The Role of Science Academies in Generating Evidence-Based Advice for Effective Policy Decision Making: The Case of Climate Change

REPORT OF REGIONAL WORKSHOP OF THE NETWORK OF AFRICAN ACADEMIES OF SCIENCE (NASAC)

HOSTED BY

THE UGANDA NATIONAL ACADEMY OF SCIENCES (UNAS)

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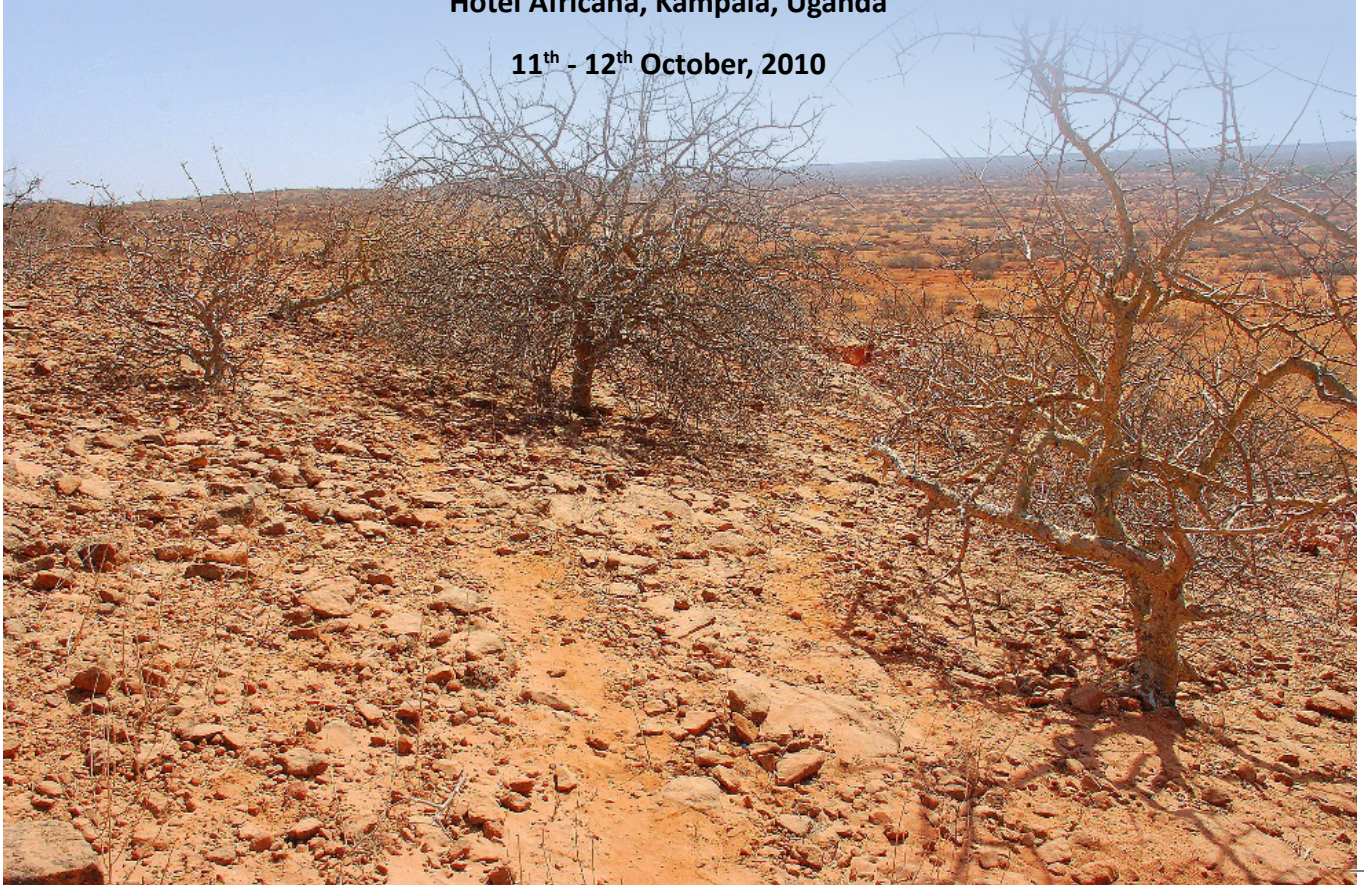

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UGANDA NATIONAL ACADEMY OF SCIENCES

The Uganda National Academy of Sciences (UNAS) works to achieve improved prosperity and welfare for the people of Uganda by generating, promoting, sharing, and using scientific knowledge and by giving evidence-based advice to government and civil society. UNAS was founded in 2000 and was granted a Charter by His Excellency the President of Uganda in 2009. It is an honorific and service-oriented organization founded on principles of objectivity, scientific rigour, transparency, mutual respect, linkages and partnerships, independence, and the celebration of excellence.

Council

PREFACE

The vision of the Uganda National Academy of Sciences (UNAS) is improved prosperity and welfare for the people of Uganda through science. The mission of UNAS is to generate, promote, share, and use scientific knowledge and to give evidence-based advice to government and civil society. Fulfilment of this mission is intended to advance Uganda's ability to address its national development challenges by:

- engaging in a series of scientific activities designed to elucidate potential evidence-based solutions to pressing national and regional development-related concerns;
- enhancing the capacity of UNAS to provide relevant and useful scientific policy advice; and
- building Uganda's appreciation of and demand for advice from UNAS.

UNAS is an autonomous body that brings together a diverse group of experts from all scientific fields who work together in an inter- and trans - disciplinary manner to achieve their main goal of promoting excellence in science and offering independent, evidence-based advice for the prosperity of Uganda. To fulfil its mission, UNAS has, since its founding in 2000, used a number of advisory models that have included both convening and consensus activities to (1) highlight and elucidate issues and (2) provide recommendations for addressing these issues. The former activities have involved mainly conducting workshops where experts speak authoritatively on issues of concern, while the latter have entailed primarily convening expert committees to undertake consensus studies.

This report covers an African wide conference which highlights how the Academies have been formed and how they operate. However to exemplify their operations, this particular conference has also highlighted the emerging issue of Climate Change in Africa resulting in building a consensus on ecosystem resilience, climate change mitigation and adaptation.

ACKNOWLEDGEMENTS

The Uganda National Academy of Sciences (UNAS) wishes to express its warmest appreciation to the individuals and organizations which have fully participated in this workshop (full list of participants in Appendix A). The time and resources spent in this regard are duly appreciated.

Also deeply appreciated is the time and resources of the key presenters from the different countries of Africa; we sincerely hope that this collaboration will keep growing for the good of African development.

We also wish to thank the Network of African Science Academies (NASAC) for the technical and financial support without which this conference would not have taken place. NASAC will certainly continue playing a major role in its coordinating role of African Academies of Science and UNAS is indeed a very grateful recipient of their support.

Finally special regards go to the editors whose good work has resulted in this report. The views presented in this report are those of the individual authors and are not necessarily those of Uganda National Academy of Sciences.

Professor Paul Edward Mugambi

PRESIDENT

UGANDA NATIONAL ACADEMY OF SCIENCES

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ACRONYMS

ADB	African Development Bank
ASADI	African Science Academies Development Initiative
ASSAf	Academy of Sciences of South Africa
AU	African Union
MDGs	Millennium Development Goals
NASAC	Network of African Science Academies
NCCPC	National Climate Change Policy Committee
NEPAD	New Economic Partnership for African Development
NGO	Non Governmental Organizations
UNFCCC	United Nations Framework Convention for Climate Change
UN	United Nations
UNAS	Uganda National Academy of Sciences
SADC	Southern Africa Development Community

Executive Summary

The Network of African Science Academies (NASAC) and Uganda National Academy of Science (UNAS) hosted a workshop for the Eastern region with the theme "The role of academies in generating evidence based advice for effective policy decision making: The case of climate change" on 11-12th of October 2010. The workshop drew experts in climate change related sciences, members of various academies and scientists from Burundi, Ethiopia, Kenya, Mali, Rwanda, South Africa and Uganda.

The objectives of the workshop were to provide a platform for sharing and networking among national academies in the region. It also sought to initiate dialogue aimed at creating national academies in countries where they do not exist. In addition the workshop sought to generate and disseminate a policy brief on climate change in Eastern Africa with a view to demonstrate the role of national academies in national development.

The workshop discussed issues of how academies can be initiated and strengthened to effectively influence national policies. In countries where the academies do not exist it was necessary to identify champions to mobilise local scientists and sensitise the policy makers and ordinary people on the benefits of academies. To strength existing academies there was need for scientists to forge close ties with policy makers in order to obtain funds and influence policy. Secretariat strengthening and active participation of academy member was noted as important for the academies to function optimally.

The workshop deliberated on roles and challenges faced by academies in influencing policies related to climate change. Paucity of empirical evidence and limited capacity to do climate change related research was the main impediment towards influencing national policies. Equally important was the availability and recognition of policy documents and implementation strategies. NASAC will be called upon to set up a panel of experts on climate change to guide decision making by academies.

In conclusion, participants noted that there was need for NASAC to continue engaging existing national academies to facilitate the creation of academies in African countries without academies. Climate change impacts are already manifesting in most of the African countries. For this reason, scientist need to generate evidence based strategies using sufficient, standardised data to influence policy on climate change mitigation and coping strategies. The NASAC would consider establishing a panel of experts on Climate Change to generate reports that would guide decision making within the Eastern Africa region.

Session 1: Evolution of National Academies and Regional Academy Networks

1.1 Role of Regional Academy Networks with specific emphasis on the Network of African Science Academies (NASAC)

By Jackie Olang, Network Coordinator, NASAC

An overview of NASAC outlining its roles, mandates, challenges and opportunities for engaging national academies was presented. Currently NASAC has a membership of 17 academies and in the process of bringing on board Namibia and Egypt. It was revealed that the main thrust of NASAC is to offer independent, credible science based advice for policy formulation towards economic, social and cultural development. Several roles set by NASAC were outlined which include:

i. Improvement of communication of science relevant to society through simple messages;

ii. Honouring contribution to science, policy and society;

iii. Facilitating networking and sharing ideas through local and international fora; and

iv. Ensure that policies being enacted support or enhance activities of science.

From its inception NASAC has been engaged in a number of key activities of regional and global importance. NASAC has been involved in implementation of regional programmes focusing on water development, promoting participation of women in science academies and promoting science education. Most of the NASAC activities at continent level are guided by international and global aspiration such as the Millennium Development Goals (MDGs). The drafting of statements for building capacity in science and technology for Africa, are key examples of initiatives that are intended to influence policy decisions.

NASAC has also faced some challenges in its endeavour to bring on board new member academies and strengthening existing members. These challenges include:

- Limited financial resources;
- Minimal membership form young scientists; and
- Lack of collective action among scientists with each acting in isolation.

Despite these challenges, a number of opportunities which NASAC can exploit do exist, such as mutual partnerships with existing regional and international bodies such as African Development Bank (ADB), New Economic Partnership for Africa's Development (NEPAD), Southern African Development Community (SADC), committed to science. The acknowledgement by most African governments that science and technology needs to be funded from the national GDP offers an opportunity for academies to acquire stable sources of funding.

In conclusion, it was reported that NASAC endeavours to make all member academies strong

and it is a collective responsibility to bring together the best brains in all the African countries that can promote and advocate for the utilisation of science and innovation technology. Through collaboration with NASAC member countries are likely to benefit through joint initiatives and sustained partnerships necessary to meet the unique needs of each country.

1.2 The Genesis and Role of National Academies

By Professor William B. Banage

The role of academies as sources of practical solutions was presented. Besides the honorific role that academies have traditionally been thought to play academies present a platform for members to:

i. Share ideas in the field of science;

ii. Encourage scientific careers through special scientific committees and promoting science education;

iii. Scouting for funds to support research, national collaboration;

iv. Engage the public to enhance understanding and address concerns; and,

v. International cooperative programmes.

It was noted that participating in the setting up of an academy does not necessarily imply that one has to be a member of an academy; membership should be honorific and merit-based. Academies have a wider role to play when compared to national science councils. The first national academies were established to play both a honorific and service role, for instance, the France and US academies where were set up specifically engage eminent scientists to address problems through the application of scientific innovations. Eastern/Soviet type academies form part of the government structure as opposed to Western type academies which are independent. In the Eastern type academies, which are hierarchical and ideological governments give tasks of what is to be achieved. The need to establish more independent merit-based academies within the African continent to further the continents science agenda was highlighted.

1.3 Discussions – Genesis and Role of National Academies

The issue of which type of academy (Eastern/Soviet versus Western) is most ideal for a country setting up an academy was raised. In response, it was noted that each country had its own peculiarities; however, in most African countries autonomy is not recognised. Accordingly, the academy should be modelled to a meet a country's needs. There was a debate on whether funds could be obtained from government whilst maintaining academy independence. A recommendation was made that recognition by government is necessary as this would facilitate access to government funding, but that national academies should maintain independence as a core value.

A point of clarification was sought on how academies could practice science that is useful to society. It was pointed out that scientists need to come up with frameworks and practical issues that help illuminate society challenges. A recommendation was made that packaging of scientific

information for appropriate audiences was necessary for ease of uptake. Furthermore this can allow academies to engage policy makers on science related issues of national interest.

Another issue raised was how the African Union (AU) was using Academies to further the science agenda of the continent. This was stemmed from the observation that successful academies in the western world were initiated by the leaders yet in Africa that is not the case. In response it was noted that AU had a complex structure hence most of the lobbying for academies was being done through the Ministries of Higher Education and Ministries of Science and Technology.

Session 2: Evolution of National Academies

2.1 Models, Governance and Membership of National Science Academies: the case of the Kenya National Academy of Science

Professor Dominic Makawiti

A synopsis of various academy governance structures was presented. It noted that it is important for academies to combine their roles of being learned, advisory societies and managers of research. Various sources of funding are necessary for an academy to be functional which may include levies from research funds, non profit organisation, membership fees and income generating activities. Sourcing government funding does not necessary imply that government is interfering in the activities of the academy. As an example, the Kenya National Academy of Sciences was founded in 1983 under the auspices of the National Council for Science and Technology. The main objectives of the academy are:

> "To promote the advancement of scientific and technological knowledge, to establish and enhance standards of scientific and technological endeavour and achievement in Kenya, and to recognize outstanding contributions in the fields of science and technology."

It was pointed out that the major strengths of the academy are having the president as the patron together with a legal instrument in place recognising its existence. The executive committee is involved in the day-to-day administration of the academy. Within the governance structure it was stated that the specialist committees undertake special projects such as technical report evaluation, supervision of projects and election of fellows. Several other committees exist such as the standing committee whose role is to advice the governing council; editorial and publication committee and award committee.

For one to be a member of the academy it is imperative that they be of a citizen of a certain academic standing. Various other membership categories are fellows and honorary fellows. The role of the academy is to administer funds for research projects, forge collaboration with various local and international partners. The other role of the academy is to arrange meetings with the media and international partners. It was emphasised that the government has been supportive of the academy through strategic plan preparation and mobilising funds for various activities. The academy's strength lies in the availability of legal instruments from government, a wide variety of expertise, linkages with various international organisations and the capacity to disseminate information. Notwithstanding the strengths, various challenges exist such as lack of sustainable funding, weak linkages with government and limited relations to the public.

In conclusion it was observed that numerous opportunities still exist for the academy such as political goodwill, strong linkages with the private sector and industry. The ability to manage research funds and availability of members for recruitment presents opportunities for the academy. However, low investment to science research, poor remuneration and non-recognition of science policy makers remains a threat to the academy.

2.2 Case studies of contributions to evidence-based policy decisions and resources mobilisation for National Academies

Dr. Oladoyin Odubanjo

The mandate of academies is to provide independent, credible, evidence based advice for policy making. As such case studies of how academies can influence policy making using various methods were presented. It was noted that most of our African societies are not guided by evidence based research hence the need for re-orientation. In Nigeria, the Academy of Sciences has been involved in a number of activities with the aim of influencing government policy. The academy has been involved in information dissemination through publications, public lectures, workshops and expert meetings especially on controversial topics. To increase visibility of the academy, the media has been actively engaged in round table meetings and during evaluations of scientific publications. It was noted that bridging the gap between the scientists and journalists is key for informed reporting thus influencing policy.

Typical examples of evidence based policy were in the Nigerian health systems, where the free health policy for mothers and children was borne out of a drive to reduce child mortality. Mid level - , senior policy makers and researchers were engaged in discussions with a view to influence policy starting at the low level. It is hoped that these efforts will be up-scaled to the national level. The awarding of science and literature awards through public/private sector partnerships brings attention to science thus impacting on policy issues. Academies can influence policy in a number of ways, however, funding has to be sought from various source to ensure independence of the academy.

2.3 Experiences and Progress in Developing a National Academy

Dr. Takalani S. Rambau

A background on the formation of the Academy of Science of South Africa (ASSAf) in 1996 was presented. The academy is engaged in a number of projects both within South African and the region. Within the country the main projects include consensus and forum studies. In the consensus studies key experts deliberate on important issues of interest whereas in forum studies non authoritative reports are prepared by various stakeholders. ASSAf is also championing the creation and strengthening of academies within the Southern African Development Community (SADC). Through this initiative ASSAf hopes to create partnerships within the region, mobilise resources and seek recognition from governments to foster evidence based policy advice from science. A regional body, Southern African-Science Academies Development Initiative (SA-SADI) has been formed in this regard. Currently 7 out of the 13 SADC member countries have academies. The impact of the regional grouping of science academies is envisaged to:

- Strengthen science systems within the member countries;
- Strengthen policy advisory initiation;
- Promote linkages and knowledge sharing within Southern African scientists; and
- Enhance relationship with the SADC desk on science and technology.

The ASSAf is committed to engage scientists within SADC to:

i. Further engagement with policy makers;

ii. Engagement with universities; and

iii. Continue with academy development initiatives within the region.

2.4 Discussions – Evolution and mandate of National Academies

Following the presentation several issues were raised regarding policy advice given by academies to governments. It was suggested that most of the recommendations were faulty as there were rarely taken up by governments. In response, it was pointed out that it was necessary for academies to build a reputation for evidence based research. There is need for academies to make recommendations irrespective of whether there adopted by governments. Emphasis was put on the fact that academies were pro-active thinking ahead whilst policy makers were reactive.

The existence of several governance structures within academies means each is unique. Thus it is important that NASAC to undertake a comparative study on how they operate. It was recommended that new academies being establish can pick ideal governance structures from different academies and bring them together since there is no ideal structure.

During the discussion there was concern how the academies would remain objective if there are sponsored by the government. In response, it was clarified as a core value; academies should not have any political inclination. Therefore it was necessary for all academies to build a brand of independent, credible advice to government.

Session 3: Generating Ideas for creation and/or strengthening on National Academies

3.1 Steps to initiate creation of National Academies

One of NASAC's role is the creation of academies in countries where they non-existent. Therefore the group discussion had members from NASAC, Burundi and Rwanda who have expressed interest in setting up academies. A number of steps were discussed and listed as critical for the setting up of academies;

- Identifying key individuals within these countries who will act as champions for the establishment of academies;
- Sensitisation of the interested countries by regional academy leaders;
- Access to the existing pool of scientists;
- Initiate a needs assessment;
- Communicate benefits of having academies; and
- Soliciting support from policy and decision makers.

It was noted that consideration of pre-existing bodies within the respective countries was necessary to avoid conflicts of interest. Working with government and scientists abroad could help the academy financially and avail a critical mass of intellectuals. Several other recommendations were drawn from this group discussion. It was recommended that champions of academies in Rwanda and Burundi be selected from the workshop participants. Steps should be undertaken to hold formal meetings with scientists in these two countries with the help of NASAC. Possible hurdles that were envisaged were inadequate funding, existence of informal academies and which fields fell under "science".

3.2 Feasible actions towards strengthening existing National Academies

With a view to strengthen science academies a synopsis of key challenges faced by academies were outlined and deliberated on. The prime challenge was access to reliable funding. Source of funding was noted to drive the focus of academies, for example, academies wholly funded by governments focus on national issues. Conversely, academies relying on donor funding tended to focus on global issues. As a remedy it was suggested that academies access funds form national governments and in addition raise funds through various activities such as endowment funds and selling publications.

Non-participation by members due to other commitments was also raised as major issue affecting the performance of academies. Possible solutions that were suggested included availability of incentives for participation, enactment of by-laws to encourage participation and implementing

other decision methods such as electronic methods. Adequate secretariat staff support in terms of training and remuneration were also mentioned as key to efficient management of academies.

A close relationship between government and scientist is necessary for academies to influence society. Thus closer linkages between scientists and political leaders should be fostered. It was noted that packaging information in a way that is easily understood by the media and policy makers could promote engagement. Accessing parliamentarians by scientist through pairing schemes or through fellows in governments could promote scientist as social forces that can influence society.

3.3 Discussions – Creating and Strengthening Existing National Academies

It was noted that home grown solutions to challenges faced by academies were necessary. A recommendation was suggested that NASAC undertakes training of various secretariat staff as their systems have been developed for several years for the African continent. In further discussions, the issue of academy visibility by society was fronted as key to influencing policy. This could be through outreach, community based activities and public lectures. However, it was noted that despite the call for national academies to be actively involved in policy implementation governments tend to ignore academies. An example was the National Government Plan of Uganda which was formulated without consultation of the Academy.

Session 4: Demonstrating the role of National Academies

4.1 International Conventions on Climate Change and policy/legislative framework gaps at national levels

Professor Mwajaliwa Mwajalolo

The economic dependence of Uganda in agriculture means climate change is likely to have significant economic implications. Most models predict that climate in Uganda will become wetter, with increased risks of erosion and flooding. Hence there is an urgent need for the country to have a policy on climate change. Besides agriculture several other threats exist such as increase in the prevalence of water borne and sanitation related diseases. In addition damage to infrastructure, floods are likely to result in the displacement of communities.

Several steps have been undertaken by Uganda to facilitate its commitment to creating a policy geared towards fighting climate change. The establishment of a multi sectoral National Climate Change Policy Committee (NCCPC) and Climate change unit under the Ministry of Water and Environment meant movement towards establishment of a national policy. The climate change unit has a mandate of:

- Coordinating the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) ratified by Uganda in 1993 and the Kyoto protocol;
- Sensitising various stakeholders on climate change related issues;
- Monitoring the implementation of mitigation and adaptation activities; and
- Coordinating the development, implementation and review of climate change policy in Uganda
- Ensure Uganda effectively participates in climate change negotiations.

Despite the absence of a policy on climate change to date several achievements have been realised targeting different stakeholders. Development strategies for enhancing community resilience to the negative impacts of climate change and establishment of a secretariat to support NCCPC coordinate efforts to respond to the challenges of climate change show that significant strides have been made. Most of the climate change mitigation strategies are, however, not evidence based.

As a conclusion, it was noted that the climate change policy is expected in 2011, but there are several gaps that need to be taken into account prior to release. Issues such as data/information consolidation and standards need to be taken into account. Currently there is no sufficient data that can be used at different levels to influence policies. Despite a lot of research being done on adaptation very little quantitative data is available on emissions and mitigation. Similarly, capacity building through training climate change experts has to be taken account since in the no experts exist in the country. Technology transfer through data collection, use of remote sensing and GIS is necessary to accurately project the future using data circulation models. Down scaling of climate change models to depict variation at village level is necessary for relevant data to be collected. Government budgetary allocation for mitigation and adaptation strategies, access to clean technologies, strong public-private partnerships and harmonisation of the various sectors were noted to be necessary to effectively tackle the issue of climate change in Uganda.

4.2 Data and policy issues and challenges for water management in Kenya

Dr D. Olago

Proper management of ground resources is necessary in the wake of rapid population increase and contamination of surface water sources in Kenya. The potential impacts of climate change on ground water resources such as aquifers which now serve as a major source of water for households and livestock are likely to be dire. Thus a thorough understanding of ground water resources requires urgent attention so as to guide the policy of ground water management.

Climate is the single most important factor affecting the recharge of many lakes in Kenya located in the rift valley. Various projections have been made regarding temperature, annual rainfall and length of the growing season changes expected as climate change sets in East Africa. These two environmental factors will directly impact on the ground water resources which have become the chief water source for Kenya. Several possible impacts have been documented;

- The projected increase in rainfall and rainfall intensity is likely to increase surface runoff to surface water bodies depriving ground water replenishment;
- Higher surface runoff could also imply more recharge to lakes which may in turn recharge the surrounding aquifers;
- Increase in mean annual temperature is likely to increase evaporation or shorter rainfall season could imply shortened recharge seasons; and
- Depletion of land cover may affect ground water quality due to salts from salinised soils.

Despite these potential impacts, the absence of data on temperature and rainfall patterns, aquifer characterisation means it is a challenge to influence policy. Such data constraints are attributed to limited publication of information on ground water resources and weak water monitoring policies. It was noted that only one ground water source, Baricho aquifer had been adequately characterised. Thus no water balance studies exist on other important aquifers which makes it difficult to rationally allocate the amount of ground water available.

Several recommendations were suggested that centred to obtaining the necessary data that could result in an understanding of ground water resources. Such evidence based research on ground water resources could allow for sustainable ground water management which is under threat from climate change. A national water policy could lay the foundation for effective ground water management.

4.3 Experiences from Ethiopia on Efforts to Mitigate Climate Change

Dr Agajie Tesfaye

Climate change remains an issue of great importance as it threatens to affect agriculture, water resources, biodiversity and ecosystems. Agriculture is more threatened due to the expected upsurge in climate related hazards in Ethiopia which include drought, floods, heat waves, heavy rains, strong winds and frost. It was noted that the rainfed nature of Ethiopian agriculture is due to underdeveloped water resources, low development and adaptive capacity which implies high vulnerability. Expected climate change related impacts are:

- Increased food insecurity;
- Disease outbreaks due to high temperature and flooding;
- Land degradation; and
- Loss of livelihoods mostly by women.

The threat of climate change has necessitated the enactment of various national and sectoral policies to deal direct or indirectly with the issue. However, despite the existence of several policies to lack of capacity on research and development on research and development is a barrier to these initiatives. Lack of coordination mechanisms and inadequacies in cross-sectorial links between ministries and departments were cited as some of the impediments to addressing climate change. Limited finance coupled with lack of outreach to local communities on climate change related issues has limited the gains on adaptation mechanisms.

It was noted that currently a number of traditional coping mechanisms are in place to minimise the impact of climate change and the following have been extensively used in Ethiopia:

- changes in cropping and planting practices;
- use of inter-household transfers and loans;
- temporary and permanent migration in search of employment;
- grain storage;
- sale of assets such as livestock and agricultural tools;
- mortgaging of land;
- credit from village money lenders; and
- Use of early warning systems.

Several adaptation mechanisms were suggested focusing on ways to minimise the impact on the farmer and ways of predicting the occurrence of adverse weather conditions. In order to minimise the impact of climate change on the farmer crop insurance was fronted as a major adaptation strategy. Irrigation and water harnessing schemes could help farmers minimise the impacts of droughts. Like most institutions in Africa, building a critical mass of climate change experts in Ethiopia will be critical. This could further facilitate the establishment of climate change research centres to manage early warning systems and rangeland practises.

In conclusion, it was noted that government and NGOs sector were committed to reducing the impact of climate change. A policy document is under preparation for the creation of an institute of climate change research, to facilitate the responsiveness of Ethiopia to climate change.

4.4 Water balance studies in the Lake Victoria Basin

Professor M. Tenywa

The lakes in East Africa provide an ideal opportunity to study climate change variability. Lake Victoria is the largest fresh water lake in Africa with the highest population growth rate around its 100km buffer zone. The shallowness of the lake thus sensitivity to rainfall fluctuations provides a key to understanding climate variability. In this regard the lake has been of interest in the context of water balance. It was reported that Lake Victoria water inflow and outflow is dominated by rainfall and evaporation. As such the lake is a good indicator of climatic fluctuations that occurred over several millennia, recent history and geologic time through sediment study. It was noted that Lake Victoria had varied by up to 3 metres over the past century in response to rainfall. More recently, in the 1990's the lake was about a meter higher that it is now. As such this can be a useful evidence for climate change. In conclusion it was noted that despite this evidence a number of gaps exist such as that it is necessary to gather more evidence that can further validate the occurrence of climate change using the water balance of Lake Victoria. These are:

- Development of a simple indicator of climate change based on hydrological fluctuations;
- Establishment of a relationship between temperature and evaporation;
- Calibration of water balance models to inform decisions on water abstraction;
- Analysis of historical sedimentation; and
- Collection of reliable data to parameterize mathematical models of water balances.

4.5 Policy Issues and challenges on climate change mitigation efforts in Burundi

Dr Ndihokubwayo

Burundi like most countries in eastern Africa is working towards the establishment of a national policy of climate change. National strategies aimed implementing the UN protocol on climate change focus on the sectors of energy, agriculture and livestock, industry and waste management, and forestry. A major challenge remains the lack of collected data on climate change and inventories of green house emissions. Policy support for aforestation and establishment of key national groups working on climate is lacking. Thus a national plan of action has been drafted for enhancing the country's adaptation to climate change through:

- Reinforcing institutional capacity to deal with climate change related issues;
- Increased information sharing and knowledge improvement;
- Integrating climate change in national policy development;
- Improving the management of the agricultural sector;
- Integrating management of water resources;
- Reinforcing health systems in preventing and managing disaster; and,
- Protecting ecosystems and biodiversity.

In conclusion it was noted that a policy framework has to be in place for Burundi to begin implementing some of adaptation and mitigation strategies.

4.6 Discussions – Policy issues and challenges on climate change mitigation efforts

A point of clarification on the available traditional coping strategies of climate change in Uganda and other countries is east Africa. It was pointed on that in Uganda scientific validation of these methods is missing hence their role cannot be ascertained. However, in Kenya it was noted that indigenous knowledge used to predict occurrence climate related anomalies had become difficult to use because of changes in vegetation and animal behaviour which are used in the prediction.

There was a debate on whether climate change is really occurring since in the past similar adverse conditions occurred. It was pointed out that indeed climate change was occurring as evidenced by an increase in atmospheric carbon dioxide concentration. Nonetheless, considerable amount of data spanning over a long period of time was require to conclusively prove this. In was further mentioned that the reason developing nations a facing greater climate change related problems is because of lack of resources.

A clarification was sought on how the issue of ground water problem in Kenya could be used in Uganda since it was likely to have a similar impact. In response, it noted that regional integration could help Uganda because of its weaker policies. It was also recommended that climate change research institutes were important for the acquisition of data and formulating of various coping strategies.

A point of clarification was sought on whether the Lake Victoria studies involved collecting data on change in the surface area and carbon sequestration. In response it was stated that no studies changes in surface area had been done. Furthermore, no studies were done on carbon isotopes since results from such studies were not useful as empirical evidence. The speaker also alluded to the fact that no studies had been done on the impact of water fluctuations on the livelihoods of people in the surrounding areas. The impact of deforestation and population growth on climate change in Uganda was discussed. It was however, concluded that the unavailability of reliable data was an impediment to reaching a conclusion on the impact of deforestation and population growth.

It was enquired which of the climate change mitigation strategies had been effective in Burundi. In response, it was noted that no strategy had been implemented what was required first was building capacity.

Session 5: Developing consensus on key issues in ecosystem resilience, climate change mitigation and adaptation

5.1 Pre-requisites for creating a favourable policy and legal framework for mitigation of climate change impacts in eastern Africa

- Availability of Knowledge
- Convince the government to acknowledge existence of climate change
- Begin taking data, including taking data from other areas since this is a global issue
- Let the governments see the link between climate change and adaptation
- Breed for better more resistant varieties
- Build capacity both human and institutional (people trained in policy negotiations)
- Be empowered in research through institutes both at local and regional level
- Including climate change in the school and university curriculum
- Sensitize leadership on climate change related issues
- Political commitment to international climate change treaties
- Campaigning for activities such as aforestation
- Create awareness in the population about climate change
- Alternative means of livelihood e.g., instead of cutting of firewood
- Enact legislation that applies to all sectors
- Carbon compensation
- Planning for mitigation of floods/droughts
- Climate change is cross-cutting – overarching policy

5.2 Potential impediments apart from policy and legal frameworks to ecosystems resilience and mitigation of climate change impacts

- Attitudes and lack of knowledge;
- Land tenure systems that prevent sustainable land use;
- Unsustainable use of natural resources; and,
- Population pressure and natural hazards.

5.3 Gaps and challenges in National level efforts towards preparedness for climate change impacts

- Unknown hydrological properties of most environments;
- Lack of indigenous knowledge for predicting and coping;
- Limited experts in climate related fields;
- Lack of multidisciplinary approach in combating climate change;
- Unavailability of government funds;
- Most/all projects and research funded by foreign agencies and NGOs; and
- Lack of policy documents and implementation strategies.

Mitigation/Adaptation Strategies should focus on the following:

- Stabilizing farming practices, renewable energy, biofuels, re-forestation to combat soil erosion;
- Consider that interest of public and private organizations differ thus create win-win a situation;
- Environmental-cost analysis – community vulnerability mapping; and,
- Tax breaks or incentives for implementing adaptive measures.

5.4 Strategies and effective actions for putting climate change adaptation in the development mainstream

1. Facilitate and encourage interaction between government, private and academic sectors;
2. Set up climate change expert panel at NASAC;
3. Undertake environmental impact assessment at national level using national academies; and,
4. Increase awareness/implementation of carbon trading mechanisms.

APPENDICES

APPENDIX A

NASAC STATEMENT ON CLIMATE CHANGE MITIGATION CHALLENGES IN EASTERN AFRICA

We members of the Network of African Science Academies (NASAC)) meeting held in Kampala, on 11-12 October 2010, for a Regional Workshop on the theme "The Role of Science Academies in Generating Evidence based advice for effective policy decision making", hosted by the Uganda National Academy of Sciences (UNAS)

Agreed that:

1. Science plays an important role in national development and a society with policies stirred by science is necessary
2. Availability of experts, institutional capacity and data on climate change related issues is crucial for coping and mitigation strategies to be adopted into law
3. Climate change impacts in Eastern Africa are immense and include natural impacts such as glacial melting, droughts, floods and landslides. Socio-economic impacts include food security, health, and economic development
4. Given the economic dependence on agriculture in Eastern Africa, climate change is likely to have significant economic implications.

Noted the following challenges, effects and manifestation of climate change impacts in the Eastern Africa region:

- Floods and landslides cause injuries, loss of lives and displacement of communities;
- Drought leading to crop failure and death of livestock;
- Flooding leading to contamination of water sources and outbreak of Sanitation related diseases e.g. Hepatitis E and cholera;
- Outbreak of vector-borne diseases especially malaria with a marked Shift from lowlands to highland areas which were previously malaria-free;
- Damage to agriculture and crop failure resulting into food insecurity and malnutrition;
- Damage to infrastructure: roads, health facilities, homesteads which affect health service delivery;

- Lack of evidence-based strategies for mitigation of climate change effects, including inadequate data and validation of grey literature/traditional knowledge; and

- Limited institutional and infrastructural capacity to deal with climate change and variability including among others, policy gaps for effective decision-making, inadequate valuation of ecosystems functions and services and natural resource conflicts.

Recommend that:

1. National academies be facilitated by their respective national governments and partners to create awareness and generate reliable data and information on various aspects of climate change, including carbon trading and impact assessments in the region;

2. Governments honour their pledge of committing 1% of GDP to climate change related issues

3. Efforts to consolidate and standardise national policies on climate change and adaptability should be enhanced;

4. A multidisciplinary approach be adopted to combat climate change, including developing capacity for generation and dissemination of empirical evidence on climate change; and,

5. Partnerships be established between the public and private sector to develop mitigating and coping strategies.

APPENDIX B

PARTICIPANTS LIST:

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