



**TEGEMEO INSTITUTE OF AGRICULTURAL
POLICY AND DEVELOPMENT**

**PROCEEDINGS OF THE WORKSHOP
ON
CLIMATE CHANGE AND RURAL LIVELIHOODS
HELD ON
FEBRUARY 3, 2011 AT FAIRVIEW HOTEL, NAIROBI**

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ACRONYMS

AGRA	Alliance for Green Revolution in Africa
ASAL	Arid and Semi-arid Land
ASDS	Agricultural Sector Development Strategy
CIC	Climate Innovation Center
COMESA	Common Market for Eastern and Southern Africa
DVC	Deputy Vice Chancellor
FSD	Financial Sector Deepening
GTZ	Gesellschaft für Technische Zusammenarbeit
ICPAC	IGAD Climate Prediction and Applications Centre
IGAD	Intergovernmental Authority on Development
IPCC	Intergovernmental Panel on Climate Change
ARI	Kenya Agricultural Research Institute
KMD	Kenya Meteorological Department
MoA	Ministry of Agriculture
MTEF	Medium Term Expenditure Framework
NEMA	National Environment Management Authority
PPP	Public Private Partnership
RESAPP	Regional Environmental and Sustainable Agricultural Productivity Programme
RF	Rockefeller Foundation
SALM	Sustainable Agriculture Land use Management
SCC-Vi	Swedish Cooperative Centre
SRA	Strategy for Revitalizing Agriculture
UNFCCC	United Nations Framework Convention on Climate Change
WIND	Weather Information for Development

WORKSHOP ON CLIMATE CHANGE AND RURAL LIVELIHOODS

Introduction

Climate change is currently one of the major challenges facing the world. This is particularly so for Sub-Saharan Africa, which has minimal capacity to build resilience against its effects. Climate variability and change and associated droughts and floods directly affect agricultural production and food security given that most of the population in Africa lives in the rural areas and relies mainly on rain-fed agriculture for its livelihood. Climate change thus threatens to impact all aspects of human development, including the physical environment and social vulnerabilities.

Tegemeo Institute of Egerton University seeks to incorporate climate change in its research agenda, and inform policy on mitigation and adaptation strategies necessary to deal with the risks associated with climate variability and change. Also, the Institute aims at strengthening its capacity in research on climate change issues and conducting a study that is expected to provide empirical evidence on the effects of climate change on rural households and strategies used by these households to build resilience in the face of climate change. The Institute's work will contribute to ongoing studies on the effects of climate change in the country and inform on various government policies related to climate change.

It is against this backdrop that the Institute organized a workshop to bring together stakeholders in the climate change network. Tegemeo believes that knowledge exchange and sharing among scientists and policy-makers is crucial in efforts geared toward making livelihoods more diverse and resilient to effects of climate change. The workshop focused on sharing information on the current research efforts in climate change being undertaken by Tegemeo Institute and other organizations/institutions in Kenya; and, creating linkages among stakeholders in the climate change network, and assessing areas of possible collaboration that will avoid duplication of efforts and enhance synergies

The workshop drew participants from a wide spectrum of stakeholders which included representatives from the Office of the Prime Minister, Rockefeller Foundation, Ministry of Agriculture (MoA), Ministry of Environment and Mineral Resources, IGAD Climate Prediction and Applications Centre (ICPAC), Kenya Meteorological Department (KMD), Kenya Agricultural Research Institute (KARI), Universities (University of Nairobi, Moi University, and Egerton University), Financial Sector Deepening, SCC-VI Agroforestry, and Tegemeo Institute¹.

¹ See Annex 2 for a complete list of participants

Proceedings

The workshop was organized into four sessions. The first session covered introduction and welcoming remarks. The second session included presentation by Tegemeo Institute and plenary discussion. The third session included presentations on initiatives and responses to climate change that are being undertaken by various stakeholders at the farm/community level as well as the national policy level. The final session was a panel discussion that focused on innovations/strategies to minimize the impacts of climate change on rural communities.

Session one: Welcome and Introduction

The workshop moderator Mr. Francis Karin, a senior Research Assistant at Tegemeo Institute called the house to order and requested the participants to take their seats. He then invited Dr. Mary Mathenge, Director, Tegemeo Institute, to give direction on the day's program. Dr. Mathenge welcomed the participants to the workshop and gave all those present an opportunity to formally introduce themselves. She then invited Professor J.M Mathooko, DVC, Research and Extension, Egerton University and Betty Kibaara, Rockefeller Foundation, to give welcoming and opening remarks, respectively. Following those remarks, Dr. Mathenge outlined the Workshop objectives.

Welcoming Remarks by Professor JM Mathooko-DVC, Research and Extension, Egerton University

Professor Mathooko welcomed the participants to the inception workshop on climate change and rural livelihoods and noted the wide diversity of expertise in climate change among the participants. He applauded Tegemeo Institute for its commitment to its research agenda, which resulted into the workshop.

He noted that most of the participants had worked with Egerton University in various aspects. He welcomed Betty Kibaara and Dr. Mary Mathenge, and also recognized Professor Lelo, Principal Laikipia University College who is also the focal person on climate change at Egerton University.

In his remarks, he further noted that the workshop was timely since Egerton University had passionately embraced issues pertaining to climate change, namely adaptation and mitigation. He informed the workshop that the University had developed its Strategy for Action on Climate Change and had included climate change in its Strategic Plan and Performance Contract with the Government. The main purpose of the Strategy is:

- To develop messages on climate change that all groups including marginalized populations can receive and fully comprehend

- To generate relevant and localized information and to encourage involvement of these groups in adaptation and mitigation programmes
- To develop the capacity of communities and vulnerable populations to analyze information and communicate views to policy makers

In order to succeed in the implementation of the Strategy by Egerton University, Prof. Mathooko indicated that there was need to involve participation of all the stakeholders, and Tegemeo Institute had already taken the lead by inviting some of the stakeholders to the inception workshop. Further, he pointed out the need to realize that climate change issues are cross-cutting and transcend all spheres of research, and hence the reason why stakeholders have to share information and form linkages to avoid duplication.

He reminded the participants that climate change is currently considered to be one of the most serious threats to sustainable development globally. A warmer and variable climate threatens to lead to higher levels of air pollutants, increased transmission of diseases through unclean water and contaminated food, compromised agricultural production in the least industrialized countries, and increased hazards of extreme weather. The rural areas have been impacted badly by these climate change vagaries, and Professor Mathooko expressed his hope that by the end of the project, Tegemeo would be proud of its contribution to the rural communities.

Professor Mathooko noted that there is a dearth of climate change specialists in the areas of science, policy, adaptation, mitigation and carbon markets. It is, therefore, important to consider putting in place a targeted capacity building framework in all climate change projects. This will in the long run create a critical mass that can handle climate change issues in all spheres of development. Building the capacity of local communities to help them adapt to the adverse impacts of climate change is, therefore, of paramount importance.

Additionally, Prof. Mathooko said that research is important not only in understanding climate change and its impacts, but also in responding to it. Research helps to find out the causes, manifestations and effects of climate change, while when combined with economic analysis, research helps to identify the most cost effective measures to mitigate climate change. Also, research that is focusing on technological development plays an important role in preparing the low-carbon society of the future by improving existing climate-friendly technologies and devising those of tomorrow. Further, research helps to predict climate-related changes at local levels so that appropriate adaptation measures can be taken. Towards this end, Prof. Mathooko said that it is worthwhile to note that Tegemeo seeks to incorporate climate change in its research agenda, and inform policy on mitigation and adaptation strategies necessary to deal with the risks associated with climate variability and change. Tegemeo is focusing on rural households where strategies for resilience to climate change are most needed. He wished the researchers well as they tackle these very important issues on climate change.

Lastly, Professor Mathooko expressed his gratitude to all partners who have been supporting Tegemeo and urged them to continue with this worthwhile gesture. In particular, he thanked the Rockefeller Foundation, which has generously supported the climate change project, and expressed hope for continued support. In conclusion, Prof. Mathooko thanked and appreciated the company of all present for finding time to participate in the workshop.

Opening Remarks by Betty Kibaara, Rockefeller Foundation

Ms Kibaara expressed her joy to be among the participants in the workshop and brought apologies from James Nyoro who intended to participate in the inception workshop but could not due to other commitments.

She indicated that the Rockefeller Foundation's mission to promote the well-being of humanity throughout the world has remained unchanged since it was founded in 1913. She noted that the Foundation's current mission is applied to an era of rapid globalization and that its vision in this century will be one in which globalization's benefits are more widely shared and its challenges more easily weathered. To realize this vision, she pointed out that the Foundation seeks to achieve two fundamental goals in all its work. First, it seeks to promote growth with equity in which the poor and vulnerable have access to new opportunities that improve their lives; and second, to build resilience that enhances individual, community and institutional capacity to survive, adapt, and grow in the face of acute crises and chronic stresses.

To this end, she pointed out that the Foundation's focus that addresses contemporary global challenges includes but is not limited to:-

- Strengthening food security through the Alliance for a Green Revolution in Africa (AGRA) in the areas of soil, markets, seeds and policy
- Establishing regional disease surveillance networks and linking global disease surveillance networks through the establishment of transnational detection, monitoring and communication system
- Transforming health systems through supporting countries that are implementing the universal health access such as Ghana and Rwanda
- Harnessing the power of impact investing through encouraging the corporate sector to invest in social and environmental problems while also generating a profit
- Developing climate adaptation and resilience by helping communities to cope with imminent consequences of climate change

Ms Kibaara further noted that the predicted impacts of climate change have the potential to threaten the success of a sustainable green revolution in Africa as envisioned by RF, AGRA and others, by negatively impacting on productive capacities of even some of the most promising agricultural regions of the continent.

She further stressed that the Foundation's goal on its climate change initiative is to ensure that resilience strategies will be a more integral part of agricultural research, development, planning and implementation in Africa; and also, strengthening the resilience of African smallholder farmers to climate variability and change and making current investments in improving African agriculture more successful. The Foundation is supporting African national agricultural research and development institutions in the East African region to mainstream climate change adaptation. The Foundation is also piloting adaptation strategies such as the indexed-based weather insurance that could be scaled up across sub-Saharan Africa. Additionally, Rockefeller Foundation is supporting development policy frameworks that enable the integration of climate information into agricultural development practice. Ms Kibaara pointed out that the Foundation believes that climate change resilience needs to be mainstreamed as an important and integral component of African agricultural research and development programs focused on improving the lives and livelihoods of small scale farmers.

Ms Kibaara noted that the Foundation was happy to have supported Tegemeo Institute to build institutional capacity in climate change research and analysis by conducting a socio-economic study on the effects of climate change on rural communities in Kenya and identifying adaptation responses. She exuded confidence that this work would succeed given Tegemeo's reputation for policy research and advocacy. Finally, she wished the participants fruitful deliberations in the inception workshop.

Workshop highlights and objectives by Dr. Mary Mathenge, Director, Tegemeo Institute

Dr. Mathenge started her presentation with a brief introduction about Tegemeo Institute. She informed the participants that Tegemeo is a policy research institute under the Division of Research & Extension of Egerton University, established through Statute XIX (h) of Egerton University Act, 1987 (CAP 214) and that the Institute has been doing policy research and analysis since 1990. As a result the Institute stands out as a leading centre in agriculture policy research with a reservoir of knowledge on rural livelihoods and has a large network of collaborators/partners.

In her introduction, Dr. Mathenge spelt out the Institute's main activities as follows:

- **Research:** to generate and promote evidence-based research to inform and influence policy direction on Kenya's agricultural and rural sectors
- **Outreach:** to work with policy makers and other stakeholders to identify appropriate policy options
- **Monitoring and Evaluation:** to monitor changes in the agriculture sector and assess impacts of alternative policies for Government, development partners and other stakeholders

Dr. Mathenge indicated the Institute seeks to focus on climate change in various ways:(i) integrating climate change in the Institute’s research agenda through building institutional capacity to handle current and future climate work, which is to be accomplished via human capacity training and collaboration with other stakeholders in climate change research; (ii) informing/influencing policy on climate change-related issues such as adaptation/ mitigation strategies, which calls for evidence-based research and policy options; (iii) conducting research on the effects of climate change on agricultural production decisions and livelihood activities and assessing the adaptation and mitigation measures used by rural households/communities, which could be fed into national policy; and (iv) interacting with other partners and stakeholders in the climate change arena.

Following this, Dr. Mathenge, outlined the objectives of the workshop as follows:

- To share with key stakeholders about the Institute’s climate change work and proposed research to elicit discussion and feedback from experts in this area and identify areas of common interest and collaboration
- To bring together stakeholders in the climate change network to enhance knowledge sharing and build synergies
- To provide a forum for open discussion among scientists, development agencies and policy-makers, which is a crucial step in efforts geared toward making livelihoods more diverse and resilient to effects of climate change

Dr. Mathenge then highlighted the different sessions of the workshop programme and recognized the support that Tegemeo Institute had received from various organizations such as Rockefeller Foundation, USAID and Egerton University. Finally, she gave a word of appreciation to all those who attended the workshop.

Session two: Tegemeo Presentation and Panel Discussion

To chair this session, the moderator invited Mr. Raphael Gitau, a Research Fellow at Tegemeo Institute who in turn invited Dr. Lilian Kirimi of Tegemeo Institute to make a presentation on the proposed study on *Effects of Climate Change on Rural Communities in Kenya*.

In her presentation, Dr. Kirimi highlighted the background and rationale of the proposed study, data and methods and the envisioned steps to move the proposed work forward. She pointed out that climate change is a global challenge which is particularly important for Sub-Saharan Africa since the economies are highly agrarian, experience a highly variable climate and have a low capacity to build resilience to effects of climate change. Climate variability and change affect agricultural production, food security and livelihoods, and so there is need to deal with climate change-related challenges by reducing growth of greenhouse gases and preparing for and

adapting to climate change. Additionally, she indicated that it is imperative to take debate on climate change to a higher level with the aim of generating appropriate solutions to the problems of climate change in order to reduce its potential threats to human well being and security.

Dr. Kirimi outlined the objectives of the study, which were: (i) to provide micro-level empirical evidence on effects of climate change on rural livelihoods and strategies used by households/communities to build resilience to climate change; (ii) and, to contribute to policy debate on climate change based on micro/household level empirical evidence. Further, she highlighted the study's research questions: (i) what is the relationship between key farm level crop and livestock indicators and climate variables? (ii) what are the possible future effects of climate change on these indicators? (iii) what are farmers' perceptions about climate variability and change? (iv) in what ways have farmers/households responded to the changing climate? (v) and, are there existing mechanisms at the household, community and national levels that are assisting households adapt to variability and changes in climate?

In addition, Dr Kirimi indicated that the data for the proposed study would come from various sources. First is the 5-period panel Tegemeo rural household survey data spanning from 1997 to 2010, which consists of about 1,300 households in 22 (old/larger) districts, and is representative of areas with varying agricultural potential. Second is the climate data (rainfall and temperature) as well as climate projections/climate change scenarios based on climate models. Third is qualitative data from focus group discussions and key informants. The proposed methods of analysis in this study involve overlaying climate data with household level data, descriptive and econometric analysis, simulations (based on climate predictions) and qualitative analysis of data on adaptation and mitigation measures collected through focus group discussions (FGDs).

In conclusion, Dr. Kirimi suggested that in order to move this study forward, it was envisioned that there was need to engage several collaborators and partners including KMD, ICPAC, the public sector (Ministries of Agriculture, and Environment and Mineral Resources, Office of the Prime Minister), Universities/research institutions, NGOs, development partners, and other stakeholders.

Plenary Discussion

Mr. Gitau thanked Dr Kirimi for the presentation and then invited questions, comments, suggestions or clarifications from the participants.

Prof. Mathooko asked Dr. Kirimi whether she had considered household crop data to see the trends on productivity of indigenous versus hybrid or altered crops. Dr Kirimi clarified that the panel data to be used in this study has information on all crops including the indigenous crops and so trends in the productivity of the various types of crops planted over the years will be considered.

Mr. Wekesa of SCC-Vi Agro-Forestry asked if a baseline study on the vulnerability of households to climate change will be done, noting that households affected by HIV and AIDS may not have the labour force required for climate change mitigation strategies such as construction of the cut off drains. Dr Kirimi clarified that a baseline had not been planned for but she noted that FGDs will be carried out to collect information that the existing panel data did not capture. She further reiterated that the panel data to be used has been collected for over a decade with the latest survey being done in 2010 and is rich enough to give trends on some aspects of vulnerability to climate change.

Ms. Esther Magambo from MoA commented on the need to look at the study in line with the current constitutional boundaries in terms of counties rather than districts. Also, she indicated that there was need to consider the AEZ rather than agro-regional zones because there may be clear cut differences between zones falling in the same agro-region. For instance, she indicated that putting Murang'a and Nyeri in the same agro-regional zone was erroneous. Ms. Magambo also suggested that Tegemeo could look at secondary data available at the IPCC.

Dr. Kirimi thanked Ms. Magambo for raising the county issue and she indicated that analysis can be done by counties in order to conform to the new county system. Also, the data is available in AEZs and also in finer classifications of AEZ (small AEZs). During analysis classification will be done by AEZs. A participant informed the workshop that more work has been done by the Intergovernmental Focus on Climate Change which Tegemeo may need to access and check what information is available. Dr. Mary Mathenge clarified that Tegemeo would like to do a more detailed baseline but the cost implications are prohibitive and therefore appreciated the possibility of using existing secondary data.

Mr. Aucha of African Network for Agriculture, Agroforestry and Natural Resources (ANAFE) wanted to know whether this research is basic, strategic or adaptive and what was the immediate benefit for farmers who will or have participated in the surveys. Dr. Kirimi clarified that the research is basic and also adaptive in that data already available will be used to check the impact of climate change and for future adaptation it will guide in pointing out weaknesses and providing policy direction. In terms of outreach, the Institute hopes to bring in more stakeholders including the farmers who would benefit by turning the study findings into actions. She further noted that Tegemeo appreciates the work that has been done by IPCC before.

With regard to the next steps in the Tegemeo presentation, Engineer Omedi Jura from the Ministry of Environment and Mineral Resources (MEMR) noted that the private sector was missing among the partners, yet it is very important in the replication of the findings of the research. He asked whether there is leadership in research in Kenya, and expressed concern that lack of a lead agency was leading to duplication of efforts by researchers. He suggested that the Ministry of Higher Education Science and Technology should take the role of the lead agency in order to give information on what has been done and what needs to be done in terms of research. He also indicated that ASAL areas should not to be ignored. Prof Mathooko indicated that it is

good to have research agenda by themes, as is the case in ASCU (Agricultural Sector Coordinating Unit) which has thematic working groups. He further added that the Ministry of Higher Education Science and technology should document research to avoid duplication.

Also, Mr Aucha added that some policy aspects should and can be replicated immediately to benefit the farmers.

Mr. Mbaka from FSD commended the Institute for the panel data and noted that the data is very rich and that insurance companies need that type of data to develop their weather indexing products. He asked if it is possible for future collaboration with Tegemeo in order to access the data for policy formulation and research. He also asked if data on the gap years in the panel was collected.

Dr. Mary Mathenge noted that the Institute is in a mission to connect with actors on climate change and that the Institute wants to in-build climate change in its policy agenda, and also that the Institute works very closely with the private sector. On the issue of inclusion of ASAL regions, Dr. Mathenge confirmed that Tegemeo wished to include these regions for the panel data. However, technical challenges like the way of life of pastoralists who inhabit these areas make it impossible to follow the same households for several years. On the immediate benefit to farmers, Dr Mathenge noted that for a start, the Institute wants to check on what farmers have been doing (e.g. is there a relationship between climate variability and cropping patterns over the years?) and also clarified that the data is panel and but not collected every year since 1997. Also, she said that data sharing for short term outputs of data analysis is possible. However, due to other factors it's not yet possible to allow full access and use of the database.

Mr Omedi of Ministry of Environment and Mineral Resources also noted that changes in cropping patterns can help derive conclusions on the response to climate variability or climate change.

Dr Alusa highlighted the importance of defining the difference between climate change and variability in research, but also mentioned that farmers will mainly be responding to variability rather than change. He suggested that research can bring about food security, may be through understanding thresholds and stresses of food security and therefore early warning.

Session Three: Initiatives/Responses to Climate Change

The Director, Tegemeo Institute invited Dr. Jane Wamuongo, Assistant Director of Natural Resources Management at KARI to chair the third session. Dr. Wamuongo then invited the speakers to make their presentations, which were broadly divided into four categories: farm/community level adaptation and mitigation; ICPAC climate products for rural livelihoods; national climate change policies; and, National Climate Change Response strategies. The four presentations were made successively as follows:

Index-based weather insurance (Michael Mbaka, Financial Sector Deepening (FSD))

Michael Mbaka made a presentation on index-based weather insurance. He started by introducing Financial Sector Deepening (FSD) Kenya as an independent Trust established in early 2005 to support the development of inclusive financial markets in Kenya. Therefore, FSD works in partnership with the financial services industry and is financed by several partners including the UK's Department for International Development (DFID), the World Bank, the Swedish International Development Agency (SIDA), Agence Française de Développement (AFD), the Bill and Melinda Gates Foundation, and the Government of Kenya.

Mr. Mbaka explained that the partnership on the project on index-based weather insurance was set up in 2008 among different partners i.e. Financial Sector Deepening (FSD) Kenya, Rockefeller Foundation, World Bank –ARMT, DFID (livestock project implemented by ILRI, Equity Bank and UAP insurance), and implementers (financial institutions, risk managers, input suppliers, public & private extension, weather agency (KMD)). The project's objective is to test the use of index based weather risk management instruments in Kenya through pilot programs. In this regard, the partnership provides services to institutions with interest and potential capacity to pilot an index based weather insurance product. These services are in form of technical assistance, coordination of interest and activity, access to information, monitoring and evaluation and regulatory support.

Further, Mr. Mbaka explained that weather index insurance contracts are policies linked to the fluctuation of a weather variable (e.g. rainfall, temperature, wind speed, soil moisture, growing degrees days, sea surface temperature), which is measured and indexed according to the specific objective of the insurance policy. In addition, the payouts to this policy are only based on the performance of the weather index and not the actual damages incurred or actual losses suffered on the ground. He emphasized the need to develop an appropriate index to ensure successful implementation of the index insurance. He enumerated the strengths of a weather index as follows: it eliminates most of the asymmetric information problems of traditional insurance products (moral hazard and adverse selection); no loss assessment is required; it is objective and transparent; simplifies claim process; provides timely payout; reduces administrative costs; and,

facilitates risk transfer outside of the local community (international reinsurance). Also, he indicated two weaknesses of weather index insurance: (i) existence of a basis risk, when the actual losses suffered by the insured and the payouts of the contract don't match perfectly; (ii) and, failure of weather index insurance to cover non-weather sources of risk, which are important in a multi-risk environment.

Mr Mbaka concluded his presentation by sharing issues that need to be thought about clearly if the weather index insurance is to be effective. These include high insurance prices due to lack of economies of scale, which could form a strategy for building high volumes; basis risk vs. wide coverage, and the need for weather infrastructure automation, where Weather Information for Development(WINDS) project and government could provide support; the plight of the poor farmers and how this relates to public support in terms of safety nets; low local capacity for design, which implies need for more training; increasing participation of private sector – currently there is only 3.6 % of financial sector investment in agriculture.

Climate Products Geared Towards Rural Livelihoods (Dr. Wilson Gitau, ICPAC)

Dr. Gitau introduced his presentation by enumerating the core activities of ICPAC, which include climate data analysis and monitoring of evolving weather and climate extremes; generation of climate products; capacity building in generation and use of data; climate change detection and attribution; research in climate and related products; and, dissemination of climate information. He also pointed out that ICPAC's products consist of: ten day, monthly and seasonal climate/weather bulletins; climate watch/El Niño updates; and, annual climate summaries. He further noted that ICPAC works in IGAD member countries, as well as non-IGAD countries of Tanzania, Rwanda and Burundi. He elaborated on three of the products namely, seasonal rainfall outlook; Eastern Africa Food Security Outlook Scenario; and, continuous monitoring and review of prevailing climate and issue of forecast. Finally, he mentioned two upcoming activities namely, CBTW for seasonal climate outlook and related workshops (21st to 26th February 2011) in Nairobi, Kenya, and Climate Outlook Forum (28th February to 4th March, 2011) in Arusha, Tanzania.

National Climate Change Policies (Dr. Alexander Alusa, Office of the Prime Minister)

Dr. Alusa of the Office of the Prime Minister made a presentation on the national climate change policies in Kenya. He mentioned that climate change is an economic concern which cuts across all sectors of the economy and that the role of the environment and climate change and coordination unit in the office of the Prime Minister is to raise awareness about climate change, help in harmonization of policies, and encourage PPP through the Climate Innovation Center (CIC).

Dr. Alusa reiterated the government's commitment to ensure a harmonized approach to climate change adaptation and mitigation actions through its desire to develop a National Climate Change Action Plan that will:

- Facilitate implementation of the National Climate Change Response Strategy
- Mainstream climate change considerations into the MTEF and other planning processes
- Deliver on the obligations under the UNFCCC (United Nations Framework Convention on Climate Change) process

In conclusion he noted that Kenya has a golden opportunity to formulate a development pathway that will ensure that the country reduces vulnerability and builds resilience.

National Climate Change Response strategies (Engineer Omedi Moses Jura, Ministry of Environment and Mineral Resources)

Engineer Omedi of the Ministry of Environment and Mineral Resources made a presentation which expounded on the contents of Kenya's National Climate Change Response Strategy (NCCRS). He gave an overview of the Strategy, indicating that in its ten chapters, the Strategy focuses on six key sectors: productive, physical infrastructure, manpower, education, health and ICT. He indicated that the second chapter of the Strategy focuses on assessing the evidence (over the last 50 years) and the impacts of climate change in Kenya. Additionally, the Strategy clearly spells out the linkage between the NCCRS, Vision 2030 and Millenium Development Goals (MGDs), as well as the sectoral adaption and mitigation strategies being undertaken by the country. It also contains communication, education and awareness programmes, vulnerability assessment, impact monitoring and capacity building in addition to research, technology development, absorption and diffusion strategies. The Strategy also has a section on climate change governance that outlines the climate change policy, the legal framework and institutions governing climate change. Engineer Omedi further indicated that there is a chapter that expounds on the action plan, implementation framework and the resource mobilization plan. He, however, noted that the Strategy was due for review.

Plenary Discussion

Mr Aucha indicated that the 'National Climate Change Strategy' lacked the critical path analysis to consider the worst case scenarios hence putting the country into carbon restricted development and suggested the need to have a model with trade-linked approaches e.g. premium price or carbon price for carbon sequestered farm produce. In response to this, Engineer Omedi conferred with Mr Aucha on the absence of a critical path analysis for the strategy action plan, and admitted the presence of challenges e.g. lack of expertise on carbon trading framework.

Dr. Omambia from NEMA informed the workshop that NEMA has developed a research agenda under the environment theme and researchers can apply for research grants. Also, she mentioned that the effects of climate change have been integrated into the land use guidelines.

Prof. Lelo questioned the relevance of the weather stations to the locals or local situations given the spatial and temporal variability of weather. He suggested that professionals have the mandate to publicize the issue of climate change away from politics. He also expressed concern that the formulation of the strategy for climate change was not well publicized and not participatory enough because he had never heard about it before the workshop.

Engineer Omedi agreed that coordination is vital and confirmed that a communication strategy was included in the Strategy. He accepted that the strategic plan was an organic document and hence room for improvement exists. Treasury was, however, to formulate the rules of engagement. Also, he said that there could have been a problem in the representation of expertise in terms of dissemination, and challenged the participants to take advantage of the roadmap, which is the NCCRS. He also informed that there is a climate change expo by the MEMR in May 2011.

Dr. Gitau of ICPAC accepted that the rain element is very variable and to partly deal with this challenge, they depend on voluntary observers and remote sensed data that is not limited to the weather station. He also informed the participants that ICPAC has a communication strategy, and they have climate outlook forums where they call on stakeholders to disseminate and discuss expected impacts; translate forecasts into local languages e.g. Maa, and have established the post of a provincial Meteorologist.

Mr. Gathara of KMD added that ICPAC is a sub-regional organization representing seven IGAAD countries plus Rwanda and Tanzania, and that Kenya has 38 Met stations and 1000 rain stations. KMD has automated data transmission hence weather data is available at base stations and KMD headquarters in real time. Also, there are 13 stations based in KARI research stations that monitor crop trends, and another 100 weather stations are expected courtesy of Rockefeller Foundation. He also indicated that KMD works with model farmers, and has a lot of information which the public is not aware of. KMD is one of the best developed Mets in Africa, but still faces a challenge of low capacity.

4.0 Session Four: Panel Discussion

To chair this session, the moderator invited Professor Lelo, Principal of Laikipia University College. Prof. Lelo then invited the panelists to take their position, and briefly share a few thoughts on innovations/strategies to minimize the impacts of climate change on rural communities. The panelists included Esther Magambo, Assistant Director of Agriculture, Environmental Management, Ministry of Agriculture (MoA), Amos Wekesa of SCC-Vi Agroforestry, Prof. N.J. Muthama of University of Nairobi, and Engineer Omedi of the Ministry of Environment and Mineral Resources.

Ms. Magambo indicated that effect of climate change is seen in extremes such as floods and droughts as well as changing rainfall patterns, noting that about 2 million bags of maize were lost in 2010 when rains fell during the harvesting months. She outlined various policies and strategies that the government is using to minimize the effects of climate change, and which have been incorporated in the ASDS and Vision 2030. She was quick to add that the mitigation strategies being used or pursued are not new but the scale of implementation has been enhanced. The specific initiatives been undertaken and encouraged by the government through the MoA include:

- i. Water harvesting
- ii. Farm agro forestry rule/policy, which requires that everyone with land should allocate 10% to trees
- iii. Drought tolerant and orphaned crops
- iv. Soil and water management
- v. Sequestering as much carbon in our soils as possible
- vi. Developing a framework for conservation agriculture with initial support from COMESA
- vii. Specific risk management funded by GTZ
- viii. Repackaging information on weather index and disseminating to farmers as specific recommendations for specific crop growing seasons
- ix. Setting up a climate change unit to avoid overlaps duplications and harness synergies.

Mr. Wekesa of SCC-Vi Agro-Forestry gave an overview of the climate change initiatives under the ongoing Lake Victoria Regional Environmental and Sustainable Agricultural Productivity Programme (RESAPP). He mentioned that one of the components of this programme (Land use, environment and climate change) focuses on interventions that mitigate agriculture greenhouse gases and land degradation by promoting sustainable agriculture land use management (SALM) practices such as nutrient management, soil and water management and agro-forestry. He said that SALM contributes to disaster risk reduction, building of resilient farming systems, developing local capacities and tackling drivers of farmers' vulnerability to climate change effects. He further noted that about 50 percent of the 30,000 targeted households in the project have access to carbon finance (from BioCarbon Fund) through the practice of SALM.

This project uses the activity based method to monitor the carbon that is sequestered. The project uses carbon stock modeling, and monitors only farmer activities. However, Mr. Wekesa highlighted that the project faces the challenges of land tenure systems (e.g. who owns the carbon asset, the person who cultivates the land or the land owner), and also lack of service providers to support the project. He reported that only 40 percent of the modeled carbon sequestration is eligible for carbon credits, with the remaining 60 percent being withheld as a buffer.

Mr. Wekesa clarified that the major benefits from carbon trading projects are not in terms of monetary gain from the amount of carbon that is sequestered. Rather, they are in terms of co-benefits such as increase in yields and the knowledge farmers receive in the areas of farming practices, marketing and environmental management.

Some participants raised the concern about how to measure the amount of carbon sequestered. Mr. Wekesa explained that direct measurement methods that are of high accuracy are expensive, and there are also issues with permanence/leakage, suggesting that one solution could be to let the buyer/funder decide how accurate the method/model needs to be.

Prof. Muthama of University of Nairobi concentrated on capacity building, stressing that there is need to have a common understanding of climate change. He noted that understanding the impact of climate change in 100 years time from today will help us give a more concerted effort. He also observed that capacity building does not address a common understanding of climate change with respect to monitoring green house gases, and attribution. He clarified that climate change is not climate variability. By definition, climate variability is the way climatic variables such as temperature and precipitation depart from some average state, being either above or below the average value, while climate change can be defined as a trend in one or more climatic variables characterized by a fairly smooth continuous increase or decrease of the average value during the period of record.

Engineer Omedi's presentation focused on the proposed National Climate Change Action Plan which is a collaboration between the Ministry of Environment and Mineral Resources, the Office of the Prime Minister, and the Ministry of Finance. He pointed out that although Kenya has a clear national economic blue print (Vision 2030 and other macroeconomic policies and plans), and a National Climate Change Response Strategy, there are several uncoordinated adaptation and mitigation programmes, projects and activities being implemented by different stakeholders (Government, private sector, civil society and communities), hence the need for an action plan. This plan is a commitment by the Government of Kenya to ensure a harmonized approach to climate change adaptation and mitigation actions. The objectives of the National Climate Change Action Plan are to: facilitate implementation of the National Climate Change Response Strategy; mainstream climate change considerations into the MTEF and other planning processes; and deliver on the obligations under the UNFCCC process.

The National Climate Change Action Plan will address a range of issues including: low-carbon development plan (i.e., climate proofing Vision 2030 and other national macroeconomic policies and plans); a regulatory framework and coordination mechanisms; priority medium and long term adaptation actions; roster of experts and inventory of institutions dealing with climate change and research; framework for climate change data, information and knowledge systems (including traditional/local knowledge), education, training and networking; mechanisms for cooperative arrangement between public and private sectors, and stakeholder engagement; mechanisms for national monitoring, reporting and verification; national communication and public awareness; and, financial mechanisms, including climate finance, carbon trading platform and resource mobilization.

Plenary Discussion

Dr. Nancy Mungai of Egerton University commented that farmers are not confident with the information given on weather forecasts from the Meteorological department (MET) and suggested inclusion of the probability of error in the forecasts. She also asked after how long a farmer gets money from sequestering carbon and also wanted to know if there are documented ways of differentiating climate change and variability at the adaptation level of farmers.

Dr. Kamau from Tegemeo sought clarification on which crops benefit from carbon sequestering, whether it's true that one cannot benefit from carbon trading if one has already planted the crops or plants in question. She also wondered whether there are incentives to encourage farmers to keep a green environment, given the recent development where agricultural land is being converted to residential and commercial houses.

The workshop was informed that according to a recent survey, 60 percent of farmers have confidence in the information from KMD.

On differentiating variability and change, current scientific understanding limits the definition. For example, weather and research stations are limited in coverage and hence understanding of change versus variability. This in effect limits concrete attribution of cause and effect on climate change and variability. Data on climate change that can be used to model climate change or variability is almost nonexistent especially in Kenya.

Dr. Alusa of the Office of the Prime Minister also added that building resilience to climate variability is a step forward toward adapting to climate change.

Mr. Wekesa indicated that payment for carbon is for all crops but there is the additionality component which requires that for farmers to benefit from carbon trading, they need to show evidence of new plants.

Dr. Omambia responded to question on conversion of agricultural land to real estate and informed the participants that NEMA is currently working on an agricultural land use master plan that will address such issues.

After the panel discussion, the Director, Tegemeo Institute, proceeded to close the workshop. She thanked all the participants and promised that the workshop proceedings would be available from the Institute later.

ANNEX 1: WORKSHOP PROGRAMME

Climate Change and Rural Livelihoods

Fairview Hotel, Nairobi

February 3, 2011

Time	Activity
8.00 – 8:30 am	Registration
Session I	Welcome and Introduction
8:30 – 9:30 am	<ul style="list-style-type: none"> • Welcoming Remarks: Prof. J.M. Mathooko (DVC, Research and Extension, Egerton University) • Opening Remarks: Betty Kibaara (Rockefeller Foundation) • Workshop Objectives: Dr. Mary Mathenge (Director, Tegemeo Institute)
Session II	Tegemeo Presentation - Chair: Raphael Gitau (Tegemeo Institute)
9.30 – 10:30 am	<ul style="list-style-type: none"> • Proposed Research on Effects of Climate Change on Rural Livelihoods: Dr. Lilian Kirimi (Tegemeo Institute) • Plenary Discussion
10.30-11.00am	Tea/Coffee Break
Session III	Chair: Dr. Jane Wamuongo (Assistant Director, KARI)
11.00 -12:15	<p style="text-align: center;">Initiatives/Responses to Climate Change</p> <ul style="list-style-type: none"> • Farm/community level adaptation and mitigation Michael Mbaka (Financial Sector Deepening) • ICPAC Climate Products for Rural Livelihoods Dr. Wilson Gitau (ICPAC)

	<ul style="list-style-type: none"> National Climate Change Policies Dr. Alexander Alusa (Office of the Prime Minister) Ministry of Environment and Mineral Resources Plenary Discussion
Session IV	Panel Discussion and Way Forward - Chair: Prof. Francis Lelo (Principal, Laikipia University College)
12.15 – 1:00pm	<p><i>Innovations/strategies to minimize the impacts of climate change on rural communities</i></p> <p>Esther Magambo (Ministry of Agriculture)</p> <p>Amos Wekesa (SCC-Vi Agroforestry)</p> <p>Prof. N. J. Muthama (University of Nairobi)</p> <p>Ministry of Environment and Mineral Resources</p>
1:00 -1.15pm	Closing Remarks
1.15 pm	Lunch

ANNEX 2: WORKSHOP PARTICIPANTS

No.	Name	Organization
1	Prof. Francis Lelo	Laikipia University College
2	Dr. Alexander Alusa	Office of Prime Minister
3	Dr. Margaret Ngigi	Egerton University
4	Betty Kibaara	Rockefeller Foundation
5	Dr. Jane Wamuongo	KARI
6	Michael Mbaka	FSD Kenya
7	Amos Wekesa	SCC-Vi Agroforestry
8	Dr. Nancy Mungai	Egerton University
9	James Aucha	African Network for Agriculture, Agroforestry and Natural Resources (ANAFE)
10	Prof. J.M Mathooko	Egerton University
11	Prof. Nzioka J. Muthama	University of Nairobi
12	Eng. Omedi M. Jura	MEMR, Climate Change Secretariat
13	Dr. Mwasi B.N	Moi University
14	Assenath Kabugi	ILRI-CCAFS
15	Esther Magambo	MOA
16	Judith Kithaka	Pamoja Media
17	Charles Mutai	MEMR, Climate Change Secretariat
18	Wilson Gitau	ICPAC
19	Paul N. Kamau	City Council of Nairobi
20	Simon Gathara	KMD
21	Dr Anne N Omambia	NEMA
22	Charles Tonui	ACTS
23	Mary Mathenge	Tegemeo
24	Lilian Kirimi	Tegemeo
25	Elizabeth Mutua	Tegemeo
26	Joseph Opiyo	Tegemeo
27	John Olwande	Tegemeo
28	Githuku James	Tegemeo
29	Mercy Kamau	Tegemeo
30	Raphael Gitau	Tegemeo
31	Francis Karrin	Tegemeo
32	Kenfred Warui	Tegemeo
33	Ephiphania N. Kinyumu	Tegemeo