu, J.W. 2006. *Intellectual Property Protection in Africa: Status of Laws, Research and Policy Analysis in Ghana, Kenya, Nigeria, South Africa and Uganda*. *Ecopolicy 16*. Nairobi: ACTS Press.

Orindi A.V. and Zakieldean, S. 2006. *Integrating Adaptation to Climate Change into Development Plans and Policies in Sudan*. *Ecopolicy 17*. Nairobi: ACTS Press.

Orindi A.V., Kibona, E. and Moindi D.M. 2006. *Addressing Climate Change in the Development Process in Tanzania*. *Ecopolicy 18*. Nairobi: ACTS Press.

Wafula, D., and Waitthaka, M. 2006. *Proceedings of the Regional Approach to Biotechnology and Biosafety Policy in Eastern and Southern Africa (RABESA) Regional Workshop*. Nairobi: ACTS Press.


Paarlberg, R., Wafula, D., Minde, I., Wakhungu, J.W. 2006. *L'approche Régionale À La Politique En Matière De Biotechnologie Et De Biosécurité En Afrique De L'est Et Australe: Abrégé*. Nairobi: ACTS Press.

Policy Briefs

Eriksen S., Ulsrud, K. Lind, J. and Muok, B. 2006. *The Urgent Need to Increase Adaptive Capacities: Evidence from Kenyan Drylands*. Nairobi: ACTS Press.

Capacity Strengthening in the Least Developed Countries (LDCS) for Adaptation to Climate Change (CLAAC) Special Issue for UNFCCC Cop 12/MOP2. Nairobi: ACTS Press.

Bailis, R., Kirubi, C. and Jacobson, A. 2006. *Searching for Sustainability: Kenya's Energy Past and Future*. Nairobi: ACTS Press.



ACTS' Vision

*Better living standards for all in Africa
through harnessing science and technology
for sustainable development*

ACTS' Mission

*To strengthen the capacity
of African countries
and institutions to harness
science and technology
for sustainable development*