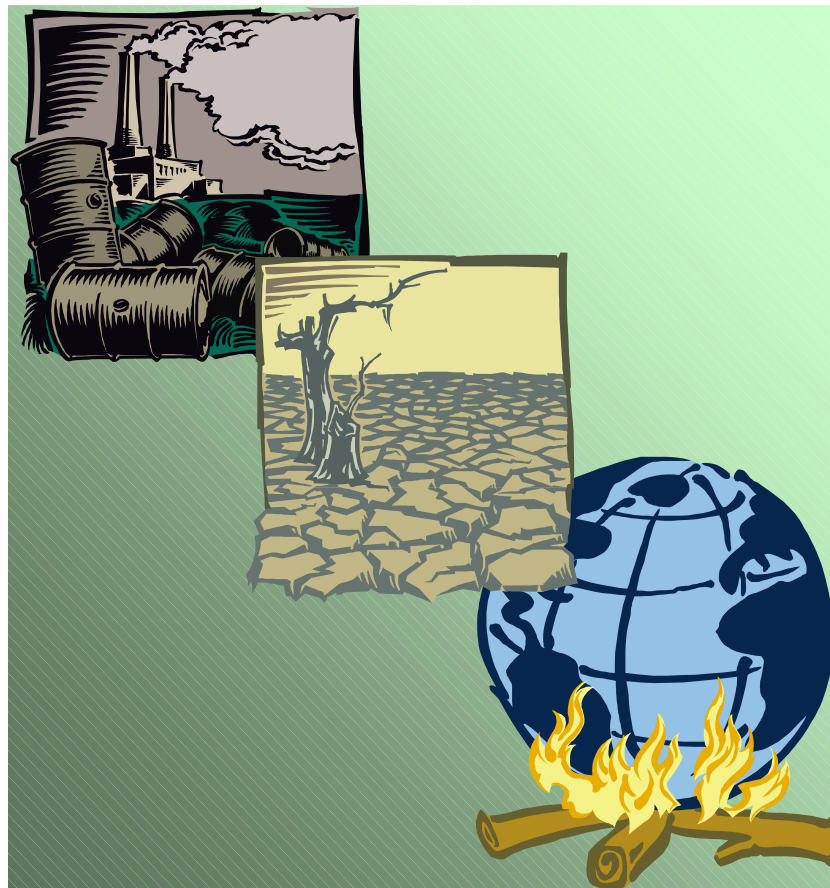


# CLIMATE NETWORK AFRICA



PROCEEDINGS OF THE WORKSHOP ON  
**DIALOGUE WITH EAST AFRICAN  
LEGISLATORS ON CLIMATE CHANGE AND  
SUSTAINABLE DEVELOPMENT ISSUES**



**23-24 APRIL 2004**  
**NAIROBI SAFARI PARK HOTEL — KENYA**

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## ABBREVIATIONS AND ACRONYMS

ACTS	African Centre for Technology Studies
AGGG	Advisory Group on Greenhouse Gases
AMCEN	African Ministerial Conference on Environment
C&C	Contraction and Convergence
CBD	Convention on Biological Diversity
CC	Climate Change
CDM	Clean Development Mechanisms
CERUS	Carbon Emission Reduction Units
CNA	Climate Network Africa
COP	Conference of Parties
CSO	Civil Society Organizations
DALYs	Disability Adjusted Life Years
DMC	Developing Member Country
DNA	Designated National Authority
DPDL	Division for Policy Development and Law
EA	East Africa
EAC	East African Community
EACAPA	East African Community Adaptation Programme for Action
EALA	East African Legislative Assembly
EMCA	Environmental Management Coordination Act
GEF	Global Environment Facility
GHG	Greenhouse Gases
GLOBE	Global Legislators Organisation for a Balanced Environment
ICRAF	International Centre for Research on Agroforestry
IPCC	Intergovernmental Panel on Climate Change
IT	Information Technology
KP	Kyoto Protocol
LDC	Least Development Countries
MDG	Millennium Development Goals
MP	Member of Parliament
NEMA	National Environment Management Authority
NEPAD	New Partnership for African Development
NGO	Non Governmental Organization
OECD	Organisation for Economic Community and Development
SBSTA	Subsidiary Body for Science and Technological Advice
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WAC	World Agroforestry Centre
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development

## **ABOUT CLIMATE NETWORK AFRICA**

Climate Network Africa (CNA) is a non-profit Non-Governmental Organization (NGO) established in 1991 in Kenya. CNA was originally set up for advocacy, policy analysis and lobbying. With time CNA has shifted from this strategy and focus and expanded its horizon to encompass a wide variety of climate change issues, such as energy, water, land degradation, forestry, etc. This includes studies and projects on vulnerability, impacts, mitigation and adaptation to climate change.

CNA is involved in capacity building programmes, training, and awareness creation. This includes publication of books that will promote knowledge in climate change and sustainable development; one such as a book on the Clean Development Mechanism of the Kyoto Protocol was published in 2002. Another title under print at the moment is a Resource Book for Energy Use in East Africa.

CNA will take part in any activity that seeks to improve the chances for environmentally sustainable and socially equitable development in Africa, in light of serious danger of climate change. CNA collaborates with a number of private and public research institutions/organizations in addressing problems affecting the development and management of natural resources using the latest information technology (IT) techniques. CNA carries out Environmental Impact Assessments and Energy Audits and promotes among others, access to cleaner and sustainable natural resources, including energy.

## EXECUTIVE SUMMARY

Economic obligations on industrialized countries to ensure fair trade and reduction of Least Developed Countries' (LDC) debt burden as well as environmental measures to control pollutants and ensure more equitable and appropriate use of natural resources were the subject of the workshop organized by Climate Network Africa entitled "Dialogue with East African Legislators on Climate Change and Sustainable Development" held at the Safari Park Hotel on 23<sup>rd</sup> and 24<sup>th</sup> April 2004.

GHG emissions have so far been closely correlated with economic performance. To date, the growth of economies and emissions has occurred mostly in the industrialized countries. "Emissions is wealth", has been the thinking of many. The workshop discussed the impacts of these emissions and what actions the legislators in East African region should take. A number of recommendations were made.

The workshop sought to galvanize urgent international support and action for the concept of Contraction and Convergence policy framework proposed to the United Nations Convention on Climate Change by the Global Commons Institute (GCI) since 1990. The African Group of Nations had proposed during the UNFCCC – COP 3 that a "globally agreed ceiling of GHG emissions can only be achieved by adopting the principle of per capita emissions rights that fully take into account the reality of population growth and the principle of differentiation". The way forward for East African legislators was envisaged as calling for the UNFCCC secretariat to study, evaluate and assess the concept of Contraction and Convergence, and at the same time set the stage for building a global community to support the concept as it added value to the Kyoto Protocol and also encompassed the major principles in the Climate Change Convention such as the Precautionary principle, Polluter Pay principle and the Equity principle.

Out of the workshop emerged: the need to work at being committed East Africans and to work on the barriers that tend to prevent this; build the capacity of the legislators on environmental matters, this will enhance debate in the house which will add value to environmental policy formulation and development of legislation; link science and research to parliamentarians; lastly repackage environmental information appropriately for different interest groups.

It was not an easy workshop to put together. The discussions did not necessarily focus on climate change. One felt that the Members of Parliament had yearned for such a forum, and therefore took advantage of the occasion to discuss other problems facing the East African region. The organizers did not deny them this heartfelt need to network.

However, as ably put by one resource person, "all things happen in the context of climate". All the subjects discussed were therefore relevant to the workshop's intentions: a dialogue with East African legislators. Kenya Government committed to ratifying the Kyoto Protocol within three months from the date of the workshop (by end of August 2004). Countries that had not established Designated National Authorities said that they would do so as a matter of urgency, thus facilitating project implementation under Kyoto mechanisms such as the Clean Development Mechanism (CDM).

Other topics discussed at the workshop are diligently recorded in this document and will be disseminated widely.

## INTRODUCTION

### Background Information

Climate change is currently one of the greatest environmental challenges facing humankind: television footage, newspaper articles and pictures and journals are frequently dealing with the subject of massive destruction caused by extreme weather events such as flooding and drought in Africa and other parts of the world. East Africa is not an exception and our memories are still fresh with the severe and devastating floods of 1997/98, which led to infrastructure damages and loss of lives in the sub-region.

Meanwhile, according to the Intergovernmental Panel on Climate Change (IPCC), an authoritative scientific body consisting of 2,500 scientists from all over the world, Africa will suffer the most from the impacts of climate change (IPCC, Third Assessment Report, 2001). The issue of global climate change has recently taken center stage in all serious discussions concerning sustainable economic development not only in the industrialized countries of the world, but even more so in the developing countries. Following the coming into effect of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, scientific assessments by the IPCC have succeeded in shedding more light on the science of climate change, e.g. impacts and adaptation possibilities, and prospects for mitigation at national and global levels. It has now been realized that climate change is likely to have lasting impacts on the prospects for sustainable development globally, and more particularly, in regions such as Africa which already suffer from drought and desertification due to rainfall variability. The negative impacts of climate change are land degradation, deforestation, famines, threat to food security, health problems and shortages in hydro-generated power.

According to the IPCC, the African region contains the poorest and least developed countries of the world with more than half the population depending on rain-fed agriculture in the rural areas. The African region is still characterized by declining per capita food production with high dependence on natural resources. This means that climatic variations that impact upon food production as well as natural resource activities would greatly influence the sustainable development of the region. For example, available data from the IPCC show that rainfall will decrease in some parts of Africa affecting hydropower generation while in other areas, the increase will range from 50-100 per cent resulting in massive flooding. Further, global warming will alter production of several African staple food crops for millions of people, thus threatening food security situation, over and above the loss in biodiversity ranging between 10-20 per cent. While disease patterns in Africa are also likely to change, in some areas desertification has already reduced 25 per cent of the vegetative cover of the more than 7 million square kilometres.



UNFCCC was established to respond to climate change. The Convention aims to stabilize atmospheric concentrations of greenhouse gases at safe levels that will allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable sustainable economic development to take place. As a means of fostering the achievement of the Convention's long-term objective of preventing dangerous anthropogenic interference with climate system, the Kyoto Protocol to the Convention was adopted in 1997.

This legally binding commitment will reduce the combined GHG emissions of developed countries by at least 5% below 1990 levels by the period 2008 to 2012. The Kyoto Protocol is yet to enter into force, as the requisite number of industrialized nations accounting for at least 55% of the 1990 emissions is yet to ratify the protocol. It will come into force when Russia and/or the USA ratify.

The Clean Development Mechanism (CDM) was established in the Kyoto Protocol to assist developing countries (Parties to the Protocol) achieve sustainable development and contribute to the ultimate objective of the convention. Developing countries are expected to benefit from project activities resulting in certified emission reductions through technology transfer and Direct Foreign Investments. However, the benefits of such project activities will be restricted to reductions in emissions that are additional to any that would occur in the absence of the CDM project activity. Some industrialized countries, including the European Union, have decided to proceed with the CDM and the Kyoto Protocol even before it becomes legally binding.

In addition to technology transfer and direct foreign investment, countries that ratify the Kyoto Protocol stand to benefit through participation in CDM projects implementation activities like emission reduction and adaptation projects. Ratifying the Kyoto Protocol will also enable a country access funds for capacity building activities. Besides, ratification of the Protocol does not commit a participating developing country to any major financial obligations apart from submitting National Communications in the form of an inventory of greenhouse sources of emissions and removals by sinks. Ratifying the Kyoto Protocol can only bring benefits but no liabilities to a country. There is thus an urgent need for those who have not ratified the Protocol to do so.

### **The Purpose and Objectives of the Workshop**

The goal of the workshop was to enhance effective implementation of the UNFCCC through informed integration of climate change considerations in social, economic and environmental policy legislation and action in East Africa. The on-going international climate change negotiations provide a forum where African legislators can influence international policy trends towards supporting African countries achieve sustainable development. However, this can only happen if the legislators are adequately aware and informed of the potential impacts of climate change and the policy options available to avoid the adverse impacts.

The specific objectives of the workshop were to:

- Raise awareness among EAC Legislators on science, impacts, vulnerability, adaptation and response strategies to climate change;
- Obtain consensus on opportunities and define the EAC priorities in the UNFCCC and the Kyoto Protocol;
- Establish a dedicated permanent Parliamentary Committee on Environment for countries that may not have established the same;
- Harmonize policies and strategies across the three countries;
- Lobby for urgent ratification of the Kyoto Protocol and the establishment of Designated National Authority (DNA) of the Kyoto Protocol in countries that may have not already done so.
- Analyze and evaluate the African Group proposal on equity (in 1997, Kyoto, Japan).

## **The Workshop Topics**

The workshop covered issues of concern to the EAC Governments, private sector, Civil Society Organizations and academia on the UNFCCC and its Kyoto Protocol. At the opening session Ministers concerned with environmental issues presented brief reports on respective policies and strategies on climate change as well as updated national and regional positions on the UNFCCC and the CDM. This was then followed by sessions in which papers covering the following topics were presented:

- Policy and legal implications of UNFCCC and Kyoto Protocol;
- Vulnerability of local communities;
- Adaptation to climate change;
- Impact on infrastructure;
- Regional issues in climate change and UNFCCC

## **The Organisers**

The workshop was organized by Climate Network Africa with the support of a committee comprising the following:

1. Ms Grace Akumu, CNA
2. Mr Peter Orawo, CNA;
3. Ms Joyce Onyango, NEMA;
4. Ms Emily Massawa, NEMA;
5. Mr Joshua Wairoto, KMD
6. Dr Evans Kituyi, ACTS
7. Prof. Laban Ogallo, DMC
8. Dr Eng Harry L. Kaane (Consultant for the workshop)

The United Nations Environment Programme (UNEP) provided financial support for the workshop.

## **Participation**

The workshop drew participants from the four parliaments: Parliament of Uganda, Parliament of Tanzania, Parliament of Kenya and the East African Legislative Assembly. Other participants were drawn from the following institutions:

- Universities
- Research institutions
- United Nations agencies
- Non-governmental Organizations.

The workshop was well attended. Uganda, Tanzania and EALA arrived in huge delegations. The Kenyan MPs were also represented, but due to unavoidable circumstances, not all of them were able to attend the workshop. A pointer perhaps to the prudence of selecting a workshop venue outside everyone's workstation.

# Day One

## SESSION ONE



Welcome Speech

Statement: Director, DPDL, UNEP

Statement: Min. for Water Lands and Environment, Uganda

Statement: Min. of State – Environment, Tanzania

Statement: Speaker of East African Legislative Assembly

Keynote Address and Official Opening

Vote of Thanks

Plenary Discussions

## WELCOME SPEECH

### Ms Grace Akumu, Climate Network Africa

Ms Grace Akumu, the Executive Director of Climate Network Africa (CNA), began her speech by welcoming all the participants to the workshop. She mentioned that the consensus from the international scientific community was that global warming due to man-made gases was real and would continue to be so if the current trend of greenhouse gas (GHG) emissions continued unabated.

She introduced the main issue of the workshop by stating that at the 1992 Earth Summit in Rio de Janeiro, the United Nations Framework Convention on Climate Change (UNFCCC) was adopted and later ratified by enough countries to bring it into force at the First Session of the Conference of Parties (COP1) in 1995. By that time, it had already been recognized that the general commitments in the Climate Change Convention for industrialized countries to stabilize their emissions were inadequate to meet the scale and urgency of the problem. She said that on further agreement, the Kyoto Protocol was reached in 1997 during the Third Conference of the Parties (COP3).

On the Kyoto Protocol she informed the workshop that it required most of the industrialized countries to reduce their GHG emissions by at least 5% by the end of the First Commitment Period, 2012. She lamented that seven years after the Kyoto Protocol was agreed upon we are still faced with the following issues:

- Lack of political will by industrialized countries to meet their commitments in the Kyoto Protocol
- Key emitters have stalled ratification of the Kyoto Protocol
- Atmospheric concentrations of greenhouse emissions in the industrialized countries are on the increase
- Impacts of climate change and extreme weather events are on the increase in intensity and frequency especially in developing countries
- More global deaths and damages are occurring
- Intergovernmental Panel on Climate Change, Third Assessment Report, reveals Africa will suffer the most from climate change impacts

Ms Akumu noted that some of the things we needed to do was to retrace our steps backward to 1997 in Kyoto, Japan, during the Kyoto Protocol negotiations when the African Group suggested that a more equitable approach to combating climate change be based on the principle of per capita emissions allocations. As the major emitters have reneged on their commitments to stabilize, and with some of them now invoking the commitment of developing countries to reduce their GHG emissions before industrialized countries demonstrate that they are taking the lead in combating climate change, there is a need by African governments to urgently request the UN Climate Change Secretariat through its Subsidiary Body for Scientific and Technological Advice (SBSTA) to analyze and evaluate some approaches such as the concept of Contraction and Convergence, the Precautionary Principle, Polluter Pays Principle, and the Equity Principle. The Concept of Contraction<sup>1</sup> and Convergence<sup>2</sup> may offer some solutions to global warming. She noted that it was important to

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<sup>1</sup> Means global reduction of GHG emissions in the atmosphere

<sup>2</sup> Equal sharing of environmental space per person

find a globally agreed on mechanism which would involve all countries on an equitable and fair manner in order to avert a major catastrophe.

She added that instead of Africa waiting to react to other countries, it should be proactive and request the Climate Change Secretariat to commission a study on a concept which promises fairness, equity, and justice on a global basis, such as the Contraction and Convergence.

Ms Akumu noted that Africa has the majority of the 47 least developed countries in the world and the continent has a comparatively low consumption of energy and thus low levels of GHG emissions. Africa consumes a paltry 3-4% of global energy and contributes only 1-2% of global GHG emissions.

She disclosed that the African climate had undergone major changes which have been most dramatically manifested through the shifting of dryland boundaries and the rise and fall of water levels in many of the lakes. She gave an example of the *El Nino* floods of 1997-98, which caused serious problems in Kenya where 2000 lives were lost. In 2003, 60,000 people were displaced in Budalangi area and upto 10,000 people lived in camps for a long period of time. A lot of property was lost due to the floods and infrastructure was badly damaged. She noted that El Nino was soon followed by the La-Nina, which brought in a new set of problems. The hydro electricity dam levels reduced considerably causing a serious shortage of hydro generated electricity.

Ms Akumu concluded her presentation by stating that African governments should make the climate change negotiations a priority since it has been stated that Africa would suffer most from the impacts of climate change despite not having contributed in any significant way to the problem of GHG emissions.

In conclusion, she thanked all the participants for having taken time off their busy schedules to participate in the workshop and all those who worked so hard to make the workshop possible including the Ministry of Environment, Natural Resources and Wildlife, National Environment Management Authority (NEMA), Kenya Meteorological Department, Drought Monitoring Centre -Nairobi and African Centre for Technology Studies. Finally, she thanked the United Nations Environment Programme (UNEP) for providing financial support.

## **STATEMENT: DIRECTOR, DIVISION FOR POLICY DEVELOPMENT AND LAW (UNEP)**

### **Mr Bakary Kante**

Mr Bakary Kante in his presentation stated that the workshop had provided the East African region with a very unique opportunity. Most of the participants were lawmakers from the three East African countries who played a significant role in the lives of the people in the region. He said that the science of climate change today is more solid than ever before. There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities.

He warned that analyses of recent climate trends revealed that climate change posed significant risks for the East Africa region. While projected changes in rainfall were uncertain, there was a high likelihood of temperature increases as well as sea level rise. On the UNFCCC and its Kyoto Protocol, Mr Kante averred that these had introduced the first step towards changes required on how energy is produced and used in the region. He admitted that

global treaties are complex by nature and that the climate change convention is by far the most complex of all environmental agreements.

He said that sustainable development and not climate change was a priority for Africa. Therefore, for climate change policies to succeed, they have to be reworked as opportunities for promoting sustainable development. He noted that the results could only be beneficial if all stakeholders were involved.



*Mr Bakary Kante of UNEP welcomes Hon. Prof Wangari Maathai to the workshop*

With regard to land use and forestry policies, Mr Kante noted that these provided a good opportunity for several countries in the region to act as net sinks for GHG emissions. Carbon sequestration is therefore an area of big interest to many countries. He stressed that CDM was an important tool for promoting sustainable development in Africa. African Governments would have to ensure that they did not miss the opportunity to participate in the CDM.

The Director advised participants that it was important that the issues on energy be discussed during the workshop. Africa was not ready to jeopardize its development because of GHG emissions. He reiterated that Africa was willing to work with global partners to develop the continent and we should recognize that energy would be very instrumental in this.

He pointed out that promoting the use of renewable energy also opens up opportunities for small-scale rural energy projects, which suit a large number of low-emitting African countries. This requires a higher capacity in the governments, private sector and NGOs in Africa.

He affirmed that what East Africa needed was a regional thrust to help provide focus to the work by linking the think-tanks with policymaking and its implementation. He added that UNEP was prepared to help consolidate the scientific and policy related knowledge available

to local and regional organizations for stimulating cost-effective and sustainable policy reforms.

Mr Kante congratulated the Environment Ministries and Meteorological Departments in the region for having submitted their national communications to the UNFCCC. This was a first major step for a developing country to think and plan on climate change within the Government and UNEP's goal is to support stabilization of atmospheric concentrations of GHGs and adaptation to impacts of climate change.

He pointed out that UNEP was also working to utilize the two new funds established to increase the adaptive capacity of developing countries. These are the LDC and Climate Change funds. He added that the Global Environment Facility had announced a special window of US\$ 50 million for funding adaptation activities such as pilot and demonstration activities.

He concluded his presentation by wishing the legislators good progress during the workshop, which would especially be remembered by the youth who are the ones who are going to face the brunt of changes in the climate. He said that UNEP was willing to work with law makers to scrutinize all issues on environment, adding that there were very many poor families in Africa, and for most of them, the environment was their only wealth.

Mr Kante won participants' hearts when he acknowledged that he was, first and foremost, an African and had the continent's woes at heart. He encouraged the legislators to fight on to liberate Africa from poverty and environmental degradation. He had special praise for Hon Prof Wangari Maathai, Kenya's Assistant Minister for Environment, Natural Resources and Wildlife, and urged her to continue her fight for the environment.

## **STATEMENT: MINISTER FOR LANDS, WATER AND ENVIRONMENT, UGANDA, AND PRESIDENT, AFRICAN MINISTERIAL CONFERENCE ON ENVIRONMENT (AMCEN)**

### **Hon Col Kahinda Otafiire**

Hon Col Kahinda Otafiire began his presentation by stating that the three East African countries had a lot in common. He noted that climate change is now an additional uniting factor because all three countries are vulnerable to the negative effects of climate change. He stated that climate change was a reality and had demonstrated its brutality in the form of floods, heavy storms, landslides, heat waves and severe droughts. The current floods in Baringo, which have caused loss of lives, was given as an example of the brutality of negative effects of climate change. He noted that such extreme weather events led to diversion of the region's meagre resources to disaster management and thus disrupted development. He also gave the example of Uganda where they had experienced floods in 1997/8, which cut off rural communities from the capital city Kampala, and severe droughts in 1999/2000. He pointed out that in the last seven years Uganda had experienced seven severe droughts.

Hon Otafiire noted that the economies of the East African countries depended on exploitation of natural resources such as water, fisheries, agriculture, forests and wildlife. These resources are dependent on climate and will therefore be affected by climate change. He reiterated that the poor in most cases settled in marginal areas such as wetlands, arid and semi-arid areas which were vulnerable to climate change. He reminded the participants that climate change

was not only a threat to our economies but also to the lives of our people and therefore, there was need to develop strategies to cope with its negative effects.



*Hon Col Otafiire (seated in black suit) talking to participants: Clockwise: Grace Akumu, CNA, Gilbert Bankubeza, Ozone Secretariat, Prof Laban Ogallo, IGAD Climate Prediction and Applications Centre, Mr Alex Alusa, UNEP and Mr Bakary Kante, UNEP*

He observed that while climate change poses a serious environmental problem, it also presents some opportunities to developing country parties such as strengthening of institutional and technical capacities, access to environmentally friendly technologies, promoting development of better and environmentally friendly technologies and additional investment flow through the CDM of the Kyoto Protocol. He challenged the three East African countries to seize the opportunity offered by CDM to leverage development of infrastructure such as hydropower generation and mass transportation facilities linking the main cities in the region.

Hon Col Kahinda Otafiire said that the management of negative effects of climate change would primarily be the responsibility of line institutions. He mentioned that activities of several sectors release GHGs into the atmosphere, therefore minimizing such emissions is the responsibility of all these sectors. He warned that the signs of climate change and its impacts were clearly written on the wall and early action was essential to reduce the negative impacts on development.

In conclusion, he advised the participants to use the EAC to forge a common approach to solving the problems arising as a result of climate change and take advantage of opportunities under the climate change process to complement the region's development efforts.

## **STATEMENT: MINISTER OF STATE – ENVIRONMENT (TANZANIA) AND PRESIDENT – UNEP GOVERNING COUNCIL**

### **Hon Acardo D Ntagazwa**

Hon Acardo Ntagazwa in his speech thanked the Government of Kenya for providing an enabling environment for the workshop to be conducted. He also conveyed warm greetings from the Government and People of Tanzania. The Minister noted that the workshop was the

first of its kind in the East African sub-region since the adoption of the UNFCCC and could not have come at a more appropriate time when the three governments were busy strengthening their ties in East Africa, and when the adverse effects of climate change are more vivid than ever before.



*Hon Acardo D Ntagazwa, (right) confers with Hon Zadoc Syon'goh a Member of Parliament from Kenya*

He went on to say that scientific reports indicated that climate change is neither a myth nor a subject of controversy, but a reality that had to be addressed to ensure existence not only for the present but also for future generations. He lamented that despite the fact that the African continent had contributed minimally to climate change problems, she suffered more than the rest.

Hon. Acardo Ntagazwa pointed out that Tanzania signed the UNFCCC in 1992 and ratified it in April 1996. This was a sign of the country's commitment to the principles of equity and common but differentiated responsibilities, partnership and sustainable development, all of which underpin the Convention. He noted that Tanzania had been participating in various fora on climate change issues. In 1997 Tanzania chaired the Group of 77 and China, spoke for the Group and played a pivotal role in the negotiations that led to the adoption of the Kyoto Protocol.

He said that Tanzania fully supported the ultimate objective of the UNFCCC, which is "to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." In pursuit of her commitment under the Convention, he mentioned that the country has been undertaking climate change studies since 1993. He applauded the fact that last year, Tanzania submitted her initial National Communication thus representing a major benchmark in the country's endeavours to join the international community in combating the fundamental causes of instability in climate systems and their negative impacts.

The Minister stated that in Tanzania, they have faced and continue to face many problems related to adverse climate change effects. He gave the examples of frequent droughts and floods. He noted that last year Tanzania was seriously affected by drought, which made it necessary for the government to spend a lot of money to provide food for the victims. He lamented that such funds could have been channeled to different development activities.

Hon. Ntagazwa challenged EA legislators to take the lead in promoting development activities so as to reduce the rising levels of poverty and provide food security for the people in view of the increasing negative impacts of climate change. He reminded the legislators that they played an important role in enhancing the adaptive and mitigative capacity of the people they represent through dialogue and approval of appropriate government policies.

He expressed hope that after the workshop there would be continued exchange of information and sharing of experiences among the EA legislators to assist in the efforts to reduce the adverse impacts of climate change.

## **STATEMENT: SPEAKER OF EAST AFRICAN LEGISLATIVE ASSEMBLY**

### **Hon Kinana represented by Hon Mafudha Alley Hamid of the East African Legislative Assembly**

Hon Mafudha Alley Hamid noted that the challenges of climate change phenomenon are global in nature and facing these challenges required a global approach. She pointed out that it was crucial that the EAC be well represented in these negotiations and seize the opportunity to influence decisions made on climate change.

The Speaker's representative noted that the workshop presented legislators with a good opportunity to chart out a common ideology and vision for climate change. She outlined some of the challenges of participation in COP meetings which include setting common EAC objectives by way of harmonizing the national objectives, establishing a strong negotiating team and establishing sustainable ways of financing the region's participation.

She advised that it was useful to support an EAC approach to climate change issues, since the three member states shared the same ecological and climate patterns and have almost similar national circumstances, climate change would have similar impacts in the region. She hoped that the workshop would agree on a common vision on climate change and set in motion mechanisms to harmonize national policies and strategies.

She informed the workshop participants that the Heads of State of the EAC had passed a regulation in June 2002 that the EAC should begin negotiating jointly on matters of international nature and this was now awaiting debate in the EALA.

Hon Hamid recognized that climate change negotiations were complex and required sufficient preparation before meetings by strong and competent negotiating teams. Advising that the region should prepare sufficiently ahead of the meetings, she called for the establishment of mechanisms for research, data collection and analysis.

She argued that the current practice of sending a handful of national delegates fell short of expectation and proposed that delegates should also participate in informal meetings as these influenced negotiations.

The legislator recognized that local climate change activities and participation in COP meetings require substantial amounts of money and that though individual governments were already spending some resources on climate change related activities, these were inadequate. She proposed that there was need to create a fund at the EAC level to complement efforts at national level. She noted that donor support was welcome but it may not enable the region to

undertake the necessary research and analysis that was required to prepare and argue its position at the global climate change negotiations.

She concluded her presentation by stating that there was need for integrating the Convention and Kyoto Protocol into the EAC legislation as a first step and that these two climate change instruments be studied and proposals made for policies, strategies and laws to be expanded accordingly.

## **KEYNOTE ADDRESS AND OFFICIAL OPENING: MINISTER FOR ENVIRONMENT AND NATURAL RESOURCES AND WILDLIFE AND VICE PRESIDENT AND MINISTER FOR HOME AFFAIRS**

**Hon Dr Newton Kulundu and Hon Moody Awori, respectively, represented by Hon Prof Wangari Maathai**

Prof Wangari Maathai an Assistant Minister in the Ministry of Environment, Natural Resources and Wildlife, welcomed all the participants to the workshop. She thanked the organizers of the workshop, CNA, for bringing together legislators from the East African region to discuss significant issues of climate change and sustainable development. She said that before it was even scientifically proven that the climate was changing, our mothers and grandmothers had already noticed that something was amiss with the rainfall patterns; the rains did not arrive in time and when they did, they were too little or too heavy.

She noted that the workshop would not have come at a more appropriate time when we were experiencing the high socio-economic costs of the impacts of climate change. She gave an example of the increased incidences of diseases and the cost of repair of damaged infrastructure, which were far beyond the normal budget. She informed the participants that Africa had contributed minimally to climate change and it was time for legislators to put across our concerns to industrialized countries who were the main contributors.

Prof Wangari Maathai warned that the human race could not afford to lose some cultures and societies, which were now faced with extinction due to sea level rise. These include the Small Island States that are severely threatened by climate change. She cautioned that it would be ethically, morally and socially unacceptable to pursue economic growth at the expense of the survival of these societies and other cultures.

She emphasized that the developed countries must drastically reduce their GHG emissions and alerted the workshop participants that the major impact of climate change in the East African region would be loss of human life and destruction of infrastructure which would make the cost of doing business in the region expensive.

On Kenya's priority to reduce poverty and inequality amongst its citizens, she informed the workshop that the country would promote policies aimed at creating an enabling environment for local and foreign investments in addition to enhancing productivity in line with the national motto of transforming the country into a "working nation."

She stressed that climate change-related disasters such as floods, landslides, droughts and other climatic catastrophes were occurring at an alarming rate in Kenya. These were a direct cause of poverty through loss of lives, property, crops, livestock and other livelihood supporting systems. She added that climate change-induced catastrophes, disrupted social systems including education, and in most cases led to diseases and other social epidemics.



*Hon Prof Wangari Maathai addresses the workshop*

Adding that Kenya's poverty reduction and wealth creation strategies shaped both domestic and international cooperation policies, she said that the country's wish was to be part of an international system safeguarding the environment for the good of all mankind based on common values and principles such as equity. She advised that the developed countries should respect the aspirations of developing countries to also experience meaningful socio-economic growth to develop, while the developing countries needed to strengthen negotiating capabilities and capacities.

Stressing that there was urgent need to provide technical support to political negotiators during the UNFCCC meetings, Prof Maathai advised that for this to happen, mechanisms for continuous research into climate change issues in the East African universities had to be put in place.

She reiterated that Kenya pursues a policy of prosperity for all by pursuing global dimensions of climate change and contributes to climate change negotiations through participating in all activities under the United Nations Climate Change Convention and its Protocol. The Assistant Minister confirmed that the country had already made a decision to ratify the Kyoto Protocol.

She applauded the fact that Kenya had also, voluntarily formulated and implemented policies that were already contributing to the reduction of carbon dioxide concentration in the air and gave the example of the enactment and establishment of the Environment Management Coordination Act (EMCA), which provided a comprehensive framework for environmental conservation. All new projects and those that existed at the commencement of EMCA are now required to provide an Environmental Impact Assessment Report for scrutiny by the National Environment Management Authority (NEMA) and the public.

In conclusion, she challenged the East African legislators and other participants to deliberate on and make necessary decisions in order for the following to happen:

- Harmonized environmental and climate change laws,
- A common EAC position in climate change negotiations,

- Incorporation of the UNFCCC and its Protocol in national laws,
- Enactment of laws to create enabling environment to attract investments under CDM,
- Identification and formulation of joint projects,
- Recommendations to respective governments on mitigation and adaptation measures in order to deal with frequent catastrophes caused by climate change.

Prof Wangari Maathai then declared the workshop officially open.

## **VOTE OF THANKS**

### **Prof Canute Khamala, Chairman National Environment Management Authority (NEMA) Board, Kenya**

Prof Canute Khamala thanked the Assistant Minister, Prof, Wangari, for having consented at very short notice, to preside over the opening ceremony of the workshop, and all the Ministers and Members of Parliament for finding time to dialogue on policies that address climate change and sustainable development.

He said that their presence demonstrated the recognition and seriousness that they gave to climate change. He noted that while climate change was a global phenomenon, its negative impacts were more severely felt by the poor people. He stressed that due to East Africa's high dependence on natural resources and limited capacity to cope with climate variability and extremes, the region was extremely vulnerable.

Prof Khamala expressed his appreciation to UNEP for deciding to make Africa its focus of attention and for establishing a special program for supporting workshops and discussions for African Climate Change negotiators. This had contributed immensely in building the skills of negotiators.

He thanked the collaborating organizers, namely, the Ministry of Environment, Natural Resources and Wildlife of Kenya, National Environment Management Authority (NEMA), Metrological Department and the Drought Monitoring Centre, Nairobi.

Finally, he thanked Climate Network African and UNEP for their invaluable financial support. He also acknowledged the support from the Government of Kenya and several other institutions that had played important roles behind the scenes.

In conclusion he expressed hope that the statements made during the workshop would provide the incentives to enhance discussions and lead to an understanding of climate change issues for further actions for posterity.

## **PLENARY DISCUSSIONS**

### **Introduction**

Suffice it to say that the scope for building capacity among any group is wide and basically limitless. The group discussing climate change this April 2004 was not unique in this regard. A lot, in terms of resources and time still needs to be input to enable vibrant discussions on this subject to be both objective and oriented towards developing meaningful policies and effective direction for the East African region. A grasp of the subject was clearly elusive as

clearly evidenced by the debates that followed presentation of papers. It was extremely difficult for the chairmen to continually attempt to bring back the discussions to climate change. Digressing to comfort zones was easier. However, notable issues were discussed and are reported below:

Delegates raised the need for East Africans to bring together their commonality in order to enhance their bargaining power. They agreed that negotiating, as an East African bloc is more powerful than negotiating as single entities and proposed that there was need to put pressure on institutions responsible for strengthening the bargaining capacity in the region. The way forward was seen as beginning to address those things that have kept the East African countries apart.

It was pointed out that the East African Legislative Assembly is already in the process of harmonizing policies. Participants acknowledged that EALA was still young and that populations in the region were yet to think of themselves as East Africans rather than as Kenyans, Ugandans or Tanzanians. The Customs Union was hailed though it had taken too long to be signed. The presidents had made a declaration in 2003 that in all international fora, East Africa would vote as a bloc. EALA will come up with a bill on this for debate.

The region was said to have elaborate policies and capable Members of Parliament; yet still predominantly in the developing stage. To respond to this concern, delegates said it is important to critically evaluate the impact of development aid on the three countries. It was the general feeling that donors are not giving effective direction.

Switching back to the matter at hand, delegates said that climate change being global in nature requires an integrated approach. They took issue with countries that have not ratified the Kyoto Protocol and said that they were determined to work together with other countries in support of the Protocol.

Delegates discussed the importance of having a representative of the East African Community at the United Nations and resolved that the EALA should pursue the matter.

Reference was made to the success story that belongs to the developing countries. Having actively engaged in the debate on Ozone Depleting Substances (ODS) and prevailing on the rich member states, a Multilateral Fund was set up and at present we have achieved 90% reduction in ODS. Countries were thus urged to maintain the pressure and urge developed countries to provide capacity and resources for climate change mitigation.

It was noted that the shared ecosystems are veritable carbon sinks and should be taken advantage of. Mt. Kilimanjaro and Lake Victoria were given as examples.

Development using donor money generated a heated debate. The inertia accompanying provision of this money was discussed at length. One participant challenged the workshop by asking why we have floods. She outlined the reasons: because we have deforested our environment and our rivers are muddy. She pointed out that we do not need donors to come and tell us to plant trees, dig terraces and to stop deforesting our catchment areas. She challenged the legislators to take action on things which they could do on their own without relying on donors.

Participants were informed that plastic does not rot and yet they were drinking water from plastic bottles in the workshop. In South Africa the material used to manufacture the bottles is

recyclable. The legislators were warned that use of such bottles would pollute and destroy the environment, and were asked to begin the challenge by changing their own lifestyles.

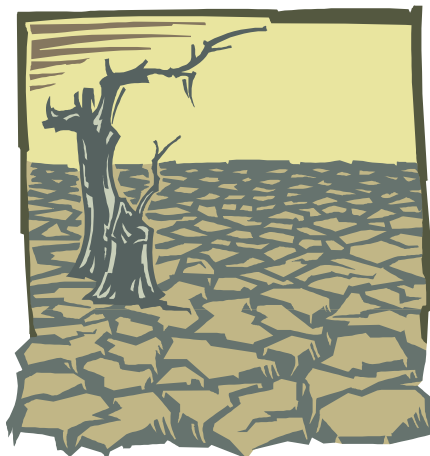
A call was made for bringing to a minimum, space exploration activities and a stop to unnecessary wars. Delegates heard how governments are not concerned about the people and instead ask donors for money to maintain the poor in the slums. Panafricanism was discussed with nostalgia, remembering the Late Mwalimu Julius Nyerere, the late Mzee Jomo Kenyatta and Milton Obote.

The meeting generated a sense of working together as East Africans on several other issues, be they biodiversity, desertification, education or health. Delegates were challenged to learn from the European Union.

The session chairman, Minister Acardo Ntagazwa, brought the discussion to an end. He said that out of the plenary, he saw five imperatives:

1. The need to strengthen linkages between scientists, researchers, policymakers and the local communities and thus lift the region from poverty and also address environmental degradation.
2. Strengthen the region's capacity to negotiate in international meetings, to attract foreign investment (be a destination for investment). Work at having representation as EAC in the United Nations, a UN/SAC office in Geneva. This will strengthen the capacity to push the region's agenda.
3. The third imperative was to create an enabling environment in which scientists can perform.
4. To ensure that the political will exists.
5. The fifth imperative was for East Africans to take charge of their own destiny.

## SESSION TWO



The Science of Climate Change

Vulnerability and Impacts of Climate Change in East Africa

Mitigation and Adaptation Options to Climate Change in EAC

Plenary Discussions

## **SCIENTIFIC BASIS FOR THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE**

**Mr. Alexander L. Alusa, Deputy Director, Regional Office for Africa, UNEP**

In his introduction, Mr. Alusa said that climate change and consequent global warming has caught the attention of the scientific community because of the risks it portends for society and the environment, which culminated in the signing at Rio of the United Nations Framework Convention on Climate Change (UNFCCC). He said that the paper highlighted scientific underpinnings of the debate on climate change and the basis for the formulation of the Convention on Climate Change.

He gave an overview of Climate Change and said that the climate system is controlled by the composition and dynamics of the atmosphere, oceans and the land surface. He emphasized that the composition of the atmosphere to a large extent controls the climate. He said that greenhouse gases are important when discussing climate change and they are in turn controlled by the capacity of the oceans and terrestrial ecosystems and soils to absorb carbon emitted as carbon dioxide into the atmosphere. Other important areas of concern he identified are the carbon absorptive capacity of oceans in terms of time required to absorb the carbon, terrestrial ecosystem capacity to sequester carbon and how much is absorbed by soils.

Mr. Alusa discussed the Greenhouse Effect, saying it is a natural phenomenon. The Intergovernmental Panel on Climate Change defines it as being very necessary as it is responsible for life on the earth. However enhanced greenhouse effect, which is the result of the addition of the GHGs into the atmosphere at a rate faster than they can be absorbed by land surface or oceans has led to an increase in the mean global surface temperature. Mr. Alusa said that IPCC has determined increased mean surface temperature due to human activities that would consequently increase the global mean sea level rise. This he said, would have dire consequences on socio-economic systems for small island states and poor developing countries.

Focusing on the Studies and conferences leading to the Negotiations for a Climate Convention, the presenter said that until the formation of the IPCC in 1988, the chief executives of the UNEP and WMO had constituted the Advisory Group on Greenhouse Gases (AGGG) to advise them on the possible impact on climate and the environment of the increasing GHGs notably carbon dioxide. He then described the formation of IPCC by UNEP and WMO in 1988 due to the threats of increased global warming.

Mr. Alusa said that IPCC noted that emissions resulting from human activities are increasing the greenhouse gases, which will increase the greenhouse effect and result in an additional warming of the earth's surface. He added that IPCC observed that the long lived greenhouse gases adjust only slowly to changes in emissions thus if emissions continued on a "Business-as-Usual" scenario, there would be greater reductions necessary to stabilize concentrations at a given level. He noted that the greenhouse gases according to scientists have been on the increase at a rate that they cannot be absorbed especially carbon dioxide.

Highlighting the expected global rise in temperature and natural climate variability, he said the mean surface temperature has increased by 0.3 °C to 0.6 °C over the last 100 years and global sea level has increased by 10-20cm. He admitted that the world has not been able to give evidence that the climate is more variable now than before and that whereas climate

models are able to identify the degree of global warming and global change in climate, they have considerable limitations in regional focus of climate change in addition to the problem of feedback.

Concerning impacts of climate change, Mr. Alusa said that the shifts in weather would create socio-economic impacts, which are best assessed at regional and local levels whereas these are the levels where the models are not accurate in forecasting the potential for climate change.



*EALA legislators, Hon Mahfudha Alley Hamid from Tanzania and Hon Prof Margaret Kamar from Kenya*

Referring to the UNFCCC, he said that the governments should know the following:

- What are the emissions, at present, of greenhouse gases in their countries?
- What emissions are necessary and critical for development and what alternative paths exist for development?
- What is the cost of responding to the Convention? In other words, what will it cost to reduce emissions and what development opportunities are lost?

He stressed that the governments must accede to or ratify the Convention if they are to benefit from the provisions of the financial mechanism given in the Convention. He further urged the governments to put in place institutional mechanisms to deal with the implementation of the Convention. He said that a multi-disciplinary team to coordinate government involvement is necessary.

Discussing the evidence of global warming, the presenter said that IPCC observed that global mean surface air temperature trends over the last century have detected a significant change and show what the observed warming trend is unlikely to be entirely natural in origin. He suggested that other more convincing reasons on human contribution to climate change is the emerging pattern based studies which show that there are patterns and correspondence between modeled climate response to combined forcing by greenhouse gases and anthropogenic sulphate aerosols compared to observed geographical, seasonal and vertical patterns of atmospheric temperature change. He however noted some uncertainties in

quantifying human influence on global climate as expected signal is still emerging from the noise of natural variability; others are cloud and biospheric feedbacks, and deep ocean absorption of carbon.

In his concluding remarks, the presenter affirmed that global warming has been determined to be real even if there remain a few uncertainties. He said that its consequences have not been fully assessed because of the limitations in modeling regional changes in climate but it is believed that they could be severe especially for small island states and developing countries. He recalled the requirements of the precautionary principle that action be taken now to forestall the dire consequences predicted to befall the society if people continue to emit greenhouse gases into the atmosphere in a business as usual manner. He praised the UNFCCC as being in the right direction though it lacks the necessary specificity in terms of emission targets and time frames to be able to stabilize the concentration of GHGs in the atmosphere at a tolerable level as called for in the Convention. He finally called upon the governments not only to accede to the Convention but also to put in place mechanisms for reducing emission of greenhouse gases in their countries since more emissions of GHG would result in an irreversible climate change.

## **VULNERABILITY AND IMPACTS OF CLIMATE CHANGE IN EAST AFRICA**

### **Prof L A Ogallo, IGAD Climate Prediction and Applications Centre and Department of Meteorology, University of Nairobi**

Prof. Ogallo made the following remarks:

- The earth's climate is humankind's greatest natural resource,
- The very existence of human beings on the planet depends on a favourable type of climate
- People depend on the right climate for crop production
- Climate is important for maintaining our vital water resources
- Climate plays an important role in our culture, how and where we live, in our health and in sustaining plant and animal life
- Climate plays a major role in the determination of the state of the environment
- Climate change can therefore have far reaching effects on environmental, ecological and socio-economic development among many other activities and services

Using various graphs, he demonstrated how climate fluctuations have occurred from year to year for 50 years. These graphs consisted of studies done in various areas such as Nakuru, Kakamega, Narok and Kisii.

Prof. Ogallo said that the world's climate has been changing. This is clearly demonstrated by an IPCC 2001 assessment. According to that assessment it was noted that:

- The global average surface temperature has increased since 1861
- Ten warmest years in record are also clustered within the recent years (in the 20<sup>th</sup> century)
- The night-time daily minimum air temperatures over land have increased by about 0.2°C per decade

- A few areas of cooling, such as the North Atlantic Ocean
- The mean global sea level is rising related to the increase in global mean temperature
- The *El Nino*, which is often associated with extreme worldwide climate anomalies, has been observed to be more frequent in the recent years.

He said that these are just a few examples of the observations, which are due to natural processes that man cannot control.

He said that even human beings had influence on the climate. He used graphs to explain to the participants how people influenced the atmosphere during the industrial era. From the graphs it was observed that there was increase in emission of greenhouse gases especially carbon dioxide.



On future climate change expectations, he said that it is based on climate models driven by future projections of socio-economic trends including population and economic growth, technological changes, energy demand, and fuel mix. The presenter concluded that there would be a rise in mean global temperature and a rise in sea level that will ultimately lead to significant socio-economic impacts such as flat islands, harbors and threats to productive coastal lands. Prof. Ogallo briefly elaborated on some terms such as natural disasters, natural ecosystems, the global hydrological cycle, regional crop distribution and human health in relation to climate change.

He focused on climate change in East Africa. Graphs showing anomalies, glaciers against years were used to explain the point. He even used photographs to give evidences of the changes in East Africa such as farms that dried up due to drought, bridges nearly getting submerged due to heavy rains and dry land that could not even provide for grass for the herds of cattle (see Annexes). Following his observations from the research, he concluded that floods follow prolonged drought.

Prof. Ogallo used the sustainable development triangle to link environment, society, economy and climate which showed that no sustainable development could be achieved without integrating climate roles and neither can any country achieve poverty reduction dreams without maximizing the use of climate information since it is the backbone of almost all activities.

The presenter then pointed out ways of addressing current challenges, which are occasioned by current climate extremes. He talked of climate monitoring, prediction and early warning systems and secondly, integrated disaster management policies.

He identified a number of ways of addressing challenges due to future climate changes:

- Promotion of social and economic practices that would not harm the environment further.

- The implementation of the international agreements designed to minimize or reverse the trends in climate, such as the UNFCCC and its Kyoto Protocol, the UNCBD, the UNCCD and the convention for the Protection of the Ozone layer.
- The Kyoto Protocol that requires developed (Annex I countries) to reduce their overall emissions.

## **MITIGATION AND ADAPTATION OPTIONS TO CLIMATE CHANGE**

### **Dr Oscar Kiboona and Mr Francis Manyika, Vice President's Office, Division of Environment, Tanzania**

Dr Kiboona's and Mr Manyika's paper, covered mitigation of climate change, mitigation options, adaptation to climate change, adaptation options to climate change and the role of legislators in mitigation and adaptation.

He defined mitigation of climate as the process of moderating, reducing intensity or arresting climate change with the ultimate goal of stabilizing concentrations of greenhouse gases, which are responsible for the climate change. He simplified the terms to suit local audiences by saying that mitigation means working towards;

- Preventing further spread of malaria in highland areas of Tanzania, Kenya, and Uganda.
- Preventing worse floods than have been seen recently in places such as Mombasa  
Preventing drought
- Sustaining biodiversity of flora and fauna
- Maintaining ability of fresh water to mention but a few.

Focusing on mitigation options, he posed a question to the participants on how climate can be mitigated. He said that this could be achieved by reducing greenhouse gas (carbon dioxide, methane, nitrogen oxides, carbon monoxide, and ozone depleting compounds) concentrations in the atmosphere by certain percentages.

The presenter pointed out the sources of greenhouse gases as being:

- Fuel combustion such as coal activities, stationary combustion in industries, thermal power generating plants and traditional biomass
- Industrial processes such as non-metal processes (cement) and non-mineral processes (pulp and Paper)
- Agriculture e.g. rice cultivation, enteric fermentation, manure management, burning of Savannah and burning of agricultural residues.
- Land use change and forestry such as clearing for agricultural lands, abandonment of managed land and forestry subject to human activities
- Waste management such as municipal solid waste, and waste water treatment

The mitigation options available are technological and non-technological options. The former involves application of available technology to reduce emission of GHGs. Examples include using charcoal efficient stoves to reduce the rate of deforestation, geothermal, co-generation and replacement of fossil fuel with renewable sources particularly solar energy. The latter involves economics and management and decision-making as well as legislation. He said that economically, mitigation could be self-driven if there is a profit to be realized while

management and decision making involve improved planning and decision making in GHGs emitting sectors e.g. using low energy light bulbs and appliances and using efficient high capacity public transport during rush hours. Legislation, on the other hand involves creating an enabling environment for mitigation, for example, energy policies and strategies in Kenya, Uganda and Tanzania need legislation if they are to be implemented effectively.

The presenter gave definitions of adaptation to climate change and simplified his definitions that the phenomenon involves adjustments to reduce the vulnerability of communities, regions/sub-regions or activities to climatic change and variability. He pointed out reasons for adaptation and types of adaptation to the participants. He gave three reasons why adaptation is necessary: to reduce the GHGs, it is a compliment to mitigation measures and thirdly adaptation is necessary in order to reduce vulnerabilities and promote sustainable development.

He then gave adaptation options in different sectors, which included; the agricultural sector, grassland/livestock sector, forestry sector, and health sector.

Mr. Manyika focused on the role of legislators and saw the need for legislators to enhance effective implementation of policies and strategies. He remarked that there was need for a new legislation that will ensure the following:

- Creation of enabling environment through legislation, which includes tax relief, capital incentives, enforcement, funds allocation for public education in climate change adaptation.
- EAC Adaptation Programme of Action (EACAPA)
- Include adaptation programmes in disaster management programmes/strategies.

## PLENARY DISCUSSIONS

Delegates discussed the effects of debt burden on developing countries, saying that it made it impossible for governments to address poverty. It was suggested that the debt issue be addressed as a regional problem in the context of the EAC.

Also coming up every now and then was the commitment to be industrialized by the year 2025. Alongside this was the need to widen the middle-income bracket.

Also discussed was the fact that East Africa has some resources, which have not been fully exploited. Reference was made to the workshop held in November 2003 at the Hilton Hotel, which identified a number of resources not fully exploited which could lend support to the region's energy needs.

Delegates also acknowledged that in the East African region there was a lot of knowledge and expertise in the area of climate change. When talking about climate change, we are also talking about the subsistence farmer who relies on rain-fed agriculture. Most farmers understand that there has been some change in the climate, but do not understand why. The legislators were challenged to ensure that their people are informed about this phenomenon in a language that they understand.



The need to strengthen Environment Impact Assessment (EIA) practices was discussed against the background of investment/development activities being undertaken by Bidco Oil Refinery in Jinja, Uganda.

Famine is commonly attribute to dramatic reductions in food availability and has become associated with natural disasters such as drought, floods and crop pests. Problems such as these are associated with climate change were discussed. Floods and droughts have caused food insecurity in sections of the region. Adequate planning to circumvent these disasters was seen as a solution. The region needs to tackle the problem of food scarcity.

Delegates said that they were intrigued by the science of climate change and would want to learn more in order to sharpen debate in their respective assemblies. They said that studies should be conducted to further ascertain and advance their knowledge in climate change.

Delegates asked the government of Kenya to reconsider re-introducing DDT, arguing that the impact of malaria in the region could be significant. They also discussed the Nile Treaty and the Nile Basin Initiative.

They said the information available on climate change is vast but has not trickled down to the local farmer. Climate change is about the small farmer who is experiencing low yields, low rainfall, changed rainfall patterns and are perplexed. It was mentioned that the information available should be packaged differently for different users.

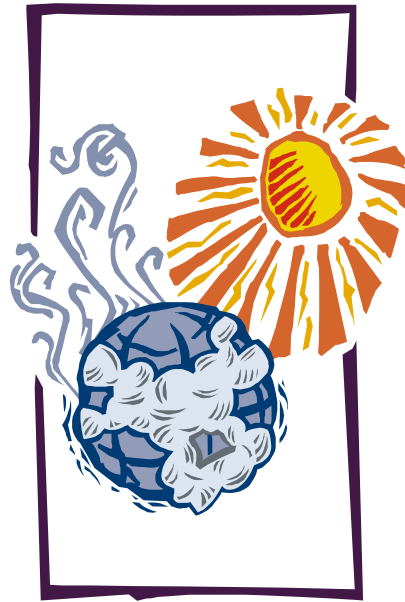
Adding that there was the need to educate both farmers and the fishing communities, Members of Parliament also discussed rice growing and debated whether or not it is a good crop under the prevailing changes in climate.

Concern of the survival of Lake Victoria was raised. The islands of Lake Victoria were said to be endangered. The EALA was requested to revisit these issues.

The issue of Bidco projects was being followed closely by UNEP. MPs were reassured that scientific procedures have been followed to ensure that there was no destruction of the eco-system. The same palm oil trees were planted in Malaysia and the projects have been a huge success. Once the trees were planted, the undergrowth was allowed to rejuvenate.

It was also pointed out that there is a lot of scientific knowledge in the universities and research institutions, but very little linkage between the two and parliament. Parliaments in the three countries lack mechanisms to receive these research findings and translate them into policy and/or legislation.

## SESSION THREE



Impacts of Climate Change on Human Health

Impacts of Climate Change on Infrastructure

Climate Change and Agriculture

Climate Change: Concept of Contraction and Convergence, Global Inequity  
and Debt Crisis

Plenary Discussions

## IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH

### **Dr. Andrew K. Githeko, Kenya Medical Research Institute (Climate and Human Health Research Unit)**

Dr. Githeko gave the various classifications of infectious diseases. Vector borne diseases (malaria, dengue, plague, yellow fever among others), water borne diseases (cholera, typhoid, amoebiasis.) and air borne diseases (meningitis and hantavirus). He then defined climate change as a change in the mean state of meteorological variables such as temperature and rainfall or a departure from the mean state i.e. climate variability.

Focusing on seasonality in disease transmission, he noted that transmission of most vector and water borne diseases is associated with variation in rainfall and temperature and the intensity of transmission is regulated by the weather and climate.

He briefed delegates on the geographic distribution of diseases saying that the distribution of infectious diseases in space is related to climate, which changes with altitude and latitude hence cold weather can stop transmission of some diseases e.g. malaria. He said that sensitivity of disease transmission to weather and climate depends on the factors stated hereunder;

- Reproductive rate of the vector
- Reproductive rate of the reservoir
- Rate of development of the pathogen in the vector or in the environment
- Preference for human blood feeding
- Suitability and availability of disease habitat

He said that rainfall affects the availability and suitability of disease habitats while temperature affects the rate of vector and pathogen development and also the vector blood feeding rates as well as the suitability of habitats for disease reservoirs.

*El Nino*, which he said is the analogue of future climate under global warming was used to project the impacts of weather on diseases in the future as the climate gets warmer. This was illustrated using the 1997/98 *El Nino* phenomenon. Malaria, cholera and meningitis were given as case studies. Doctor Githeko observed that an estimated 320 million cases of malaria are reported in Africa per year and an estimate of 0.9 million deaths per year with the highest number in the highlands, 40 million DALYs (Disability Adjusted Life Years) lost annually and worst of all drug resistance is increasing.

Using a graph of a research done in Western Kenya, he explained to the participants how the malaria outbreaks occur after positive maximum temperature anomalies. He compared the malaria epidemics in Kenya and Tanzania where he noted that the correlation in the standardized anomalies in hospital cases between Kenya and Tanzania is 0.71 which suggested that the epidemic driving factors are the same for both countries and that the factor is climate.

Focusing on cholera, the presenter pointed out that the human volunteer feeding studies utilizing healthy individuals have demonstrated that approximately one million organisms must be ingested to cause illness. Relating the fact to climate, he said that algal blooms associated with cholera increase in number with high temperatures. He confirmed his point

by demonstrating from two different graphs of studies conducted in Uganda and Western Kenya during the *El Nino*.



*Prof Michieka of NEMA and Ms Grace Akumu of CNA discuss the workshop programme*

He referred to meningitis as the belt of Africa from Senegal to Ethiopia and expanding to East Africa. Noting that the disease includes all or part of at least 15 countries, with an estimated total population of 300 million, he said that in 1996, more than 150, 000 cases and 16, 000 deaths, mostly children, were reported.

Dr. Githeko raised future concerns in relation to Human Health and Climate Change as encompassing the following:

- Frequency of drought and floods will increase
- Frequency of vector and water borne diseases will increase
- Malaria will become stable in the highlands affecting millions of people
- Anti-malaria drug resistance will be a serious problem
- The economy of the agriculturally rich highlands will decrease due to malaria
- Cholera epidemics could become more frequent along coastal areas and lake shores
- Typhoid and other water borne diseases could affect public water supplies due to flooding
- Drug resistance will become a major problem as disease transmission increases.
- Meningitis epidemics could spread south and eastwards
- The epidemics could become more intense

## IMPACTS OF CLIMATE CHANGE ON INFRASTRUCTURE

### **Hon. Eng. Raila A. Odinga, Minister For Roads, Public Works And Housing**

In his paper, Hon Raila Odinga began by noting that many activities around the world are adapted to the prevailing climate patterns. Fluctuations in climate are known to occur on a year-to-year or season-to-season basis and these impact negatively on many activities in several sectors including agriculture and food security, water resources, environment, human settlement, health, energy, tourism, industry, transport, communications and infrastructure.

He said that it has also been established that the world is warmer today than it was a century ago. The Third Assessment Report of the Inter Governmental Panel on Climate Change (IPCC) indicated that globally, it is very likely, that the 1990s was the warmest decade and 1998 the warmest year in the instrumental record, since 1861.

Mentioning that climate change brought with it challenges resulting from the effects of extreme weather and climatic events such as tropical storms, floods, droughts, landslides, strong winds and sea level rise, Hon Raila informed the participants that these events definitely imposed a strain on the management of problems related to, among other things, infrastructure.

He lamented the destruction of infrastructure arising from the 1997/1998 El Nino related floods, which cost the Kenya government millions of shillings. Roads and buildings were damaged, bridges and railway lines were washed away; landslides occurred in some areas and destroyed property, schools and other social amenities. When this was over, it left the country in excess of 10 million US dollars poorer. This caused a big strain on the country's economy and wiped away all the gains made over many years.

He said that as a result of the extensive destruction caused by the 1997/98 and 2003 floods, the Government of Kenya had established a Task Force under the Ministry of Public Works and Housing to "*Develop a project proposal on the restoration of the physical infrastructure destroyed by the floods.*" The report of the Task Force revealed that the resources required to restore the infrastructure destroyed by these floods were phenomenal for a small economy like Kenya.

The Minister mentioned that governments in the East African region are often affected by climate change yet could not raise sufficient funds to put up strong structures every time there was a severe climatic event. Thus the region must urgently develop and put in place, appropriate policies to ensure that the adverse impacts of climate change to infrastructure, among other sectors, are minimized. He said that it was also important to institute a system of monitoring the evolution of anticipated climate change scenarios. This would enable the affected sectors of the economy to absorb the shocks of severe climatic impacts.

He concluded his presentation by reminding industrialized countries to demonstrate their political will by fulfilling their commitments in the Climate Change Convention on financial and technology transfer to developing countries. This would enable developing countries to undertake sustainable adaptation programmes.

## CLIMATE CHANGE AND AGRICULTURE

Dr Louis Verchot, ICRAF

The paper entitled **Climate Change: Linking adaptation and mitigation through agroforestry** was presented by Dr Louis Verchot on behalf of the following scientists: Meine van Noordwijk, Tom Tomich, Chin Ong (all from ICRAF) Jens Mackensen (UNEP), Alain Albrecht, Seringe Kandji (IRD/ICRAF) and Cynthia Bantilan (ICRISAT).

Having defined “agroforestry”, as Dr Verchot sought to explain why scientists are concerned about changing climatic conditions. He raised four fundamental concerns. These are:

- (1) Increasing demand for food – This is a truism especially for developing countries. He linked it to ever-growing populations
- (2) Stagnant or decreasing harvested areas
- (3) Limited ability of new varieties and fertilizer to further increase in yields
- (4) Resource degradation (soil, groundwater etc)

Dr Verchot discussed the need to consider “adaptation” for agricultural productivity. He gave the following reasons:

- (1) That the primary drivers of climate change are not going to stop
- (2) Global conventions are not sufficiently effective to stop the increase of GHG concentrations
- (3) Mitigation effects will only provide partial “softening” of the effects of climate change
- (4) Local climates and terrestrial ecosystems will change, threatening biota and human livelihood.

Despite all these truths, we still hope that food and fibre production, environmental services and rural livelihoods can improve.

He gave various examples and projections of rice yields on the Indo-Gangetic plain. This information is presented in Annex 3. He said that Jones and Thornton (2003) project a 10% decrease in maize yields due to climate change by 2040 globally, a 5-7% increase in wheat yields due to the carbon dioxide fertilization effect, and a 5% decrease in rice yield per degree above 32°C.

The presenter discussed farm level sustainability and drew out the following challenges and climate change signals:

- Land access, markets (inputs, outputs, access prices)
- Knowledge (basic principles, innovative capacity)
- Technologies (strategic and tactical interventions)
- Water (drought, flooding, irrigation, drainage)
- Soil fertility
- Pest and disease
- On farm labour (Off-farm activities, illness)
- Weeds

- Potential production of germplasm used
- Angry neighbors
- Dissatisfied customers

Under sustainable agriculture and climate change mitigation, Dr Verchot discussed a number of actions and gave their effects or lack thereof on GHG concentrations and carbon emissions. Examples of actions given were removal of marginal land from production, conservation tillage, decrease in biomass burning, trees in agricultural landscapes and better rice management backed by cultivars and water management. The full range of actions discussed and their probable effects are presented in the annexes.

Dr Verchot also outlined the economic incentives and development opportunities which ICRAF has documented over the years. These include the fact that:

- Forest conversion is profitable
- Conversion can (sometimes) reduce poverty
- There are (a few) win-win opportunities
- Typically, there is a trade-off between development and carbon stocks.

Of interest was agroforestry and carbon sequestration. He described the multistory systems with tree crops as being very useful in sequestering carbon. He gave examples of jungle rubber systems of Indonesia and cacao systems of Cameroon.

He also discussed agroforestry in the humid tropics giving carbon stocks of different forest levels. He pointed out the differences in carbon levels in grasslands, crops/pastures, tree-based systems, managed forest and primary forest.

Dr Verchot then discussed management systems from the sub-humid zone for soil fertility management. He talked about the more familiar rotational systems such as improved legume fallows, saying that carbon storage improve through these improves fallow systems.

Albrecht and Kandji (2003) have shown that agroforestry systems sequester 12 to 228 milligrams of carbon per hectare. They have projected that agro forestry systems may sequester 1.2 to 2.2 Pg over the next 50 years globally. The scientists concluded that long rotation systems have large potential in biomass while the short rotation systems have high potential for soil carbon sequestration.

The presenter in trying to bring all these facts closer home, spent time explaining how global climate change translates to local climate shifts and some expansion of the range in temperatures. He said that future climates for most places on earth already exist elsewhere. To overcome these challenges, developing countries will need agricultural technology and resources. The speaker said that local adaptation would have a component of technology transfer which will evolve around the following cornerstones:

- Germplasm – which will address intellectual property rights concerns
- Knowledge and technologies
- Markets

The last two markers will take into cognizance cultural and political barriers.

Dr Verchot introduced a new term “sustainagility”. He explained the term saying that it is important to support the ability of farmers to remain agile in responding to new challenges, by adapting their production systems.

He further explained that resilience or adaptive capacity are properties of the actors, while sustainagility is that of a system in which they function. Whilst resilience may indicate a return to the status quo, agility refers to continuous moving targets. Dr Verchot pointed out that sustainagility coupled with sustainability imply probability of meeting future needs.

He advised participants to encourage people to keep doing what they do now. He also listed certain coping mechanisms in view of the persistent droughts:

- Postponement of major expenses
- Investments in agriculture
- Less inputs in crop production
- Growing crops which require less inputs
- Full sale of livestock
- Partial sale of uncultivable land and wastelands
- Migration of some family members for non-farm employment



*Legislators from Tanzania follow the proceedings during the workshop*

Dr Verchot concluded by saying that linking adaptation and mitigation is a key issue for ICRAF. He said that outstanding questions on the potential of agroforestry in mitigation include:

- The need for better data on aboveground and belowground carbon stocks of different systems

- Other carbon stocks, for example deep soil carbon, durable wood products
- Predictive models: climate and land use implications for carbon sequestration by agroforestry and what it means to livelihoods
- Pests and disease issues during scaling up
- Cost/benefit analyses of agroforestry for carbon sequestration
- Institutions for CDM
- Role of agroforestry in buffering against droughts
- Potential of tree-based production systems in vulnerable areas
- Quantification of relationship between biodiversity and sustainability
- Synergy between climate change benefits and other ecosystem services.

## **CLIMATE CHANGE & THE CONCEPT OF CONTRACTION AND CONVERGENCE**

Mr. Aubrey Meyer, Global Commons Institute

Mr. Meyer applauded the Africa Group for laying down a very clear position in 1997, which was very successful to the extent that it went all the way through to COP 3.

He discussed the statement made by the chairman of the Group of 77, (G-77) at the time. He said that the information was useful in setting the stage for further debate adding that the meetings were extremely difficult but what was crucial was to try to evaluate whether or not the Parties had made any real head way in trying to strengthen the commitments under article 4.2 a and b and whether they had advanced the implementation of Article 4.1 of the UNFCCC. The Chairman of the African Group had expressed fear that if no action was undertaken, then unfavorable climatic conditions would continue to plague economies, crops would continue to fail, national external debts would remain a problem and basic social infrastructure would continue to suffer as a result of the impacts of climate change.

Mr. Meyer emphasized that there must be limits on all GHGs if the danger to climate is to be averted. He added that IPCC scientific assessment report provides the basis for global consensus on such limits hence the contrary view does not enjoy much emotional, political or scientific support.

He went further to say that a globally agreed ceiling of GHG emissions can only be achieved by adopting the principle of differentiation. Achievement of a safe limit to global GHG emissions can be achieved by reducing the emissions of Annex I countries while at the same time ensuring that there is controlled growth of future emissions from Non-Annex I countries (developing countries), thus reflecting the legitimate right to sustainable economic growth. He feared that looking at time frames, the insufficient commitment by Annex I countries would only result in delaying the influence on the climate system that would cause suffering and greater burden to humanity and this will be greater in future for those who did not create the problem.

He called for predictable financial resources, technology transfer, education, training and public awareness, systematic observation and research in Africa to attain reductions by Annex I Parties and sustainable growth in Non-Annex I Parties.

He urged the participants to focus their attention on the most appropriate, reasonable and acceptable time frame for action due to the scientific evidence indicating Africa's decline in water resources, agricultural production and economic performance.

Finalising his speech, Mr Meyer requested the UNFCCC Secretariat to take note of the views expressed by the African Group of Nations and Parties to the Convention. He encouraged and the participants to look forward to meaningful targets and time frames for consideration at the next session of the SBSTA of the UNFCCC in June 2004.

Mr. Meyer raised the fact that during COP 3, the USA did not in fact reject the proposals by the African Group and Group of 77 but had supported the proposals by India and the African Group who spoke about the Contraction and Convergence elements. The USA had said that these were elements for the future that perhaps would be agreed on and Parties engage into. Other views and statements were presented from various sectors such as environmental, economic, religious and political sectors that were in support of the C&C approach on GHG emission and climate change.

Mr. Meyer emphasized that Climate Change and the link between economy and emissions, are real and are happening. Increased droughts, floods and rising seas attest to the fact. People's most fundamental rights and livelihoods are being violated. He said that much scientific observation showed that much worse is yet to come. He added that GHG emissions, generated over 200 years mostly in the OECD have been accumulating in the global atmosphere, raising their concentrations there by 40% to date. Mr. Meyer said that the people who have been making money are the ones making the mess and even with the UN Climate Treaty in place since 1992 and the Kyoto Protocol since 1997, no effective and collective action has yet been organized to alter these trends.

It is increasingly clear that deep cuts in emissions are needed just to avoid the worst, yet some continue to perpetuate and aggravate that failure. The global agreements made in the Climate Treaty and the Kyoto Protocol have been broken and no efforts to restrain emissions have been undertaken.

He called for the need to develop a framework for equal shares of agreed global emissions. To worsen the situation, he said, resisters still maintain demands for conventional debt repayments from the majority who are denied these rights, at the same time least responsible yet most vulnerable to the worsening trends. He further saw the need of having proposals for rights-based and legally guided action internationally to avert the insecure situation.

The presenter observed that there is one swaying vote; the Russian vote, which is being fought over. He encouraged African countries to continue the struggle for equity in the implementation of the UNFCCC and KP. Even though she has struggled to survive there is still hope. He called for ratification of the Protocol since it would be a gateway for additional funding. He urged those who have not signed it to do so saying that there is no harm in ratifying it and that C&C complements KP even further.

He demonstrated the Contraction and Convergence concept using power point. The information contained;

- Sub-Global Guesswork to Global Framework Progression
- Expansion and Divergence and in/efficiency as the conditions preceding Contraction and Convergence

- An exposition of C&C
- Updated information about accelerated sink failure
- C&C in the context of Oil and Gas Depletion.

Mr. Meyer called upon MPs to give strategic policy advice. He pointed out that the contraction event contains a convergence process by definition therefore defends equal rights to the global commons resource. He said that Kyoto is an absolutely astonishing achievement by the African Group. He further added that it is incontestable that contraction contains convergence, not only for moral reasons but also for constitutional reasons, therefore the need for negotiating the rate of equal per capita entitlements globally. CDM has contraction and convergence — its merits have some of what it takes to solve the problem. He requested EALA to struggle and lobby for the elements of Contraction and Convergence reminding delegates that emissions are a very close proxy for income (emissions are money).

## GLOBAL INEQUITY AND DEBT CRISIS

### Ms Jessica Bridges Palmer

The picture of a dinosaur was used to illustrate the impending disaster in which a lot of animals and plants could be annihilated. Using another picture showing fossil fuel burning in 1860, Ms Palmer said that after more than two centuries of intensive and unrestrained fossil fuel burning, the global economy has developed a fossil-fuel addiction. This has led to global warming.

She said that people in the world's poorest regions are most at risk. By 2080 it is predicted that over three billion people across Africa, the Middle East and the Indian Sub-continent will suffer an increase in "water stress". Agricultural yields in Africa are expected to drop and hunger to rise. Both droughts and floods will increase in frequency. And according to the UK's Meteorological Office, the most dangerous strains of malaria will pose a risk to 290 million more people as warmer, wetter climates encourage mosquitoes to breed.

Ms Palmer said that disasters target the poor and keep them hungry thus lacking the energy and the resources to engage in sustainable development. She said that wet areas become wetter, and dry areas drier. This kind of thing, she said is truly disastrous for Africa. The number of people affected in Oceania by weather related disasters rose 65 times in 30 years. She pointed out that a 50 cm sea-level rise (which is certainly possible in our life time) would bankrupt Venezuela. Jessica said that during the 1990s, developing nations suffered US \$ 300 billion or double in direct losses from weather related disasters.



Twelve million people in Southern Africa are facing hunger, disease and death after years of drought. The floods in Mozambique in 2000 destroyed stored food, seed reserves and field crops while crop-yields in sub-Saharan Africa are projected to fall by 20% under global warming.

Ms Bridges spoke of how storms and migration undermine schooling and gender equality while rising temperatures threaten everyone's health. She gave examples of hurricane Mitch that is said to have destroyed ¼ of all Honduras' schools. And that by the mid-1990s there were an estimated 25 million environmental refugees. It is predicted that traditional female roles are likely to be reinforced under economic systems weakened by climate change. In Africa alone there are up to 500 million cases of malaria each year, 90% are children – IPCC suggests warming could increase that by tens of millions annually. It is also said that heat-related deaths are expected to double by 2020.

She also spoke about the fact that wrong economics put people at risk while debt, bad trade and over-consumption undermine the poorest. An example was given of how Malawi was left more vulnerable to drought after being advised to reduce agricultural support and sell grain reserves. It was also said that despite two years of floods, Mozambique cut spending on management of water resources by 90% from its 2001 level under its PRSP.

Ms Palmer made a number of comparisons that clearly show patterns of over-consumption, inequity and debt, which continue to undermine the poorest. She said that at least US\$ 80 billion annually in rich countries goes to subsidize the fossil fuel sector yet only US\$ 0.4 billion extra has been pledged for poor country adaptation to warming. She wondered whether it was unreasonable to expect the wealthier members of the international community to pay for their profligate enjoyment of the earth's finite fossil fuel supply. Saying that this was both a moral and an economic case, she observed that emissions from international trade are one of the fastest rising sources of greenhouse gas sources. She brought out the argument that a fifth of the world's richest population accounts for 86% of the world's spending on consumption. She talked about the total external debt of the US and compared it to a number of regions, such as sub-Saharan Africa, south Asia, Latin America and the Caribbean, East Asia and the Pacific, Middle East and North Africa, Emerging Europe and Central Asia. It was very clear that the US debt was much larger than the debts of any of the regions combined. Jessica also presented an analysis of the carbon debts of the G7 nations compared to the carbon credits of the 'heavily indebted poor countries (HIPCs). She showed an interesting photograph of President Bush with two colleagues and a turkey apparently for thanksgiving dinner, saying that what is the cost of a normal meal in the US is the equivalent of a year's budget for meals in Tanzania.



*Aubrey Meyer of the Global Commons Institute and Emily Massawa of NEMA*

As a way forward Ms Palmer developed the following action plan, which she explained to the legislators that it was a probable solution to the impending disaster:

- The lens of risk reduction
- Assessment of costs and impacts
- New resources commensurate with the problem
- Focus on and support for community led preparedness
- Support a proper framework to stop climate change and share the commons of the atmosphere, based on equitable management of the global commons of the atmosphere
- Keep arguing to win the political case for action

The presentation with its many photographs was very well done and useful to the delegates.

## **PLENARY DISCUSSIONS**

Delegates sought clarification on the whole idea of carbon trade, saying that it was not well understood by many of them. They also needed more information on what crop varieties scientists are working on with regard to climate change.

They emphasized the need to think about the parliamentarians' framework so that the workshop bears fruit as its deliberations are placed before the four parliaments.

Delegates were told that the original understanding regarding trade had changed and that only countries qualifying as Annex I Countries (developed) would be allowed to trade in carbon. The primary reason behind carbon trade is to avoid excesses. Carbon trade continues to be a huge challenge across the globe. The impossibility of allocating a global resource globally remains a challenge. Countries continue to be engaged in carbon gains, banking carbon and selling carbon credit downstream.

Delegates continued to seek clarification on how carbon trading reduces carbon concentrations and how it can be done in developing countries. They touched on the lifestyles of the US citizens which consumes a lot of energy more than anybody else on a per capita basis.

Delegates were informed that carbon trading means sale of Carbon Emission Reduction Units (CERUS). It is assumed that certain projects instituted in the private sector under the Kyoto flexible mechanisms will produce CERUS. These units can be retained in the company or sold to a willing buyer. In most cases, the willing buyer could be another company that is not able to produce its own CERUS. In a few cases, it is just a speculator who would like to sell the CERUS at a profit. May be the speculator wants to sell them at a stock exchange to the highest bidder. Carbon trading can therefore go on even after the original producer is no longer in operation. While this trading is going on, there are no new emissions being saved. Some US states and companies are already allowing carbon trading to go on although the USA is not a signatory to the Kyoto Protocol.

It was said that in the EALA, there are a number of technocrats undertaking a lot of work, which they feed to legislators to debate on and pass into legislation. A paper on sustainable management of Lake Victoria has been prepared and will be given to a number of people including NEPAD. Lake Victoria is dying and therefore a lot of concern has been raised and

funding is coming in to revamp the lake. Tour of Kenya in June 2004 will include certain legislators so that they also begin to understand the situation and make a legislation that supercedes any other.

# Day Two

## SESSION FOUR



Presentation on GLOBE

Action for Global Climate

Kyoto Protocol and the Clean Development Mechanism

Integrating Climate Change Considerations in National Development

## **GLOBAL ENVIRONMENTAL NETWORK ON CLIMATE CHANGE FOR PARLIAMENTARIANS**

### **Hon. Ken Lukyamuzi, Member of Parliament, Uganda and Vice President of GLOBE International**

In his introductory remarks, honorable Lukyamuzi gave the full meaning of Globe, saying that it stands for Global Legislators Organization for a Balanced Environment. He added that during 1989 it was conceived by a group of Parliamentarians in Europe in a small way but is now a common wealth of over 100 independent nations. He stressed that GLOBE has gained a lot of strength and support in Africa and identified countries such as South Africa, Malawi, Namibia, Lesotho, Mauritius, Madagascar, Mozambique, Kenya, Uganda, Swaziland, Tanzania and Zambia as having been at the forefront. He said that the Global office is based in Washington DC while in Africa, it is based in Cape Town while other regional offices are in India, Europe, Japan, China and Latin America.

The MP identified Globe's main work as being; to cause a global country to country networking program on matters related to the environment and more so in the area of climate change. He informed participants that the organization has held workshops and conferences on topics like climate change, desertification, the millennium goals, Agenda 21, the Kyoto Protocol to mention a few and that it played a great role in preparing the action programme for the recent WSSD in Johannesburg.

GLOBE's plan of action and related assignments include:

- Encouraging MPs to discuss cross cutting issues related to desertification, land use, sustainable development, renewable energy, good governance and poverty eradication in their respective countries.
- The promotion of the Ratification of Conventions related to climatic change, deforestation and the need to encourage governments to publicize the protocols signed.
- The laws related to desertification, climatic change, energy, forestry and biodiversity.

On international concerns, the MP emphasized that every serious legislator worldwide must endeavor to understand the meaning of climatic change, its causes and effects on living organisms including men and women. Adding that since climate change has a notable bearing on human activities on earth, he asked that how then can such activities be controlled in a world where there are various leaders and legislative assemblies like parliaments, senates and houses of representatives.

He expressed worry over the nonchalant attitude over the result of the Greenhouse gases on the Ozone layer and the expanding desert day after day in the Far East, Southern Africa and the Horn of Africa due to deforestation and related calamities.

The MP said that the global obligations towards the observation and implementation of the concerns of the Kyoto Protocol have not been honored effectively and added that much as it is now 7 years since the protocol was signed by a number of countries, very few have taken the trouble to bring it close to their communities. He however, observed that the rules governing the details of the protocol for example still needed negotiation and there are no meaningful penalties for non-compliance to the known targets and that even USA, Russia and Australia have refused to ratify the protocol.



*From left to right: Hon Prof Wangari Maathai, Prof Michieka, Hon Otafiire and Hon Lukyamuzi*

Hon Lukyamuzi identified the global challenges in relation to the Kyoto Protocol as being:

- The USA and other developed countries are giving the developing countries a bad example by being undecided on a matter of international concern like the ratification of the Protocol.
- Poverty in Africa has a bearing on the reluctance of her countries to ratify the Kyoto Protocol.
- Africa should, through AMCEN, encourage good and democratic governance so as to redefine her environment policy to achieve reduction of GHGs, contribute towards sustainable development, influence all development projects by donors on qualitative production and improve the people's agricultural practices basically dependent on a balanced environment.

Mr. Lukyamuzi said that environmental degradation (depletion of ozone layer, land degradation, loss of biological diversity, increasing concentrations of greenhouse gases in the atmosphere, threat of climate change, environmental pollution) is a serious threat to present and future generations. He added that dwindling resources coupled with deepening levels of poverty makes it difficult for many African parties to comply with their commitments under Environmental Agreements like the Climate Change Convention.

He called for a holistic approach to implementation of multilateral agreements at national level and also stronger coordination mechanisms among conventions focal points to ensure maximum benefits.

He urged all African countries to ratify the Kyoto protocol. African governments should show political will to implement the concerns of the Kyoto Protocol. He emphasized that Africans should not rely on donors to do that but her budgets should openly address the environment and the commitment of resources to matters related to the environment.

In his closing remarks, Mr. Lukyamuzi informed the participants that Globe urges the international community to develop new and workable solutions to combat the evident changes in the world's climate due to carbon emissions.

## ACTION FOR GLOBAL CLIMATE

### Peter Luff

Mr Peter Luff said that a very clear political initiative was emerging and that the case is being made on how to get a new North-South momentum. He spoke of the need to be in parallel with the ideals of the Kyoto Protocol and yet go much further than Kyoto. He said that one objective is to build very strong links between the North and the South and act as a bubble within the UNFCCC, ideally using the contraction and convergence mechanism. He emphasized the point that contraction and convergence was destined to be one of the most important principles governing international relations in the 21<sup>st</sup> century. He urged Members of Parliament to take the political initiative and to remember that science is at the core of the initiative. He emphasized the need to take clear political steps.

He said that the European Union was taking the initiative and referred to the following resolution by the European Parliament in 1998 "... a set of common principles will have to be based on agreement to have a worldwide binding limit on global emissions consistent with maximum atmospheric concentration with progressive convergence towards an equitable distribution of emissions rights on a per capita basis by an agreed date with across-the-board reductions in emissions rights thereafter".

He called on the East African MPs to give key and fundamental support to the contraction and convergence concept. He said that countries such as India, China, Brazil and the African countries should come together to build a Climate Change Global Community and therefore put in place a mechanism to support the contraction and convergence concept. He mentioned that they could, for example, call an inter-governmental conference to push lobbying forward. He encouraged delegates by referring to the coming together of six pioneering countries in Europe in the 1950s to push the iron and steel industry, thus laying a foundation for the European Union. These countries went ahead even though the UK was not part of it. He advised that today MPs must take the lead and push the C&C concept forward and that a strong voice was needed from a council of ministers. He said that trading is not a solution in itself; it allows for planning, but at the heart of all this is the issue of sustainable development.

Mr Luff said that the C&C concept is getting strong support from Britain and India, and requested that the concept be debated by the EALA. He concluded his presentation by saying that his organization would be looking for ideas and support from Africa.

## KYOTO PROTOCOL AND CDM

### Dr Harry L. Kaane

Dr Kaane's presentation began by saying that the East African nations, like all other developing countries, are striving to improve the standard of living of their citizens. They, therefore, have or are developing plans for achieving high economic growth and wealth creation. He pointed out that there are a number of challenges facing East African governments as they seek socio-economic development. Topping the list is the requirement that development has to be sustainable. Dr Kaane then focused on what he referred to as the 'trilemma' governments are faced with: achieving high **Economic** growth, provision of low cost **Energy** and conserving the **Environment**. He observed that the answer to the trilemma lies in appropriate choice of technologies for exploiting natural resources and adding value.

The presenter said that the process of achieving energy, environment and economic objectives leads to conflicting policies and strategies and that governments must therefore adopt integrated management and development of Energy, Environment and the Economic sectors.

Moving the discussion to the Clean Development Mechanism (CDM), Dr Kaane gave a brief overview giving the reasons it was put in place. He mentioned that it was mainly to:

- Assist non-annex I (developing) countries achieve sustainable development and contribute to the objectives of the UNFCCC; and
- Assist Annex I (developed and transition economies) countries achieve compliance with their quantified emission limitation and reduction commitments.

He pointed out that developing countries hosting CDM projects would benefit from:

- Direct foreign investments; and
- Technology transfer.

Coming out clearly was the fact that foreign investment, by public and private sector, will generally be the driving force behind projects under CDM. Dr Kaane then highlighted the interventions, which provide the basis for developing CDM projects. He mentioned energy resources, energy consumption, structural adjustments, energy efficiency, conversion, transfer and storage, cleaner production, sustainable consumption, energy recovery / recycling, co-generation, by-products and waste

An interesting part of his presentation was on the barriers to participation in CDM projects. Dr Kaane categorised barriers to transfer of technology and Direct Foreign Investment into the following groups:

- Lack of awareness, information and poor participation by private sector in climate change activities;
- Lack of capacity to formulate and implement CDM projects;
- High cost of doing business in Kenya; and
- Lack of enabling environment for potential investors in CDM projects

He also brought out the fact that the cost of realizing emission-reduction was found to be a key factor in attracting CDM projects and that some of the barriers impact directly on the cost of implementing CDM projects while others increase this cost indirectly.

Identification and prioritization of capacity building needs was influenced by the adopted goal of developing a long-term strategy and national programme that would maximize the potential benefits of CDM to the Kenyan industrial sector, including power generation and mining.

He presented strategies and measures, identified during consultations with stakeholders that could, if implemented, go a long way to remove barriers, build capacity and enable industrial projects under CDM. Among the strategies given were:

- Learn-by-doing approach
- Target the root cause and not the symptoms
- Make capacity building and barrier removal demand-driven
- Improve public-private sector dialogue

- Lobbying for policy changes

Dr Kaane in concluding said that reducing GHG is good for East Africa irrespective of who emits and who will reduce the GHG concentrations. He called upon the countries to therefore support the UNFCCC objectives fully saying that the CDM is a good tool that can help East African countries acquire technology and attract FDIs.

## **INTEGRATING CLIMATE CHANGE CONSIDERATIONS IN NATIONAL DEVELOPMENT POLICIES AND PROGRAMMES**

**Prof. H. W. O. Okoth-Ogendo, University of Nairobi**

Prof. Okoth-Ogendo began his presentation by linking the climate change phenomenon with anthropogenic activities. He said that evidence accumulated over the last several decades indicates that the global climate change has intimate links with anthropogenic activities, which are essentially responsible for substantially enhanced levels of emissions of greenhouse gases into the atmosphere. He said that the IPCC conducted studies, which showed that unless deliberate steps are taken to reduce GHG emissions in the coming decades, irreversible changes would occur in the global climate system. He pointed out the most vulnerable to the changes as; global and regional temperature precipitation and other parameters, soil structure and moisture, global mean sea levels and frequency of extreme events associated with changes in absolute temperatures. He noted that the changes would in turn lead to adverse effects including:

- Ecological ecosystems,
- Health and epidemiological patterns,
- Food and fibre production,
- Coastal and marine systems,
- Human settlements



*Prof Okoth Ogendo chats with two women MPs from Kenya and Uganda*

Focusing on the global framework for the management of climate change, the presenter said that the international community had been involved in discussions about the steps necessary

for mitigating orderly adaptation to these changes and impacts until the coming of UNFCCC in 1992. He emphasized that article 2 of the Convention is an ultimate objective that calls for stabilization of GHGs concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. He also identified another provision of the Convention that adds that the level envisaged above should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure food production is not threatened and to enable economic development to proceed in a sustainable manner.

He explained that the available scientific evidence is not entirely free of controversy thus the UNFCCC is offered as a framework Convention to;

- Enable parties to build consensus on what needs to be done to confront the climate change phenomenon,
- Facilitate the development of guidelines for the fulfillment of commitments until new and more accurate scientific evidence becomes available,
- Provide flexible mechanisms for the enforcement of specific obligations,
- Permit its further elaboration through the development of more appropriate protocols on specific issues.

Therefore the professor saw need of reading the Convention with other international environmental governance instruments, especially those negotiated after Rio such as; the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), the Forest Principles and Agenda 21, which are either broadly or specifically concerned, as is the UNFCCC, with the reduction and elimination of unsustainable patterns of development.

He pointed out that the Kyoto Protocol was agreed on especially for developed countries. However, ensuring compliance with the protocol has not been resolved satisfactorily. He added that the Protocol itself does not establish an effective compliance regime and leaves the important question of dispute settlement to the vagaries of bilateral/multilateral negotiation or conciliation. He recommended that one must turn to climate change management through domestic policies and programmes, as the Protocol's contribution to the management of the climate change phenomenon remains elusive.

Talking about integration of climate change parameters into the national policies and programmes, Prof. Ogendo stated that Article 4(1) of the UNFCCC is also noted with concern by the IPCC. He noted further that the UNFCCC cautions that such policies should be appropriate to the specific conditions of each country.

Prof. Okoth-Ogendo observed that the commitment to integrate climate change parameters into national policies and programmes presupposes deliberate response at several levels, among the important ones are:

1. Availability of adequate scientific information whose capacity will need to be built by ensuring that climate change scientists are trained and available, acquiring technology required for accurate monitoring and interpretation of trends in the global climate system and finally, establish machinery for the processing of climate change information in policy making.

2. Long range assessment of vulnerability of phenomena that are most vulnerable to variations such as water, energy, health, agriculture and biodiversity, which will determine the nature and timing of intervention strategies in any particular context.
3. Design and adaptation of mitigation impacts, which according to UNFCCC should include taking precautionary measures to anticipate, prevent or maximize the causes of climate change and mitigate its adverse effects. He pointed out that for countries to ensure that adaptation and mitigation options are fully integrated into policy making process, it is important for countries to identify climate change induced stress factors, set sustainable targets for reduction of GHG emissions, initiate programmes for enhancement of sinks, protect and conserve natural resources and biodiversity colonies and establish mechanisms for periodic review and assessment of the impacts of the adaptation and mitigation options.
4. Institutions of governance which define the overall context in which climate related anthropogenic activities operate and shape the decision-making process that generate or limit GHG emissions or other climate change agents and the availability of resources for policy intervention. He laid emphasis on the need to give special attention to the structure and functions of the institutions especially those concerned with control and management of land and land based resources, energy production and utilization and human settlements.
5. Disaster preparedness, which should form part of policy making and planning should entail: early warning systems, emergency response capability and rapid development, strategic resource reserves and constant monitoring of trends in the occurrence of these events.

As he concluded his presentation, Prof. Okoth-Ogendo said that adequate management of the consequences of climate change must start with the integration of climate parameters into development policy making and planning. He remarked that the process of integration must be based not only on accurate scientific information but also on clear assessment of vulnerability, proper design of adaptation and mitigation options and responsive governance systems and stressed that countries could only ignore that advise at their own peril.

## SESSION FIVE



Way Forward

Vote of Thanks

Closing Remarks

## THE WAY FORWARD

### CLIMATE CHANGE RECOMMENDATIONS

1. Evaluate, harmonize policies, strategies legal instruments and legislation on climate change across the East African Countries;
2. Adopt an East African approach to international climate change negotiations;
3. Kenya should ratify the Kyoto Protocol in three months, effective from 1<sup>st</sup> May, 2004;
4. As a possible basis of the international climate change negotiations at the UNFCCC, the 1997 African Group proposal on equity be analyzed and evaluated by the SBSTA of the UNFCCC;
5. Legislators of the four Assemblies to urge the three governments to put in place measures to deal with climate change and climate-related disasters have happened. Need for proactive measures;
6. Institutional framework and mechanisms be put in place to create sustained linkage between researchers, legislators and policy makers.
7. Institutional frameworks and mechanisms be put in place to facilitate the use of research findings by farmers, pastoralists, the fishing communities and other stakeholders;
8. Build capacity in scientific research to deal with climate change, particularly using capacity in our institutions of higher learning;
9. Establish one meteorological organization for East Africa under EAC;
10. Build capacity for legislators and form global parliamentary advocacy groups on climate change and sustainable development and encourage and promote dialogue on climate change between North/South legislators;
11. The implementation of CDM should be popularized among the three EA countries
12. A center be established to keep educating and reminding legislators on issues of climate change so that the above issues remain on the agenda of the parliamentarians

## VOTE OF THANKS

### Kenya

Hon Zadoc Syong'o on behalf of the Kenyan Members of Parliament thanked the MPs from Uganda and Tanzania. He pointed out that Kenya deeply appreciated the honour bestowed upon her by the participation of involving powerful delegations from the two countries. He also said that the Kenyan Parliamentarians had noted the diplomatic lapse, and would in future take the necessary measures to stem it. (He was referring to lack of participation at higher level and the low turnout by the Kenyan participants). Hon Syongo said that it was not deliberate and it was not meant to slight their Ugandan and Tanzanian counterparts. He called for stronger links amongst legislators in the region. Finally, he thanked CNA for organizing the workshop.

## Uganda

Hon Ken Lukyamuzi gave a vote of thanks on behalf of the Ugandan parliamentarians. He hailed the hospitality and dignity with which Kenya had received the delegates, adding that such meetings should be held more often. He said that it was important for MPs to maintain linkages. He also expressed concern over the need to build capacity in multilateral Environmental Agreements among parliamentarians to influence environmental policy and legislation. He also thanked the organizers, CNA, and UNEP for the financial support.

## Tanzania

Hon Anne S. Makinda, a Member of Parliament, Tanzania and the Chairperson of the Parliamentary Committee on Environment and Natural Resources, gave a vote of thanks on behalf of her delegation. She called for greater networking among legislators in the three countries and decried the lack of exposure to multilateral Environmental Agreements information and activities. She said that strengthening the debate on the environment in Parliament would hinge on capacity building and exposure to the consequences of environmental mismanagement. She called for stronger legislation to be put in place to safeguard the environment for future generations. Finally, she thanked the Government of Kenya and the organizers Climate Network Africa for hosting such a crucial workshop, and UNEP for kindly providing the financial support.

## CLOSING REMARKS

### **Hon. Prof. Anyang' Nyong'o, The Minister for Planning and National Development, represented by Mr David Nalo, Permanent Secretary in the same Ministry**

Mr David Nalo, on behalf of the Minister for Planning and National Development, Prof Anyang' Nyong'o, noted that the workshop was unique in that it departed from the tradition of focusing only on technical issues and instead gave emphasis to greater dialogue among policymakers. He said that the effects of climate change had had major ramifications on the lives of the people of East Africa and advised that this phenomenon should be addressed more seriously. He gave examples of the El-Nino flooding, which led to an increase in outbreaks of Highland Malaria, among others and caused serious problems in the country's infrastructure.

The Minister's representative underscored the urgency for the industrialized countries to reduce their GHG concentrations in the atmosphere. He disclosed that as developing countries, East Africa had agreed to take part in the Kyoto flexible mechanisms so that partners in the industrialized countries do not experience undue economic hardship in reducing their emissions. He challenged that the world must be prepared to go the extra mile to avoid climate change, as it was cheaper than adapting to the damages.

Mr Nalo called on international bodies, such as the World Bank and IMF, to mainstream climate change in their funding. He said that as the Ministry in charge of NEPAD in Kenya, they would make it a priority to undertake projects, which do not contribute to climate change. He affirmed that planning is key in the process of combating climate change and though governments could foresee the need for planning of projects to reduce GHG emissions and the impacts of climate change, it was also incumbent upon policy makers to facilitate the process in their parliaments in order to facilitate ratification of the Kyoto Protocol.



*Women MPs from Kenya and Uganda take time to exchange ideas during the break*

Thanking Uganda and Tanzania for having ratified the Kyoto Protocol, he promised that the ratification would soon take place in Kenya and that establishment of relevant institutions at the domestic level such as the Designated National Authority (DNA) would follow ratification in order to facilitate project implementation under the Kyoto mechanisms such as the CDM.

He concluded his speech by thanking UNEP and CNA for making it possible for policy makers to have this kind of dialogue. From here he declared the workshop officially closed and wished all participants safe journeys back home.

# ANNEXES

**ANNEX 1: WORKSHOP PROGRAMME****DAY 1**

<b>TIME</b>	<b>ACTIVITY</b>
08.00-8.30	<b>Registration of participants</b>
<b>Session 1</b>	
<b>Chair: Hon. Francis ole Kaparo, Speaker National Assembly, Kenya</b>	
08.30 – 08.40	<b>Welcome speech: Executive Director, Climate Network Africa</b> Ms Grace Akumu
08.40 - 09.00	<b>Statement: Director, DPDL, UNEP</b> Mr Bakary Kante
09.00 – 09.10	<b>Statement: Minister for Water, Lands and Environment, Uganda, and President, African Ministerial Conference on Environment – AMCEN</b> Hon Kahinda Otafiire
09.10 – 09.20	<b>Statement: Minister of State – Environment (Tanzania) and President – UNEP Governing Council</b> Hon Acardo D Ntagazwa
09.20 – 09.30	<b>Statement: Speaker of East African Legislative Assembly</b> Hon Kinana
09.30 – 09.40	<b>Keynote Address: Minister for Environment, Natural Resources and Wildlife, Kenya</b> Hon Dr Newton Kulundu
09.40 – 09.50	<b>Official Opening: Vice President and Minister for Home Affairs, Kenya</b> Hon Moody Awori
09.50 – 10.00	<b>Vote of Thanks: Chairman, Board of Directors, NEMA</b> Prof Canute Khamala
10.00 – 10.30	<b>TEA BREAK</b>
<b>Session 2</b>	
<b>Chair: Hon Dr. Newton Kulundu, Minister for Environment, Natural Resources and Wildlife, Kenya</b>	
11.00 – 11.20	<b>The Science of Climate Change</b> Alex Alusa, UNEP- ROA
11.20 – 11.40	<b>Vulnerability &amp; Impacts of Climate Change in East Africa</b> Prof Laban Ogallo, DMC
11.40 – 12.00	<b>Mitigation and Adaptation Options to Climate Change in EAC</b> Dr Oscar Kiboona and Mr Manyika, Tanzania
12.00 – 13.00	<b>Plenary Discussions</b>
13.00 - 14.00	<b>LUNCH</b>

<b>Session 3</b>	
<b>Chair: H E Acardo D Ntagazwa, Minister of State - Environment, Tanzania</b>	
14.00 – 14.30	<b>Impacts of Climate Change on Human Health</b> Hon. Charity Ngilu, Minister for Health
14.30 – 15.00	<b>Impacts of Climate Change on Infrastructure</b> Hon. Raila Odinga
15.00 – 15.30	<b>Climate Change and Agriculture</b> Dr Louis Verchot, ICRAF
15.30 – 16.00	<b>TEA BREAK</b>
16.00 – 17.30	<b>Climate Change: Concept of Contraction and Convergence, Global Inequity and Debt Crisis</b> Aubrey Meyer – Global Commons Institute Jessica Bridges Plamer – New Economic Foundation
17.30 – 18.15	<b>Plenary Discussions</b>

**DAY 2**

<b>TIME</b>	<b>ACTIVITY</b>
08.30 – 09.00	<b>Registration of participants</b>
<b>Session 4</b>	
<b>Chair: Minister for Environment (Uganda)</b>	
08.30 – 09.00	<b>Recap of Day 1</b> Dr H Kaane – Moi University
09.00 – 09.20	<b>Presentation on GLOBE</b> Hon Ken Lukyamuzi – Vice President, GLOBE International
09.20 – 10.00	<b>Kyoto Protocol and the Clean development Mechanism</b> Dr H Kaane
10.00 – 10.20	<b>Integrating Climate Change Considerations in National Development</b> Prof. HWO Okoth-Ogendo
10.20 – 10.50	<b>Plenary Discussions</b>
10.50 – 11.00	<b>TEA BREAK</b>
<b>Session 5</b>	
<b>Chair: Prof Ratemo Michieka, DG, NEMA</b>	
11.00 – 12.00	<b>Way Forward</b> Dr H Kaane, Moi University
12.00 – 12.15	<b>Closing Remarks</b> Hon Anyang' Nyong'o, Minister for Planning and National Development
12.30	<b>LUNCH</b>
14.00	<b>END OF WORKSHOP</b>

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## **ANNEX 3: PAPERS AND PRESENTATIONS**

### **STATEMENT BY MS. GRACE AKUMU, EXECUTIVE DIRECTOR, CLIMATE NETWORK AFRICA**

H. E. The Vice-President and Minister for Home Affairs - Kenya,  
Hon. Moody Awori,  
Minister of State for Environment – Tanzania, and President of UNEP Governing Council,  
Hon. Arcardo Ntagazwa,  
Minister for Water, Lands and Environment – Uganda, and President of African Ministerial Conference on Environment (AMCEN), Hon. Col. Kahinda Otafiire,  
Hon. Legislators from the East African Legislative Assembly, Arusha,  
Hon. Legislators from the Constituent Assemblies of Tanzania, Uganda and Kenya,  
Representatives of UNEP and UN-HABITAT,  
Distinguished Guests,  
Ladies and Gentlemen,

It is my great pleasure to welcome you all to this Workshop on Dialogue on Climate Change & Sustainable Development.

The consensus from the international scientific community is that global warming due to anthropogenic (man-made) gases is real and will continue to be so if the current trend of greenhouse gas emissions continues unabated. Governments of the world started discussions in 1990 about addressing climate change after the 2nd World Climate Conference, a major international gathering of scientists which affirmed the seriousness of the issue and the need for action.

At the 1992 Earth Summit in Rio de Janeiro, the United Nations Framework Convention on Climate Change (UNFCCC) was adopted and later ratified by enough countries to bring it into force at the First Session of the Conference of Parties (COP1) in Berlin, Germany, in 1995. By that time, it had already been recognized that the general commitments in the Climate Change Convention for industrialized countries to stabilise their emissions were inadequate to meet the scale and urgency of the problem at hand. Further agreement, the Kyoto Protocol, was reached in 1997 during the Third Conference of the Parties to the U.N. Climate Convention (COP3).

#### **The Kyoto Protocol**

The Kyoto Protocol requires most of the industrialised countries to reduce their greenhouse gas emissions by at least 5% (country commitments may vary but the cumulative total is 5.2%) by the end of the First Commitment Period, 2012. However, seven years after the Kyoto Protocol was agreed to we are faced with the following facts:

- Lack of political will by industrialised countries to meet their commitments in the Kyoto Protocol
- Key emitters have stalled ratification of the Kyoto Protocol
- Atmospheric concentrations of greenhouse emissions in the industrialised countries are on the increase
- Impacts of climate change and/or extreme weather events are on the increase in intensity and frequency especially in developing countries
- More global deaths and damages are occurring

- Intergovernmental Panel on Climate Change, Third Assessment Report, reveals Africa will suffer the most from climate change impacts

Ladies and Gentlemen. The purpose of this workshop is to inform us among others on the science of climate change, impacts, vulnerability and adaptation. But even more importantly, to discuss some of the more practical steps we may need to pursue as a region at the global climate change negotiations.

Some of these steps are to retrace our steps backward to 1997 in Kyoto, Japan, during the Kyoto Protocol negotiations when the African Group suggested that a more equitable approach to combating climate change be based on the principle of per capita emissions allocations. As the major emitters have reneged on their commitments to stabilise, let alone reduce their greenhouse emissions, and with some of them now invoking the commitment of developing countries to reduce their greenhouse gas emissions before industrialised countries demonstrate that they are taking the lead in combating climate change, there is a need by African governments to urgently request the U.N. Climate Change Secretariat through its Subsidiary Body for Scientific and Technological Advice (SBSTA) or the Intergovernmental Panel on Climate Change (IPCC) to analyse and evaluate some approaches out there such as the concept of Contraction and Convergence which do not differ with the broad principles inherent in the Convention on Climate Change, such as, the Precautionary Principle, Polluter Pays Principle, and the Equity Principle. The Concept of Contraction (means global reduction of greenhouse gas emissions in the atmosphere) and Convergence (equal sharing of environmental space per person) may offer some solutions to global warming. A number of governments are already analysing this concept e.g., the governments of China, Korea, India, Brazil, Germany, as well as the EU. Some US Senators have also been convinced that this concept might work after all, as it will involve all countries and on an equal basis, at a globally agreed date. Recently during the UNFCCC-COP9 in Milan, Italy, December 2003, a German Government Institute presented in a side event, their study on this concept. There could be other concepts and they could be presented too for evaluation by the UN Convention on Climate Change Secretariat. What is important is to find a globally agreed to mechanism which will involve all countries on an equitable and fair manner in order for the world to avert a major global catastrophe.

Ladies and Gentlemen, I have dwelt on this concept because it may unlock the seemingly stalled global negotiations on climate change. Moreover, instead of Africa waiting to react to other countries, Africa should take the lead, be proactive and request the Climate Change Secretariat to commission a study on a concept which promises fairness, equity, justice, etc., on a global basis. The concept does not seek to undermine the Kyoto Protocol but to strengthen it instead as the Protocol lacks the broader UN principles I have just mentioned above.

From the foregoing, there is need to inject a new lease of life in the Framework Convention on Climate Change and its Kyoto Protocol.

### **The African Situation**

Africa has the majority of the 47 least developed countries in the world. Africa has a comparatively low consumption of energy and thus low levels of greenhouse gas emissions. Africa consumes 3-4 percent of global energy and contributes only 1-2 percent of global greenhouse gas emissions. The economies of many African countries have been particularly vulnerable to the world market due to their dependence on one or a very small number of raw material exports, whose prices fluctuate and have generally declined on the world market. The

continent's economic problems are compounded by the demands of population growth, urbanization, globalization and a change in the production and consumption patterns. Per capita income in many African countries is less than US \$ 1 per day. For example, Mali with a GNP of US \$ 2.6 billion, is similar to a small city in a developed country where approximately 85,000 people live on an average US \$ 30,000 per year.

### **Impacts of Climate Change Kenya**

African climate has undergone major changes both before and during the period of human habitation of the continent. These changes have been most dramatically manifested through the shifting of dryland boundaries within Africa and the rise and fall of water levels in many of the African lakes. For example the *El Nino* floods of 1997-98 caused serious problems in Kenya where 2000 lives were lost. In the year 2003, 60,000 people were displaced in Budalangi area and upto 10,000 people lived in camps for a long period of time. A lot of property such as houses, livestock and crops were lost due to the floods. The infrastructure such as roads, rail and bridges were badly damaged. There was a remarked increase in the number of vector born diseases such as Malaria. Typhoid and Cholera were also on the increase.

The El-Nino floods were soon followed by the La-Nina drought that brought in a new set of problems. The hydro electricity dam levels reduced considerably causing a serious shortage of hydro generated electricity. The shortage of electricity generation capacity made many small and medium scale industries to shut down. As a result, there was a marked increase in poverty resulting in thuggery and insecurity.

### **CONCLUSION**

In conclusion, ladies and gentlemen, the story relayed above is not restricted to Kenya only. Many African countries have suffered similar tragedies, if not worse. However, Africa governments should make the climate change negotiations a priority and even form part of our foreign policy. I am making this suggestion as the Intergovernmental Panel on Climate Change scientists have stated that Africa will suffer the most from the impacts of climate change despite not having contributed in any significant way to the problem of greenhouse gas emissions.

Immediately, we must also begin to realize that many of governments will not be able to achieve the Millennium Development Goals and even our NEPAD vision may altogether be thwarted as both are premised on mobilisation of domestic resources for financing. Climate change impacts may just diminish most, if not all, of our efforts to develop.

### **About CNA**

Climate Network Africa (CNA) is a non-profit Non-Governmental Organization (NGO) established in 1991 in Kenya. CNA was originally set up for advocacy, policy analysis and lobbying. With time CNA has shifted from this strategy and focus and expanded its horizon to encompass a wide variety of climate change issues, such as energy, water, land degradation, forestry, etc. This includes studies and projects on vulnerability, impacts, mitigation and adaptation to climate change.

CNA is involved in capacity building programmes, training, an awareness creation. This includes publication of books that will promote knowledge in climate change and sustainable development; one such as a book on the Clean Development Mechanism of the Kyoto

Protocol was published in 2002. Another title under print at the moment is Resource Book for Energy Use in East Africa.

CNA will take part in any activity that seeks to improve the chances for environmentally sustainable and socially equitable development in Africa, in light of serious danger of climate change. CNA collaborates with a number of private and public research institutions/organizations in addressing problems affecting the development and management of natural resources using the latest information technology (IT) techniques. CNA carries out Environmental Impact Assessments and Energy Audits and promotes among others, access to cleaner and sustainable natural resources, including energy.

Ladies and Gentlemen: Allow me to take this opportunity to thank all of you for having taken time off your very busy schedules in order to participate in this dialogue. I also wish to take this opportunity to thank the three East African governments, the East African Legislative Assembly and some of the UN agencies for the excellent partnerships that we continue to realize.

May I also take this opportunity to thank those institutions who worked so hard to make this workshop possible: Ministry of Environment, Natural Resources and Wildlife, National Environment Management Authority (NEMA), Kenya Meteorological Department, Drought Monitoring Centre-Nairobi and African Centre for Technology Studies.

Finally, may I take this opportunity to thank the United Nations Environment Programme (UNEP), for having made this dialogue possible through their financial support.

## **CLIMATE CHANGE & SUSTAINABLE DEVELOPMENT**

**By Bakary Kante**

**Director, Division for Policy Development and Law  
United Nations Environment Programme**

Honourable Vice-President of Kenya, Honourable Ministers and Legislators, Ladies and Gentlemen.

It gives me great pleasure to be here among the legislators from East Africa region to discuss the most important environmental challenge of our times - climate change.

I am personally very pleased that Ms. Grace Akumu has taken the initiative to host this important conference of legislators.

Mr. Vice-President, the science of climate change today is more solid than ever before. There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities. This corresponds well with physical observations that give a collective picture of a warming world and other changes in the climate system. Globally, it is very likely that the 1990s were the warmest decade ever. We all are witnessing the continued changes happening at the start of 21st century.

Analysis of recent climate trends reveals that climate change poses significant risks for the East Africa region. While projected changes in rainfall are uncertain, there is a high likelihood of temperature increases as well as sea level rise. Climate change scenarios show increases in averaged mean temperatures of 1.3°C and 2.2°C projected by 2050 and 2100.

A growing consensus among scientists, technologists and several large enterprises concludes that we can minimise the impacts by reducing greenhouse gas emissions. This is not only technically possible, but also economically feasible.

In recognition of this, the UN Framework Convention on Climate Change and its Kyoto Protocol introduced the first step towards changes required on how we produce and use energy. Of course global treaties are complex by nature. And the climate change convention is by far the most complex of all environmental agreements. There will always be ups and downs and mistakes as we travel this difficult road.

Mr. Vice-President, sustainable development is a priority for African countries, climate change is not.

Therefore, for climate change policies to succeed, they have to be reworked as opportunities for promoting sustainable development. When this is done by involving all the stakeholders, particularly the most vulnerable, the results can only be beneficial. The climate change convention can provide opportunities for renewable energy projects, reforming policies related to land use and land use change and adapting resource use to the potential impact of climate change. Capturing these opportunities will not only lead to sustainable development. It will also have the potential to be a reliable strategy for climate change.

Land use and forestry policies provide a good opportunity for several countries in the region for acting as net sinks for GHG emissions. Carbon sequestration is therefore an area of big interest to many countries. As you know, such projects are included in the CDM and the region has therefore propose several projects to enable it to be a large sink of polluting gases. At the same time it help the climate convention.

CDM is an important tool for promoting sustainable development in Africa. African Governments will have to ensure that they do not miss the opportunity of participation in the COM. We believe that the ultimate aim of the baseline should be to kick-start a transition to renewable energy path in the long-term.

Promoting the use of renewable energy' also opens-up opportunities for small-scale rural energy projects, which suit a large number of low-emitting African countries. This requires a higher capacity in the Governments, private sector and NGOs in Africa. In this context, capacity building must be viewed as a much wider concept. This involves both South-North and South-South co-operation as well as traditional donor-host relationship.

Decisions that affect climate change and sustainable development are made at various levels--from international agreements to national policies to local (i.e. village or neighbourhood) actions, with many intervening sublevels (e.g., region, sector, or institution).

What is required is a regional thrust to help provide focus to this work by linking the think tanks with policymaking and its implementation. UNEP is prepared to help consolidate the scientific and policy related knowledge available to local and regional organisations for stimulating cost-effective and sustainable policy reforms.

Keeping that in view when I glance at the region of East Africa it makes me feel optimistic that all the countries have submitted their national communications to the UNFCCC. This is a first major step for a developing country to think and plan on climate change within the Government and I congratulate the Environment Ministries and Meteorological Departments.

UNEP's goal is to support stabilization of atmospheric concentrations of GHGs and adaptation to impacts of climate change. Our aim is to promote clean and resource efficient technologies, support non-fossil energy sources and catalyse environmental and socially equitable carbon sink activities.

We support capacity building for resource efficient adaptation to assessed regional changes in temperature and precipitation. We promote synergistic projects that demonstrate linking carbon sinks, adaptation and sustainable development. We also support public awareness and insurance programmes to reduce risks from extreme events, and to health, natural resources, unique ecosystems.

UNEP is also working to utilise the two new funds established to increase the adaptive capacity of developing countries. These are the LDC Fund providing funding support to the 50 least developed countries to increase their adaptive capacity. The second one is the special climate change fund established to fund adaptation activities and technology in this order. In the meantime the Global Environment Facility has announced a special window of US\$ 50 million for funding adaptation activities as pilot and demonstration activities. UNEP, as an implementing agency of the GEF, stands ready to assist the region in accessing these funds.

The UNEP Governing Council last year through its decision on adaptation to climate change also agreed to strengthen our role to support regional and national actions on adaptation and strengthen and expand co-operation with scientific organisations to advance policy for reducing vulnerability to climate change.

In Partnership with UN-Habitat we are also raising awareness and strengthening initiatives within cities regarding urban – global environmental linkages. The aim is to raise awareness of cities on the role they play in global urban environment issues, including climate change; both their contribution to the problem and their contribution to the solution.

Honourable Vice-President and Ministers. Your leadership can have a significant impact in increasing capacity of your country to deal with changing climate. The global is enormous, especially for the countries in the region, which are likely to face increasing burden of a warming world.

I wish good progress to this valuable gathering of legislator contributions would especially be remembered by our young people are the ones who will face the brunt of changes in the climate.

Thank you.

**STATEMENT BY COL. HON. KAHINDA OTAFIIRE, UGANDAN MINISTER OF WATER, LANDS AND ENVIRONMENT**

Mr. Chairman,  
The Vice President of the Republic of Kenya, H.E. Moody Awori,  
My Colleagues,  
Hon. Members of Parliament,  
The Executive Director of UNEP,  
Ladies and Gentlemen,

It is a pleasure to be here in this beautiful city of Nairobi and sister country Kenya. The three countries share a lot in common, which unites their people. Climate change is now another new uniting factor because all three countries are vulnerable to negative effects of climate change.

Mr. Chairman, climate change is a reality and has demonstrated its brutality in the past, now and future in one form or another (floods, heavy storms, landslides, heat waves and severe droughts). The current floods in Baringo, which have caused loss of lives, are testimony of the brutality of negative effects of climate change. Such extreme weather events lead to diversion of our meagre resources to disaster management and thus disrupting our development. There has been an increase in frequency and intensity of extreme weather events with serious consequences on our development programmes. In Uganda we have experienced floods in 1997/8, which cut off rural communities from the capital city Kampala - the capital market, severe droughts in 1999/2000. In fact in the last seven years we have had 7 severe droughts. These weather events have slowed growth.

Mr. Chairman, the economies of the East African countries depend on exploitation of natural resources such as water, fisheries agriculture, forests and wildlife. These resources are dependent on climate and will therefore be affected by climate change and thus affecting the economies. The poor in most cases settle in marginal areas such as wetlands, arid and semiarid areas. Such areas are vulnerable to climate change. The livelihoods of the poor totally dependent on exploitation of natural resources, which are now threatened by climate change. Climate change is not only a threat to our economies but also to the lives of our people. There is therefore a need to develop strategies to cope with negative effects of climate change. In so doing we must take advantage of institutions within EAC to minimize duplication of efforts and maximize benefits.

Mr. Chairman, while climate change poses a serious global environmental problem it also presents some opportunities to developing country parties such as strengthening of institutional and technical capacities, access to environmentally friendly technologies, promoting development of better and environmentally friendly technologies and additional investment flow through the clean development mechanism (CDM) of the Kyoto Protocol. We must cease the opportunity offered by CDM to leverage development of infrastructure such as hydropower generation and mass transportation facilities linking the main cities of East Africa.

The management of negative effects of climate change will primarily be the responsibility of line institutions. Activities of several sectors release greenhouse gases into the atmosphere. Therefore minimizing emissions of greenhouse gases into the atmosphere is the responsibility of those sectors. In this context there is need to strengthen the capacity of units coordinating implementation of the Convention.

Mr. Chairman, the signs of climate change and its impacts are clearly written on the wall. Early action will reduce impacts of negative effects of climate change on our socio-economic development. It is therefore appropriate that we use the EAC to forge for common, approach to solving the problems arising as a result of climate change and take advantage of opportunities under the climate change process to complement our development efforts, particularly in the power and transport sectors

**STATEMENT BY HON. ARCADO D. NTAGAZWA (MP), MINISTER OF STATE – VICE PRESIDENT’S OFFICE – ENVIRONMENT, UNITED REPUBLIC OF TANZANIA AND PRESIDENT OF UNEP GOVERNING COUNCIL**

Hon. Moody Awori, the Vice President and Minister for Home Affairs, Kenya  
Excellencies Ministers from East Africa Community Partner States  
Hon. A. Kinana, Speaker of the EAC Legislative Assembly,  
Colleagues from Legislative Assemblies,  
Representative of UNEP,  
Representative of UN-Habitat,  
Invited Guests,  
Members of the Press,  
Ladies and Gentlemen,

It is my great pleasure and honour to be with you today and participate in this workshop on dialogue with East African Community Legislators on Climate Change Issues.

On behalf of my delegation, I would like to thank the Government of Kenya for providing enabling environment for this workshop to be conducted and I wish to convey warm greetings for the Government and People of the United Republic of Tanzania. Let me also take this opportunity to thank Climate Network Africa, in particular the Executive Director and her organising committee for inviting us to this important workshop.

Mr. Chairman, this workshop is the first and of its kind in our sub-region since the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and could not have come at a more appropriate time than now when we are busy strengthening our ties in East Africa, and when the adverse effects are more vivid than ever before.

Scientific reports indicate that climate change is not a myth anymore, or a subject of controversy. It is a reality that has to be addressed to ensure existence not only for the present but also for future generations. A growing scientific consensus indicates that human activity, particularly the intensive use of carbon-based energy sources in industries and other sectors, e.g. agriculture and transportation, is altering Earth’s atmosphere in a way that could profoundly affect the global climatic system. Despite the fact that the Africa continent has contributed minimally to climate change problems, it suffers more than the rest.

Mr. Chairman, Tanzania signed the United Nations Framework Convention on Climate Change (UNFCCC) at Rio de Janeiro in 1992 and ratified it on 17<sup>th</sup> April 1996. Tanzania’s ratification of the UNFCCC is a reflection of her commitment to the principles of equity and common but differentiated responsibilities, partnership and sustainable development, all of which underpin the Convention. Tanzania has been participating in various for a on climate change issues at different levels. In 1997 Tanzania chaired the Group of 77 and China and spoke for the Group and played a pivotal role in the negotiations that led to the adoption of the Kyoto Protocol.

The Vice President’s Office in Tanzania coordinates implementation of all Multilateral Environmental Agreements in collaboration with other government agencies, the public, private sector and the civil society. The Vice President’s Office is also the Designated National Authority (DNA) for Clean Development Mechanism (CDM) projects. So far we have prepared a draft CDM investors guide. We hope such guide once is adopted will assist different stakeholders to identify priority areas in CDM investments. This is due to the fact that Tanzania sees CDM projects as an opportunity to foster sustainable development while

assisting the developed countries to meet their commitment under the Convention and the Kyoto Protocol.

Mr. Chairman, Tanzania, like the rest of the international community, is conscious of the serious consequences of climate change, and fully supports the ultimate objective of the UNFCCC, which is “to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” In pursuit of her commitment under the Convention, Tanzania has been undertaking climate change studies since 1993. These studies are the product of a collective commitment by government agencies, the private sector and non-governmental organizations. Last year, Tanzania submitted her initial National communication also represents a major benchmark in Tanzania’s endeavours to join the international community in combating the fundamental causes of instability in climate systems and their negative impacts.

Mr. Chairman, I have no doubt that all of us here have witnessed frequent disasters in our countries. The recent floods here in Nairobi, which caused loss of life and properties, is just one case that we can all easily recall of course sadly. I am sure you are aware of the many more similar examples of disasters due to climate change.

In Tanzania, we have faced and continue to face many problems related to adverse climate change effects. One example is the frequent drought and floods. Over 80 per cent of Tanzania’s population depends on agriculture and natural resources for their daily livelihoods. We all know that agriculture is the most climate change sensitive sector. Last year Tanzania was seriously affected by drought which necessitated the government to spend a lot of money to buy and provide food for the victims. Such funds could have been channeled to different development activities in the absence of such occurrences. Apart from agriculture, other sectors which are vulnerable to climate change adverse effects in Tanzania are: water resources, forestry, livestock, biodiversity, tourism, transport, human settlements etc. We need to have comprehensive and collective efforts at all levels in order to reduce the extent of impacts caused by climate change.

Mr. Chairman, Tanzania is conscious of the potential threat of climate change to mankind and hence Tanzania supports and will continue to co-operate with other nations and organizations in global endeavours to enhance adaptation and mitigation capacities to the impacts of climate change for our countries. As you are all aware, Tanzania is the least developed country and has a low adaptive capacity to withstand adverse impacts of climate change. Pursuant to decision 28 of the Conference of the Parties (Dec 28/CP.7) under the UNFCCC, Tanzania is currently preparing her National Adaptation Programme of Action (NAPA) to climate change. NAPA document will be a simplified means of communication not only to development partners, but also among the legislators and the local community in LDCs. The initial consultations towards the preparation of the NAPA document have started and a national team is working on it. I hope that the same is happening in Uganda, which is also an LDC. Fortunately, Kenya is not an LDC.

Mr. Chairman, the EAC legislators need to take a lead in enhancing development activities so as to reduce the rising levels of poverty and provide food security for our people. Legislators’ role is very important in enhancing the adaptive and mitigation capacity of the people they represent through dialogue and approval of appropriate government policies. The legislators therefore need to look at this issue very critically.

It is my expectation that after this workshop on “Dialogue with East African Legislators on Climate Change Issues,” there will be a continuous exchange of information and sharing of experiences among the EAC legislators at different levels to assist in the efforts to reduce the adverse impacts of climate change.

Mr. Chairman, I wish at this juncture to take this opportunity to again sincerely thank the Government of Kenya for the excellent hospitality accorded to us and Climate Network Africa for organising this workshop.

## **REMARKS BY HON. KINANA, SPEAKER OF THE EAST AFRICAN LEGISLATIVE ASSEMBLY**

Hon. Zadoc Syongoh,  
Hon Ministers responsible for Environment in East Africa,  
Hon. Members of Parliament from Tanzania, Uganda and Kenya,  
Hon. Members of the East African Legislative Assembly,  
The UNEP Representative,  
The UN-Habitat Representative,  
The Executive Director of Climate Network Africa,  
Distinguished Guests,  
Ladies and Gentlemen,  
Distinguished Participants

The challenges of climate change phenomenon are global in nature. Facing these challenges requires a global approach whereby all countries come together to seek common solutions. This is in fact what the climate change convention and its Kyoto Protocol and the numerous decisions and resolutions agreed to at the Conference of Parties (COPs) are all about. The COPs are the fora where negotiations for the purpose of resolving conflicts of interest on the Convention and the Kyoto Protocol take place. At these negotiations, results that satisfy all Parties are sought. It is therefore crucial that in the near future, the East African Community be well represented in these negotiations and seize the opportunity to influence the decisions made on climate change which may have implications for East Africa.

How can this be done? What are the challenges ahead of us?

### **1) An EAC common ideology.**

This workshop presents Legislators with a good opportunity to chart out a common ideology and vision for climate change and the UN-led negotiations on the same. This is a crucial starting point, whereby we see the EAC participate effectively with one voice in future.

### **2) Challenges of participation in COPs**

There are challenges we face as we endeavour to make the best out of the climate change negotiations. These are among others: setting common EAC objectives by way of harmonizing the three sets of national objectives; establishing a strong negotiating team and establishing sustainable ways of financing our participation.

### **3) EAC common vision and objectives on climate change**

These are enough reasons in support of an EAC approach to climate change issues. Our three member states share the same ecological and climate patterns and have almost similar national

circumstances. Climate change therefore tends to have similar impacts in our countries. Furthermore the similarities in our political, economic and social circumstances lend more support to the need for one EAC position in negotiations at the COPs. This workshop may wish to agree on a common vision on climate change and set in motion mechanisms to harmonise national policies and strategies. The Secretariat in Arusha will be expected, with your support, to play an important role in this activity.

In addition, the Heads of State (Summit) of EAC passed a regulation in June 2002 that the EAC should be negotiating jointly on matters of international nature. I am happy to say a motion on the same is awaiting debate in the EALA.

#### **4) Need to also enhance our capacity for climate change negotiations.**

Climate change negotiations are complex and require sufficient preparation before meetings and strong and competent negotiation teams during the Conference of Parties (COPs). Furthermore COP conferences take place annually, something that leaves little time for analysis and digestion of previous decisions and preparation for the subsequent meetings. We must therefore prepare sufficiently ahead of the meetings. This calls for the establishment of mechanisms for research, data collection and analysis etc. The national focal points alone are insufficient to match the tasks of preparing for COP meetings. A coordinating sub-regional center may be necessary to harmonise and guide climate change activities taking place in numerous institutions within the EA Community.

The current practice of sending a handful of national delegates falls short of expectation. There is a flood of information and several formal and informal events that take place simultaneously during negotiations. It is essential that our delegations participate also in informal meetings as they influence negotiations. Also negotiators need to be supported by technical teams who will analyse for them the information being circulated during the meetings and the impact of decisions and resolutions taken which may have implications for East Africa.

#### **5) Financing climate change activities and participation**

Local climate change activities and participation in COP meetings require substantial amounts of money. Individual governments are readily spending some resources on climate change related activities but these are not enough. There is need to create a fund at the EAC level to complement efforts at national level. Donor support is good and welcome but it may not enable us to undertake the necessary research and analysis that we require in order to prepare and argue our position at the global climate change negotiations.

#### **6) EAC approach to enhance participation in the Clean Development Mechanism (CDM) projects**

Our chances of hosting CDM projects will be greatly enhanced through regional approach. The EAC approach will lower project overhead costs and hence make it attractive to potential investors. Besides, small projects are associated with relatively high overhead costs and hence there is need to bundle small projects at the EAC level into big attractive projects. Bundling of projects will increase our sub-region's competitive advantage.

#### **7) Integrating the Convention and Kyoto Protocol into EAC legislation**

A number of proposals and suggestions have been given in the foregoing presentations. There is need for integrating the Convention and Kyoto Protocol into EAC legislation as a first step

to the realisation of these ideas. It is proposed that these two climate change instruments be studied and proposals made for policies, strategies and laws to be expanded accordingly.

Distinguished ladies and gentlemen, I thank you for your attention.

**OPENING SPEECH BY HON. DR. NEWTON KULUNDU, MP; MINISTER FOR ENVIRONMENT, NATURAL RESOURCES AND WILDLIFE**

Hon. Ministers responsible for environment in East Africa,  
Hon. Members of Parliament from Tanzania, Uganda and Kenya,  
Hon. Members for East African Legislative Assembly,  
The UNEP Representative,  
The UN-Habitat Representative,  
Distinguished Guests,  
Ladies and Gentlemen,

It gives me great pleasure to address this workshop on: Dialogue with East African Legislators on Climate Change and Sustainable Development Issues.

I welcome you all to this workshop especially my brothers and sisters from outside Kenya. I must also thank the organizers of this workshop, Climate Network Africa, for bringing us legislators to discuss such pertinent issues climate change and sustainable development. Before it was even scientifically proven that climate change was changing, our old *mamas* had already noticed that something was amiss with the rainfall patterns. The rains did not arrive in time and when they did, they were too little or too heavy.

This Workshop would not have come at a more appropriate time than now when we are experiencing the high socio-economic costs of the impacts of climate change. For example, we now have increased incidences of diseases and the cost of repair of our damaged infrastructure is far beyond our normal budget. The human suffering as a result of floods, droughts, weather variability is of untold magnitude.

Ladies and Gentlemen, according to science, Africa has contributed minimally to climate change. It is time that we, as representatives of our people put across our concerns to industrialized countries that are responsible for climate change. I have in mind the costs of adaptation. This will involve large sums of money but the cost of preserving humanity from annihilation by climate change is nothing comparable to sending space shuttles into the space or fighting some unnecessary wars, which further exacerbates the problem of global warming. Therefore ladies and gentlemen, let us agree with our partners in the developed countries on globally fair and equitable approaches to combat climate change.

As a human race, we cannot afford to lose some cultures and societies, which are now faced with extinction due to sea level rise. I have in mind the Small Island States that are severely threatened by climate change. It would be ethically, morally and socially unacceptable, that we should pursue economic growth so blindly at the expense of the survival of these societies and other cultures.

Ladies and Gentlemen, our developed country partners must drastically reduce their greenhouse gas emissions. I am glad that some of our development partners like the World Bank will be addressing this workshop. The major impact of climate change in this region is loss of human life and destruction of our infrastructure. Destruction of infrastructure makes

the cost of doing business in our region expensive. As a result, our goods and services are not competitive in the world market. This reduces our job market and hence increases the poverty level. We as the representatives of the people must therefore plan on how to get out of this hopeless situation.

Kenya's priority is to reduce poverty and inequality amongst its citizens. Kenya, therefore, is implementing and continues to formulate policies and strategies for creating wealth and employment. These policies aim at creating an enabling environment for local and foreign investments in addition to enhancing productivity in line with the national motto of transforming Kenya into a "working nation."

The issues that aggravate poverty are many and diverse. The fight against poverty requires a broad and comprehensive understanding of these issues. Climate change, and environmental degradation in general, has a two-way link to poverty. Climate change directly and indirectly contributes to poverty and poverty aggravates climate change and contributes substantively to environmental degradation.

Climate change related disasters like floods, landslides, droughts and other climatic catastrophes are occurring at an alarming frequency in Kenya. These are a direct cause of poverty through loss of lives, property, crops, livestock and other livelihood supporting systems. Indirectly, these catastrophes aggravate poverty through destruction of economic supporting infrastructure like roads, railways, power generation, water supply and others. In addition, climate change induced catastrophes disrupt social systems including education and in most cases lead to diseases and other social epidemics. As a result, meagre resources meant for development are diverted to mitigate these catastrophes. A concerted effort is therefore required at national, regional and international levels to reverse the impacts of climate change that are making efforts to reduce poverty ineffective.

Ladies and Gentlemen, Kenya's poverty reduction and wealth creation strategies shape and guide both domestic and international cooperation policies. Kenya's wish is to be part of an international system safeguarding the environment for the good of all mankind based on common values and principles such as equity. This requires that developed countries respect aspirations of developing countries to also experience meaningful socio-economic growth to develop. On our part, developing countries need to strengthen negotiating capabilities and capacities. There is urgent need to provide technical support to political negotiators during the UNFCCC meetings. For this to happen, mechanisms for continuous research into climate change issues in the East African universities have to be put in place. This has been seriously lacking in all our East African institutions of higher learning.

Climate change problems are global in nature and call for global action. Any success in mitigating climate change brings global benefits. Kenya pursues a policy of prosperity for all by pursuing global dimensions of climate change. The policy involves joint action and cooperation with other countries and aims to create and safeguard economic, social and ecological conditions that are conducive to sustainable development. Climate change policies and strategies are built by promoting respect for national values and aspirations of all countries involved and by creating the preconditions for greater respect for them. Multilateral cooperation also strengthens combating environmental degradation and mitigating climate change. Kenya contributes to climate change negotiations through participating in all activities under the United Nations Climate Change Convention and its Protocol. Kenya has already taken a decision to ratify the Kyoto Protocol and this will happen very soon.

Kenya has also, voluntarily and at her own cost, formulated and implemented policies and strategies that are already contributing to the reduction of carbon dioxide concentration in the air. The enactment and establishment of Environment Management Coordination Act (EMCA) provided a comprehensive framework for environmental conservation. All new projects and those that existed at the commencement of EMCA are required to provide an Environmental Impact Assessment Report for scrutiny by the National Environmental Management Authority (NEMA) and the public. Other measures include energy conservation measures in the industrial sector, re-forestation and speed regulation on public vehicles. The already implemented measures are expected to result in decreasing the greenhouse intensity trends.

As noted earlier, the frequency and intensity of climate change induced catastrophes seems to be on the increase, yet the measures proposed under the Kyoto Protocol will take a long time before we see the results. Therefore, there is need to formulate some short-term interventions at national or East African Community level, to deal with impending catastrophes. We believe that our developed country partners who are responsible for climate change and have committed themselves in the UNFCCC and Kyoto Protocol to contribute financial and technological resources to assist developing countries to combat climate change, will honour their pledges.

Finally, I challenge East African legislators and other participants attending this workshop to deliberate on and make necessary decisions in order for the following to happen:

- Harmonise environmental and climate change laws,
- Strive for a common EAC position in climate change negotiations,
- Incorporate UNFCCC and its Protocol in national laws,
- Enact laws to create enabling environment to attract investments under CDM,
- Identify and formulate joint projects,
- Make recommendations to respective governments on mitigation and adaptation measures in order to deal with frequent catastrophes caused by climate change.

Ladies and Gentlemen, as we develop, environmental issues in general and climate change in particular, are increasingly going to take center-stage of national, regional and international deliberations. Let us therefore take this opportunity to reinvigorate our relevant institutions e.g. those of higher learning, in order to get the best policy advice on climate change and sustainable development issues. I therefore wish you well in your deliberations and look forward to getting a copy of your recommendations.

Ladies and Gentlemen, it is now my great pleasure and privilege to declare this workshop officially open.

Thank you.

**OPENING SPEECH BY HON. MOODY AWORI, VICE-PRESIDENT OF KENYA AT THE WORKSHOP FOR DIALOGUE WITH EAST AFRICAN LEGISLATORS ON CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT AT NAIROBI SAFARI PARK HOTEL, 23–24 APRIL 2004**

Hon. Ministers responsible for environment in East Africa,  
Hon. Members of Parliament from Tanzania, Uganda and Kenya,  
Hon. Members of East African Legislative Assembly,  
The UNEP Representative,  
The UN-Habitat Representative,  
Distinguished Guests,  
Ladies and Gentlemen,

It gives me great pleasure to address this Workshop on: Dialogue with East African Legislators on Climate Change and Sustainable Development Issues.

I welcome you all to this workshop especially my brothers and sisters from outside Kenya. I must also thank the organizers of this workshop, Climate Network Africa, for bringing us legislators to discuss such pertinent issues of climate change and sustainable development. Before it was even scientifically proven that climate was changing our old *mamas* had already noticed that something was amiss with the rainfall patterns. The rains did not arrive in time and when they did, they were too little or too heavy.

The Workshop would have not come at a more appropriate time than now when we are experiencing the high socio-economic costs of the impacts of climate change. For example, we now have increased incidences of diseases and the cost of repair of our damaged infrastructure is far beyond our normal budget. The human suffering as a result of floods, droughts, weather variability is of untold magnitude.

Ladies and Gentlemen: Science tells us that we in Africa have contributed minimally to climate change. It is time that we, as representatives of our people put across our concerns to industrialized countries who are responsible for climate change. I have in mind the costs of adaptation. This will involve large sums of money but the cost of preserving humanity from annihilation by climate change is nothing comparable to sending space shuttles into the space or fighting some unnecessary wars which further exacerbates the problem of global warming. Therefore ladies and gentlemen, let us agree with our partners in the developed countries on globally fair and equitable approaches to combat climate change.

As human race, we cannot afford to lose some cultures and societies which are now faced with extinction due to sea level rise. I have in mind the Small Island States which are severely threatened by climate change. It would be ethically, morally and socially unacceptable, that we should pursue economic growth so blindly at the expense of the survival these and any other cultures.

Ladies and Gentlemen, our developed country partners must drastically reduce their greenhouse gas emissions. I am glad that some of our development partners like the World Bank will be addressing this workshop. The major impact of climate change in this region is loss of human life and destruction of our infrastructure. Destruction of infrastructure makes the cost of doing business in our region expensive. As a result, our goods and services are not competitive in the world market. This reduces our job market and hence increases the poverty

level. We, as the representatives of the people must therefore plan on how to get out of this hopeless situation.

### **Kenya's priorities, policies, strategies and climate change**

Kenya's priority is to reduce poverty and inequality amongst its citizens. Kenya, therefore, is implementing and continues to formulate policies and strategies for creating wealth and employment. These policies aim at creating an enabling environment for local and foreign investments in addition to enhancing productivity in line with the national motto of transforming Kenya into a "working nation".

The issues that aggravate poverty are many and diverse. The fight against poverty therefore requires a broad and comprehensive understanding of these issues. Climate change, and environmental degradation in general, has a two-way link to poverty. Climate change directly and indirectly contributes to poverty and poverty aggravates climate change and contributes substantively to environmental degradation.

Climate change related disasters like floods, land slides, droughts and other climatic catastrophes are occurring at an alarming frequency in Kenya. These are a direct cause of poverty through loss of lives, property, crops, livestock and other livelihood supporting systems. Indirectly, these catastrophes aggravate poverty through destruction of economic supporting infrastructure like roads, railways, power generation, water supply and others. In addition, climate change induced catastrophes disrupt social systems including education and in most cases lead to diseases and other social epidemics. As a result, meagre resources meant for development are diverted to mitigate these catastrophes. A concerted effort is required at national, regional and international levels to reverse the impacts of climate change that are making efforts to reduce poverty ineffective.

### **Economic development, energy provision and environment: conflicting objectives**

Kenya's poverty reduction and wealth creation strategies shape and guide both domestic and international co-operation policies. Kenya's wish is to be part of an international system safeguarding the environment for the good of all mankind based on common values and principles such as equity. This requires that developed countries respect aspirations of developing countries to also experience meaningful socio-economic growth and develop. On our part, developing countries need to strengthen negotiating capabilities and capacities. There is urgent need to provide technical support to political negotiators during the UNFCCC meetings. For this to happen, mechanisms for continuous research into climate change issues in the East African universities have to be put in place. This has been seriously lacking in all our East African institutions of higher learning.

### **Kenya's premise and aims regarding climate change**

Climate change problems are global in nature and call for global action. Any success in mitigating climate change brings global benefits. Kenya pursues a policy of prosperity for all in pursuing global dimensions of climate change. The policy involves joint action and co-operation with other countries and aims to create and safeguard economic, social and ecological conditions that are conducive to sustainable development. Climate change policies and strategies, are built by promoting respect for national values and aspirations of all countries involved and creating the preconditions for greater respect for them. Multilateral co-operation also strengthens combating environmental degradation and mitigating climate change. Kenya contributes to climate change negotiations through participating in all

activities under the United Nations Climate Change Convention and its Protocol. Kenya has already taken a decision to ratify the Kyoto Protocol and this will happen very soon.

### **Policies and measures for green house gases (ghg) reduction**

Kenya has already, voluntarily and at her own cost, formulated and implemented policies and strategies that are already contributing to the reduction of carbon dioxide concentration in the air. The enactment and establishment of the Environment Act provided a comprehensive framework for environmental conservation. All new projects and those that were existing at the commencement of the Act are required to provide an Environmental Impact Assessment Report for scrutiny by the National Environmental Management Authority (NEMA) and the public. Other measures include energy conservation measures in the industrial sector, re-forestation and speed regulation on public vehicles. The already implemented measures are expected to result in decreasing the greenhouse intensity trends.

### **Impacts of Climate Change call for Action Now not Tomorrow**

As noted earlier, the frequency and intensity of climate change induced catastrophes seems to be on the increase, yet the measures proposed under the Kyoto Protocol will take a long time before we see their results. Therefore, there is need to formulate some short-term interventions at national or East African Community level, to deal with impending catastrophes. We believe that our developed country partners who are responsible for climate change and have committed themselves in the UNFCCC and Kyoto Protocol to contribute financial and technological resources to assist developing countries to combat climate change, will honour their pledges.

### **Challenge to East African Legislators**

Finally, I challenge EA Legislators and other participants attending this workshop to deliberate on and make necessary decisions in order for the following to happen:

- Harmonise environmental and climate change laws,
- Strive for a common EAC position in climate change negotiations,
- Incorporate UNFCCC and its Protocol in national laws,
- Enact laws to create enabling environment to attract investments under CDM,
- Identify and formulate joint projects,
- Make recommendations to respective governments on mitigation and adaptation measures in order to deal with frequent catastrophes caused by climate change.

Ladies and Gentlemen: As we develop, environmental issues in general and climate change is particular, are increasingly going to take center-stage of national, regional and international deliberations. Therefore, let us take this opportunity to reinvigorate our relevant institutions e.g. those of higher learning in order to get the best policy advice on climate change and sustainable development issues. I therefore wish you well in your deliberations.

Ladies and gentlemen, it is now my great pleasure and privilege to declare this workshop officially open.

Thank you.

## VOTE OF THANKS

### **Prof. Canute Khamala, Chairman NEMA Board**

- The Guest of Honour, Hon. Prof. Wangari Mathai, Assistant Minister, Ministry of Environment Natural Resources and Wildlife, Kenya
- Mr. Chairman of this Session, Hon. Z. Syongoh, M.P., Kenya
- Honorable Ministers responsible for Environment in East Africa
- Honorable Members of Parliament from East Africa and Members of the Parliamentary Environment Committees,
- Honorable Members of the East African Legislative Assembly,
- The Director UNEP Division of Policy Implementation and Law (DPDL)
- The UN-Habitat Representative,
- Distinguished Guests,
- Ladies and Gentlemen

Mine, Mr., Chairman is but a simple task. It is to thank the Hon. Assistant Minister, Prof. Wangari, for having consented at a very short notice, to come and preside over the opening ceremony of this important workshop. Honorable Ministers and Members of Parliament for finding time to attend this August Assembly to dialogue on policies that address climate change and sustainable development.

You being here demonstrates the recognition and seriousness that you give to climate change as it underlies a serious risk that negates our efforts on poverty reduction and threatens to undo decades of development efforts. While climate change is a global phenomenon, its negative impacts are more severely felt by the poor people. We need only to recall the untold suffering of flooding and expanding desertification that our countries have been undergoing as a result of climate variability and extremes. Variations in rainfall patterns alone, have led to incidences of drought and flooding, often with disastrous consequences for our people and the environment. Because of our high dependence on natural resources in East Africa and limited capacity to cope with climate variability and extremes we are extremely vulnerable. It is a fact that our countries have meager resources to address adverse consequences of climate change. However, you as our East African Legislators have made tremendous efforts in pushing the climate agenda and for this we would like to thank the governments in the East African region through you, your Excellencies.

Africa has made herself felt during discussions at the United Nations Framework Convention on Climate Change (UNFCCC) generally called the Kyoto Protocol. We are especially grateful to UNEP for deciding to make Africa its focus of attention and for establishing a special program for supporting workshops and discussions for African Climate Change negotiators. This has contributed immensely in building the skills of negotiators. We would like to request the representative to UNEP to convey our gratitude to the Executive Director of UNEP, Dr. Klaus Topfer for this initiative.

I must add that discussions under the Climate Change Convention have been a team-effort where both the government and the civil society have been key players. The private sector too has participated, and with the Kyoto Protocol possibly coming into force soon, we hope to

see them taking a lead to control greenhouse gas emissions which are believed to be a major factor in climate change.

We thank the collaborating organizers, namely, the Ministry of Environment Natural Resources and Wildlife of the Kenya Government, National Environment Management Authority (NEMA), Metrological Department and the Drought Monitoring Centre, Nairobi

Finally Mr. Chairman, We Wish to thank Climate Network African and UNEP for their invaluable financial support, for without them, we would not be sitting here today. In the same spirit we acknowledge the support from the government of Kenya and several other institutions that have been playing important roles behind the scenes.

I thank you Mr. Chairman and conclude by saying that it is our hope that the statements made this morning have provided the incentives to enhance discussions of the workshop and will lead to an understanding of the climate change issues for further actions and posterity. Proper mitigations measures against the factors causing climate changes will go a long way in promoting sustainable development.

Once again I thank you all for your contributions

Thank you.

## **THE SCIENTIFIC BASIS FOR THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE**

**By *Alexander L. Alusa*, Regional Office for Africa, UNEP**

### **1. Introduction**

Climate Change and consequent global warming has caught the attention of the scientific community because of the risks it potents for society and the environment. This concern has culminated in the signing at Rio of the United Nations Framework Convention on Climate Change (UNFCCC).

What is climate change and how real is it? This paper seeks to highlight the scientific underpinnings of the debate on climate change (global warming) and the basis for the formulation of the Convention on Climate Change. Inevitably the paper will be brief and sketchy given the available time. Besides, much can be said about climate change and it is not possible to capture it all in one paper in a discussion such as this one.

These notes will simply highlight issues, but the presentation itself will strive to go into a little more detail.

### **2. The Climate Change**

The climate system is controlled by the composition and dynamics of the atmosphere, oceans and the land surface. In particular, although other factors are important, the composition of the atmosphere to a large extent controls our climate. Levels of the so-called “greenhouse gases” are particularly important. Their concentration in the atmosphere is in turn controlled by the capacity of the oceans and terrestrial ecosystems and soils to absorb carbon emitted as carbon dioxide into the atmosphere. There remain questions related to the carbon absorptive capacity of oceans, especially deep oceans in terms of time required to absorb carbon. There are

uncertainties related to the terrestrial ecosystem capacity to sequester carbon and just how much is absorbed by soils. All these issues need to be addressed to have a complete picture of what is being emitted into the atmosphere, how it is distributed in time and space and what it implies about man-induced climate change. We therefore need to discuss the issue of greenhouse gases and what it suggests about climate change.

### **3. The Greenhouse Effect**

It is important to emphasize at the outset that the greenhouse effect is a natural phenomenon. But what is it? The following is a simplified explanation as provided by the Intergovernmental Panel on Climate Change (IPCC):

Shortwave solar radiation can pass through the clear atmosphere relatively unimpeded. But long-wave terrestrial radiation emitted by the warm surface of the Earth is partially absorbed and then re-emitted by a number of trace gases in the cooler atmosphere above. Since, on average, the outgoing long-wave radiation balances the incoming solar radiation; both the atmosphere and the surface will be cooler than they would be without the greenhouse gases. This is the “natural” Greenhouse effect.

The main natural greenhouse gases are not the major constituents, nitrogen and oxygen, but water vapor (the biggest contributor), carbon dioxide, methane, nitrous oxide, and ozone in the troposphere (the lowest 10-15km of the atmosphere) and stratosphere.

Discussions in this presentation will address the question of “enhanced greenhouse effect”. The natural greenhouse effect is necessary and indeed responsible for life on earth as we know it otherwise the earth would be about 32°C cooler than it is now. The enhanced greenhouse effect is the result of the addition of greenhouse gases into the atmosphere at a rate faster than they can be absorbed by land surface, or oceans leading to increase in mean global surface temperature.

The IPCC has determined that emissions resulting from human activities are such as to substantially increase the atmospheric concentration of greenhouse gases which will enhance the greenhouse effect and at the present rate the mean surface temperature would increase at a rate of 0.3°C per decade. This in turn would lead to a global mean sea-level rise of about 6 cm per decade over the next century.

The consequences for socio-economic systems are estimated to be dire especially for small Island States and the poor developing countries that do not have the resources to combat these impacts.

### **4. Studies and Conferences Leading to the Negotiations for a Climate Convention**

Until the formation of the IPCC in 1988, the chief executives of the UNEP and WMO had constituted the Advisory Group on Greenhouse Gases (AGGG) to advise them on the possible impact on climate and the environment of the increasing emissions of greenhouse gases notably CO<sub>2</sub>. The AGGG convened the Villach and Bellagio workshops in 1987 which highlighted the threat of global warming. After these workshops, both WMO and UNEP established the IPCC in 1988. It worked on an assessment report which was completed and presented to the Second World Climate Conference in 1990.

Prior to this conference, there had been high profile conferences in 1988 in Toronto, Canada on the Changing Atmosphere, the Cairo conference on preparing for Climate Change 1989, the Langkawi Commonwealth Heads of Government Meeting in 1989, the Male Conference

on Global Warming and Sea-level Rise, 1989, and the Bergen Regional Conference on Action for a Common Future, 1990.

All these conferences helped raise the climate change issue to the top of the global political agenda and to catalyze action towards negotiations for a Convention on Climate Change.

## **5. Scientific facts About Increase of Greenhouse Gas Concentration in the Atmosphere**

The IPCC concluded and stated unequivocally that emissions resulting from human activities are substantially increasing the atmospheric concentrations of greenhouse gases: - Carbon dioxide, methane, Chlorofluorocarbons (CFCs) and nitrous oxide. These increases will increase the greenhouse effect and result in an additional warming of the earth's surface.

The IPCC further said that the long lived greenhouse gases adjust only slowly to changes in emissions. Given the continued emission of these gases at the present emission rates we are committed to Climate Change for a long time to come. If emissions continued in a "Business-as-Usual" scenario, there would be greater reductions necessary to stabilize concentrations at a given level.

These statements provide a basis for urgent action articulated in the Second World Climate Conference and other conferences prior to it.

Evidence has been adduced by scientists globally that CO<sub>2</sub> is on the increase at a rate much faster than ever observed. Similarly, methane, nitrous oxide and other greenhouse gases are on the increase. Global Circulation Models calculate that if greenhouse gases equivalent to the doubling of CO<sub>2</sub> are emitted into the atmosphere we can expect in all versions of the models, an increase in mean global surface temperature. But the models also suggest negative feedbacks due to clouds and increased water vapor in a warmer world. These feedbacks, however, remain poorly understood. Indeed they have been used by those detractors of IPCC assessments to suggest that the urgency for responding to potential Climate Change is unjustified. In some ways, it explains in part the observed lack of specific targets in emission reductions in the Climate Convention.

## **6. Expected Global Temperature Increase and Natural Climate Variability**

It is known that mean surface temperature has increased by 0.3°C to 0.6°C over the last 100 years. Over the same period, global sea-level has increased by 10-20 cm. These magnitudes of increases have been predicted by global circulation models, but they are also of the same magnitude of natural climate variability. So far, we are not able to unequivocally detect the "enhanced" greenhouse effect from observations against natural climate variability. Indeed no evidence has been adduced to suggest that climate is more variable now than before. We, therefore, have the problem of detectability of climate change over natural variability. Another limitation is that whereas climate models are able to identify the degree of global warming and global change in climate, they have considerable limitations in regional focus of climate change, in addition to the problem of feedbacks.

## **7. Impacts of Climate Change**

Global warming will have an impact, first and foremost, on climate system as a whole. This will in turn have an impact on general circulation which, again will in turn affect weather patterns in terms of distribution in time and space of rainfall, temperature, winds, etc. These shifts in weather patterns in the short and long term will have an impact on agriculture and

ecosystems. The impacts will affect economic well being of societies – the so-called socio-economic impacts. Unfortunately, as pointed out earlier, impacts are best assessed at regional and local levels. These are precisely the levels where the models are not particularly accurate in forecasting the potential for climate change.

The change in sea-level will have particular significance for coastal areas and small island states (especially developing ones). It is this concern that gave rise to specific mention in the climate Convention of small island states in article 4 para.8 (a).

## 8. What do Governments Need to Know?

The primary objective as detailed in article 2 of the Convention is:

“The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”

We have noted that emissions of greenhouse gases are on the increase. We have also drawn attention to the fact that these must be reduced now in order to stabilize concentrations at levels that would not interfere with the climate system.

Governments need to know the following:

- 1) What are the emissions, at present, of greenhouse gases in their countries?
- 2) What emissions are necessary and critical for development and what alternative paths exist for development?
- 3) What is the cost of responding to the Convention? In other words, what will it cost to reduce emissions and what development opportunities are lost?

Besides the above, governments must accede to or ratify the Convention if they are to benefit from the provisions of the financial mechanism given in the Convention. To the extent that they need to influence the fine tuning of these mechanisms, they need to be parties to the Convention in order to do so during the Conference of the Parties. Governments also need to put in place institutional mechanisms to deal with the implementation of the Convention. A multi-disciplinary team to implement government involvement is, therefore, very important.

## 9. Is there any Evidence of Global Warming?

The IPCC in its recent report has adduced that “the balance of evidence suggests a discernible human influence on Global Climate. The observed global mean surface air temperature trends over the last century have detected a significant change and show what the observed warming trend is unlikely to be entirely natural in origin.

More convincing suggestion of attribution of a human effect on climate is emerging from pattern-based studies which show that there are pattern correspondences between modeled climate response to combined forcing by greenhouse gases and anthropogenic sulphate aerosols as compared to observed geographical, seasonal and vertical patterns of atmospheric

temperature change. Such pattern correspondences are unlikely to occur by chance as a result of natural internal variability only.

But there remain some uncertainties. Our capacity to quantify the human influence on global climate is currently limited because the expected signal is still emerging from the noise of natural variability, but also because there are uncertainties in key factors such as cloud and biospheric feedbacks, deep ocean absorption of carbon etc.

## **10. Conclusions**

Global warming has been determined to be real even if there remain a few uncertainties. Its consequences have not been fully assessed because of the limitations in modeling regional changes in climate. But it is believed that they could be severe especially from small Island States and developing countries particularly the least developed among them.

The precautionary principle requires that even where there are uncertainties, action be taken now to forestall the dire consequences predicted to befall society if we continue to emit greenhouse gases into the atmosphere in a “Business-as-Usual” manner. The agreed and now in force of UN Framework Convention on Climate Change is a step in the right direction. But it lacks the necessary specificity in terms of emission targets and time frames to be able to stabilize the concentration of greenhouse gases in the atmosphere at a tolerable level as called for in the Convention.

Government need not only to accede to the Convention but also to put in place mechanisms for reducing emission of greenhouse gases in their countries, because as we continue to emit more GHG, we are committing ourselves more and more to irreversible climate change.

## **VULNERABILITY AND IMPACTS OF CLIMATE CHANGE IN EAST AFRICA**

**BY PROF. L. A. OGALLO**

IGAD Climate Prediction and Applications Centre – (Formerly DMCN) and  
Department of Meteorology, University of Nairobi

### **1.0 Introduction**

The Earth’s climate is humankind’s greatest natural resource. The very existence of human beings on the planet depends to a greater extent on a favourable type of climate. Mankind depends on the right climate for crop production and for maintaining the vital water resources. Climate plays a major role in the determination of the general space-time patterns of natural resources of the environment, the associated socio-economic activities and to a certain degree, local environmental stress. Climate also plays an important role in the survival and adaptability of eco-systems as well as sustaining plant and animal life.

Climate change can therefore, have far reaching effects on environmental, ecological and socio-economic development among many other activities and services. The potential impacts of climate stress are quite evident during years of extreme floods and droughts.

*Figure 1* below presents a summary of the general features and components of the global climate system that includes the Atmosphere; the Oceans; Land and Cryosphere (frozen water).

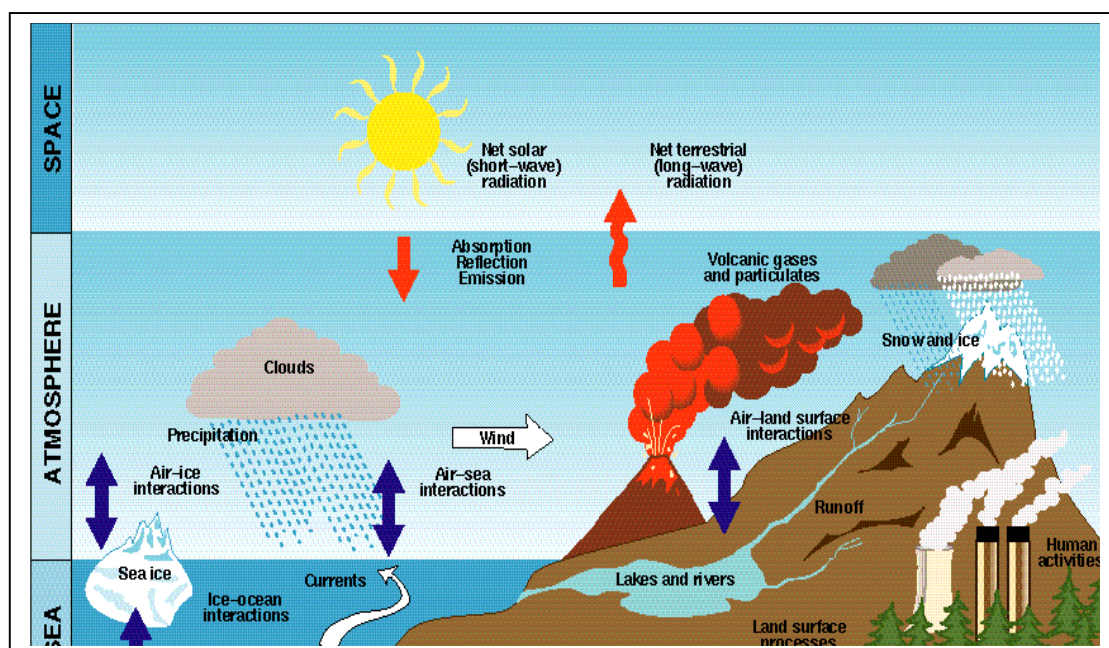


Figure 1: Components of the Global Climate System (IPCC, 2001)

The key Issues that have been addressed in this brief report include the following:

- Is the global and regional climate of the world changing?
- What are the implications of these changes and
- What can be done at national; regional and international levels to cope with the changing climate.

## 2.0 Climates of the Past

The past climate records show that climate is quite dynamic and is subject to many space-time variations. It has short-term variations ranging from months to few years and also long-term changes ranging from decades to millions of years. The impacts of some of the past climate changes have been very drastic including wiping out some species, mass migration of people and animals to other regions that have more favourable climate. All these were due to natural processes that man cannot control.

These geological time scale changes can largely be attributed to changes in the natural forces that control global climate system. These include such changes as in the Earth's orbital parameters which affect changes in the intensity of solar radiation received by earth, the earth-sun distance, the daily and seasonal earth movements, the gravitational force, Earth's magnetic force, meteor impacts, volcanic eruptions and natural changes in ocean temperatures and circulations.

The IPCC 2001 assessment has noted that:

- The *global average surface temperature has increased* since 1861. Most of the ten warmest years in record are also clustered within the recent years with the year 1998 recording the *warmest year* from all available instrument records since 1860;
- The night-time daily minimum air temperatures over land have increased by about 0.2°C per decade. Recent warming has been greatest over the mid-latitude continents in winter and spring, with a few areas of cooling, such as the North Atlantic Ocean.

- The *Mean Global Sea Level* has risen by about 10-25cm over the last 100 years and much of the rise may be related to the increase in global mean temperature;
- The *El Niño*, which is often associated with extreme worldwide climate anomalies, has been observed to be *more frequent in the recent years*;
- There are indications that *precipitation has increased by 0.5 to 1% per decade* in the 20th century over land in most mid- and high latitudes of the Northern Hemisphere continents especially during the cold season, and that rainfall has increased by 0.2 to 0.3% per decade over the tropical (10°N to 10°S) land areas.
- Satellite data show that there have been decreases of about 10% in the extent of snow cover since the late 1960s in the mid-and high latitudes of the Northern Hemisphere, over the 20th century;
- There has been *widespread retreat* of the world's glaciers, including glaciers of the African Mountains such as Mts. Kenya and Kilimanjaro.

IPCC 2001 has noted that the mean global temperatures would rise by between 1 to 3.5°C, although the most likely value is about 2°C by the end of this century. The corresponding rise in sea-level will be within the range of 15 to 95 cm, with the “best estimate” of about 50 cm. This may have a significant socio-economic impact as flat islands, harbours, tourist areas and productive coastal lands would all be threatened. The contamination of freshwater supplies and the displacement of tens of millions of people would occur

*Figure 2* below shows trends of Global annual temperature as observed from the global temperature over the past 140 years, as well as for the past 1,000 years over the Northern Hemisphere (*IPCC, 2001*).

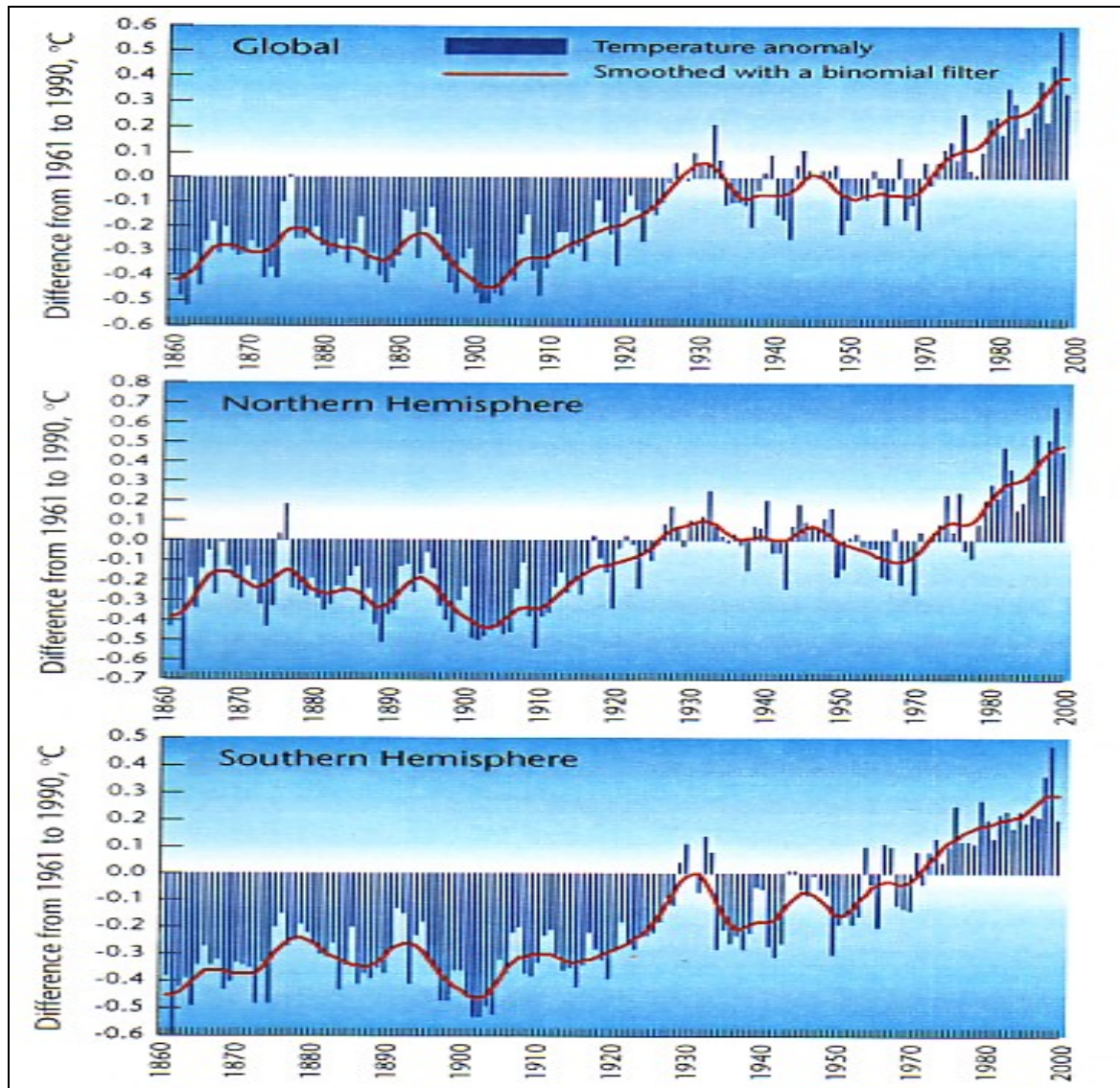


Figure 2: Recent trends of Global annual temperature as observed from the instrumental records (IPCC, 2001)

### 3.0 Future Climate Expectation

The major new tools in projecting future projections of green house gases and the associated climate variability/change studies are the coupled ocean-atmosphere general circulation models (GCMs). GCM projections of climate changes are driven by assumptions about time evolution of greenhouse gases in the atmosphere. The future climate change expectations is based on climate Models driven by future projections of socio-economic trends including population and economic growth, technological changes, energy demand, fuel mix, etc.

Figure 3a below presents the future projection patterns of CO<sub>2</sub> concentrations up to the year 2100 by IPCC. The corresponding projections of global mean temperatures and sea level are given in Figures 3b.

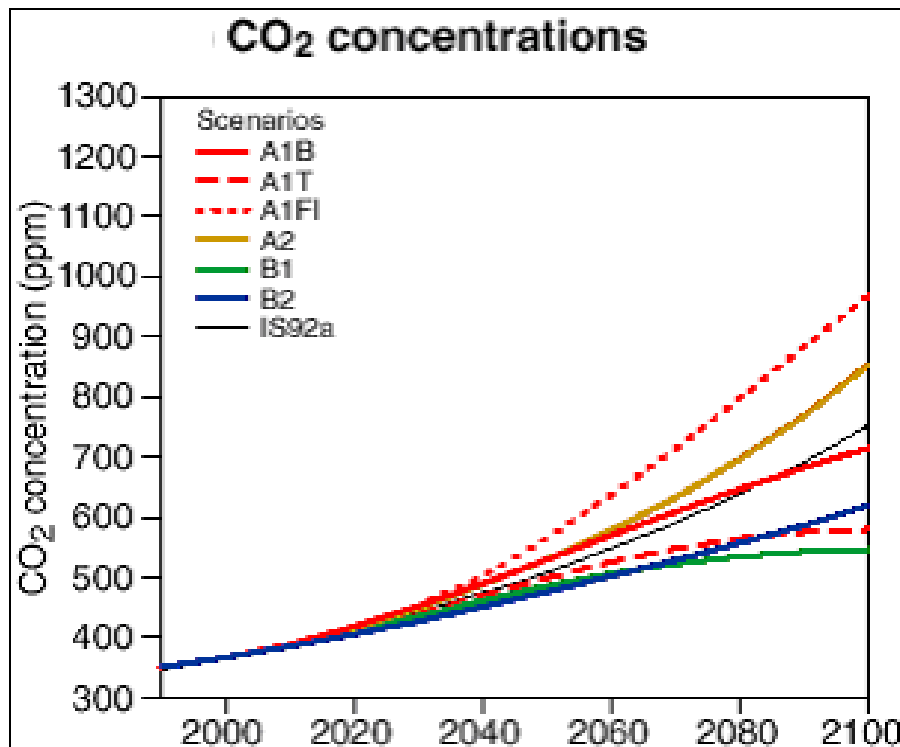


Figure 3a: Projection of Global CO<sub>2</sub> concentration up to 2100 (IPCC, 2001)

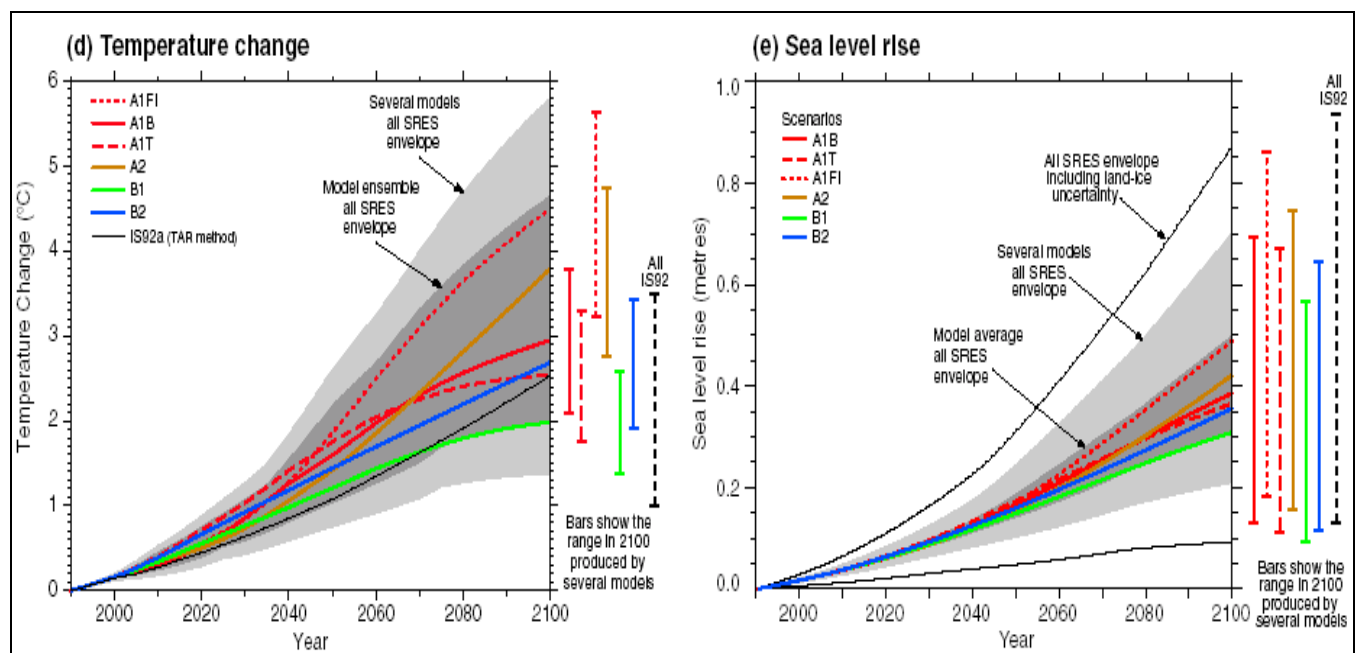


Figure 3b: Projection of Global Temperature Change and Sea Level Rise up to 2100 (IPCC, 2001)

There are a number of serious environmental, social and economic consequences that could result from climate change, some of which could have far reaching impacts on developing countries due to inadequate resources.

The third IPCC assessment circulated in 2001 has noted among other things that climate change would affect:

- **Sea-level rise:** IPCC (TAR) estimates that the global sea level is projected to rise by between 0.09 to 0.88m between 1990 and 2100. This is primarily due to thermal expansion and loss of mass from glaciers and ice caps. This rise could have significant

social and economic impacts as flat islands, harbours, tourist areas and productive coastal lands; contamination of underground and surface freshwater supplies near the coasts and displacement of millions of people around the world;

- **Natural ecosystems:** Climate change would affect adaptive capacity of natural ecosystems, including forests, range-lands, deserts, cryosphere, mountain regions, lakes, streams and wetlands, coastal systems and oceans;
- **Regional crop distribution:** Climate models have shown that Global crop production is unlikely to be affected for a doubling of CO<sub>2</sub> concentrations over its pre-industrial value, but its regional distribution could vary quite considerably;
- **Human health:** Climate change would direct and/or indirect impacts on health. Wet scenarios would be associated with increases in the transmission of vector-borne diseases such as malaria, dengue and yellow fever. Dry scenarios that would lead to lack of water, food, etc would also trigger a chain of diseases;
- **Natural disasters:** A major concern is that small changes in the mean climate can produce relatively large changes in the frequency of extreme weather events and the number of some natural disasters. Even without climate change, extreme climate events such as floods, drought, and tropical cyclones cause socio-economic havoc in many African countries. Changes in climate that result into changes on the mean, frequency, and / or intensity could be very devastating; and
- **The global hydrological cycle:** Warmer temperatures will lead to a more vigorous hydrological cycle, that could have far reaching impacts on the space time patterns of droughts and/or floods; regional freshwater resources; desertification risks; Water shortages leading to increased use of ground-water resources, and irrigation; contamination of freshwater supplies; and displacement of millions of people. Drier climate would force many countries to shift toward major water use conflicts in the future.

Climate variability and change have also been observed in East Africa just like any other part of the world. Good examples of the anomalies in the global and regional circulation patterns have occurred during the warming / cooling of the tropical Eastern Pacific region that is often known as El-Niño and La-Niña. The analysis of annual rainfall series in Kenya show that dry conditions dominated the 1950s and early 1970s while the wet conditions occurred in early 1960s and late 1980s.

Past studies on Lake Levels, Lake shores and shoreline records have revealed a decline in Lake Nakuru. Shorelines have also indicated that Lake Turkana could have been at a much higher level sometime ago. Lake Victoria reached its lowest levels in 1922. Lake Naivasha depicted a very sharp and sustained decline after 1938. The enhanced precipitation in 1960s significantly raised the majority of the Lake levels in Kenya.

It has also been established that, the volume and extent of Mt. Kenya glaciers have shown a drastic declining trend. The mountain had as many as 18 glaciers at the turn of the century but only 11 have survived to the last decade with the overall area of less than 1 km<sup>2</sup>.

It is clear therefore that climate change signals are evident in East Africa, which is already vulnerability to climate extremes. There exists a close relationship amongst the Climate, Economy Society, Environment and the various sustainable development processes as highlighted in the *Figure 4* below.

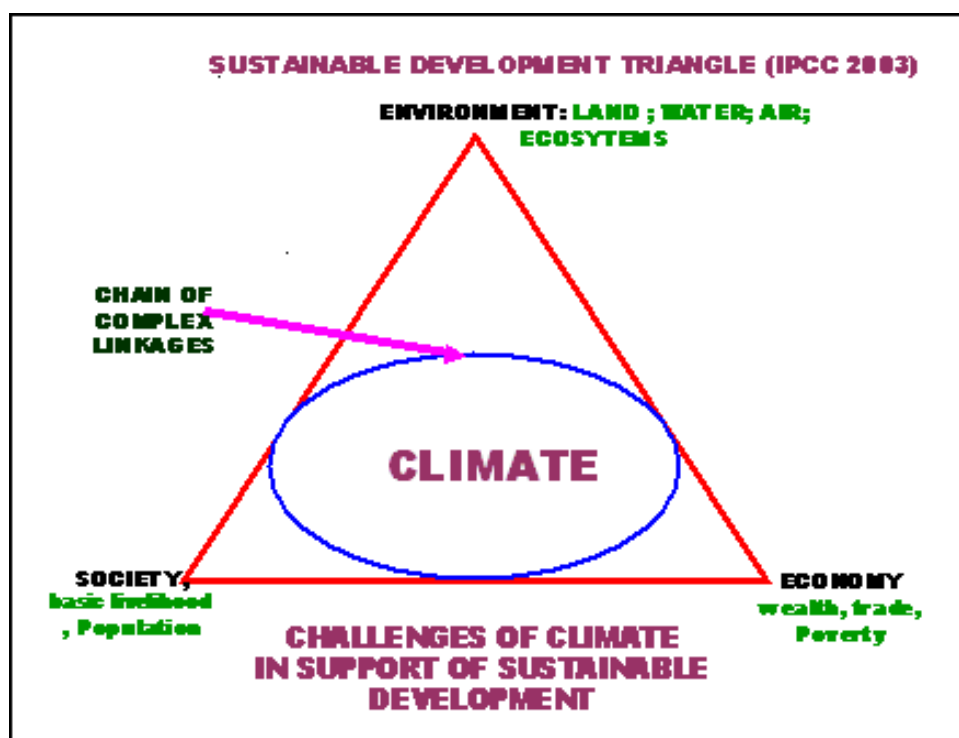


Figure 4: Sustainable development triangle (IPCC, 2001)

#### 4.0 Addressing Current Challenges and Future Climate Changes

It is clear that no country can achieve sustainable development without integrating climate information into their short term and long-term national development goals. Similarly, no country can achieve poverty reduction dreams without maximizing the use of climate information. In order to address the current challenges of climate extremes, the following needs to be put in place:

- Climate Monitoring, Prediction And Early Warning Systems;
- Integrated Disaster Management Policies
- Humankind must meet its future energy, food and water needs without seriously affecting climate

As the world population is projected to increase from its present 6 billion to 8 billion by 2025 and 10 billion by 2050, the arable land available for agriculture and food production will be under enormous pressure and therefore strategies for addressing sustainable food production and minimization of pollution of freshwater resources must be put in place. It is also important to promotion the social and economic practices that would not harm the environment further. Other issues that could be looked at include the following:

- The implementation of the international agreements designed to minimize or reverse the trends in climate, such as the UN Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, the UN Convention on Biodiversity (UNCB), the UN Convention to Combat Desertification (UNCCD), and the Convention for the Protection of the Ozone Layer.
- Kyoto Protocol requires the developed countries (Annex I countries) to reduce their overall emissions

- The need for improvement in the collection, distribution and application of information related to energy resources, and greater awareness and understanding by the general public and the policy makers regarding the potential hazards of climate change and the need for remedial actions.
- The need to better monitor, understand, detect, predict and attribute the complex and closely related climate change processes.
- The need for strong regional and national negotiation power.

## **IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH IN EAST AFRICA**

### **Speech for Hon. Charity Ngilu, Minister of Health**

**Prepared by Dr. A. K. Githeko PhD, Head: Climate and Human Health Research Unit, KEMRI Kisumu**

Human life is dependent upon the earth's climate system. Let me clarify that there is a difference between climate and weather. I understand weather is what we get from day to day and climate is the average weather over several years. The climate of the earth varies from very cold to very hot, very dry to very wet and each of these states have their own impacts on human health and well being. While human beings have adapted to different climates, sudden changes in weather can cause an imbalance in nature resulting in disease, mortality, malnutrition, mass human migration and social economic disruptions.

As we say seasons come and go, but there are seasons that we do not forget such as great floods, droughts and epidemics.

In the past, the earth maintained a natural variability in its climate system. However, due to industrial and social economic developments, our consumption levels have grown beyond what the earth can sustain. Moreover the products of human activities such as burning fossil fuels and agriculture produce greenhouse gases such as carbon dioxide, which cause the earth's lower atmosphere to warm up by trapping the sun's heat. Scientists have evidence that recent trends in the warming of the earth atmosphere cannot be explained by natural phenomenon but is attributable to anthropogenic sources of greenhouse gases.

The latest report of the United Nations' Intergovernmental Panel on Climate Change released in 2001 projects that if our fossil fuel consumption continues at the current trends, the earth's surface temperature will increase by an average of 1.4 – 5.8°C by 2100.

I am told that while climate change is a slow process, climate variability will be more intense and more frequent. Climate variability will have greater impacts on the short term and has already begun to affect our lives. The 1997/8 El Niño is an example of such an event. Although El Niño events have occurred in the past the 1997/8 event was the strongest on record.

It is on record that the last decade of the 20<sup>th</sup> Century was the warmest since temperature recording started at about 1860.

Many of the tropical diseases that affect the health of our people have roots in the environment and their transmission to humans is closely related to the local climate.

While the wet and humid lowlands provide suitable habitats for the malaria mosquitoes and parasites, cold temperatures in highlands are not always suitable for malaria transmission. In recent years we have seen a change in this situation and in my country malaria has spread

from 3 districts in the early 1980's to 15 in the late 1990's. The epidemics are particularly severe during the El Niño weather phenomenon, which is associated with above normal temperature and rainfall. Our scientists are telling us that even small increases in temperature in the highlands can have a big impact on malaria.

It has become clear that intervention of malaria epidemics using drugs alone is no longer effective. We need to include vector control in our epidemic control policy.

I am pleased to learn that research by scientists of the Kenya Medical Research Institute in my Ministry have come up with tools for predicting malaria epidemics 2-3 months before they happen. This knowledge will assist in planning interventions for the epidemics.

The lake Victoria basin and the coastal belt are well known for sudden large-scale cholera epidemics. It is now understood that these epidemics are associated with El Niño events. The warming of the lake waters increases the level of cholera bacteria in the water leading to large-scale multi-country epidemics.

Another lesson learned during the 1997/98 El Niño event was the relationship between climate variability and Rift Valley fever. These diseases affected both animal and humans leading to 70% of sheep and goats in some areas.

You may realize that due to cholera epidemics in the Lake regions our fish was banned by the European Union leading to a big economic loss. Equally as a result of the Rift Valley Fever epidemic our livestock could not be exported to some Middle East countries.

Soon after the El Niño, arrived the La Nina a phenomenon that is characterized by drought, malnutrition, under nutrition, diarrhea diseases, large-scale human migration and conflict.

I have made much reference to the El Niño/La Nina phenomenon because it gives an insight in the possible future climate under scenarios of climate change and variability.

We are reminded that these patterns of events could become more frequent and intense. As we talk today floods are taking a toll on human life in many areas of Kenya

From the policy point of view we must reflect and ponder whether under increasing threat from climate related disasters we can manage an already burdened health system. What new measures do we need to put in place to reduce the impacts of the new threats? We must also keep in mind that a big proportion of our current resources are going into coping with HIV/AIDS. The spare bed that was reserved for a malaria cases may not be available today.

## **IMPACTS OF CLIMATE CHANGE ON INFRASTRUCTURE**

**By Hon. Eng. Raila Odinga, Minister for Roads, Public Works and Housing**

Distinguished participants,  
Ladies and Gentlemen,

I am glad to join my fellow legislators during this workshop in which we bring our heads together to dialogue on climate change in our three countries.

I wish to contribute to this respectable forum through my paper; "Impact of climate change on infrastructure."

Climate as we all know, influences many socio-economic activities the world over. It determines the space and time distribution of the world's resources such as water, flora and fauna.

I wish to note that many activities over many parts of the world are adapted to the prevailing climate patterns. Fluctuations in climate are known to occur on a year-to-year or season-to-season basis. Many socio-economic activities are sensitive to such fluctuations.

Consequently, climatic fluctuations impact negatively on many activities in several sectors. They include agriculture and food security, water resources, environment, human settlement, health, energy, tourism, industry, transport, communications and infrastructure.

It should, however, be noted that climatic fluctuations are part and parcel of the climate system and are recurrent in nature. It is now also agreed that the frequency and intensity of these changes are human influenced through excessive consumption of fossil fuels and their release, associated with greenhouse gases, into the atmosphere.

It has also been established that the world is warmer today than it was a century ago. Indeed, the Third Assessment Report of the Inter Governmental Panel on Climate Change (IPCC) indicated that globally, it is very likely, that the 1990s was the warmest decade and 1998 the warmest year in the instrumental record, since 1861. It also indicated that the melting of sea ice has led to a global average sea level rise.

It is worth noting that climate change brings with it challenges resulting from the effects of extreme weather and climatic events such as tropical storms, floods, droughts, landslides, strong winds and sea level rise. These events definitely impose strain on the management of problems related to, among other things, infrastructure.

Severe flooding arising from intense rainfall has already demonstrated its potential catastrophic effects on many sectors of the economy. Infrastructure is one such that is severely affected whenever flooding occurs.

Allow me, Ladies and Gentlemen, to relate our experience here in Kenya. The destruction of infrastructure arising from the 1997/1998 El Nino related floods cost the Kenya government millions of shillings. The March to May 2003 floods is also still evident in most parts of the country.

Roads and buildings were damaged, bridges and railway lines were washed away; landslides occurred in some areas and destroyed property, schools and other social amenities. When this was over, it left the country in excess of 10 million US dollars poorer. This caused a big strain to the country's economy and wiped away all the gains made over many years.

The flooding episodes of Budalangi and Kano plains together with the landslides in Mt. Kenya and the Aberdare ranges of Kenya are yet to be mitigated. These examples clearly show how the impact of severe climatic changes has retarded development in Kenya's infrastructural sector.

As a result of the extensive destruction caused by the 1997/98 and 2003 floods, the Government of Kenya, last year, established a Task Force under my Ministry to "*Develop a project proposal on the restoration of the Physical infrastructure destroyed by the floods.*" The report of the Task Force Team has shown that the extensive damage was widespread

across the country. It has also revealed that the resources required to restore the infrastructure destroyed by these floods are phenomenal for a small economy like ours.

This means that the anticipated increase in the frequency and intensity of extreme rainfall events is likely to lead to more flooding incidences. It will also worsen their impacts on infrastructure and consequently our economies.

Ladies and Gentlemen, it is a known fact that there are heavy concentrations of human settlements within 100 kilometers of coastal zones. It is also estimated that more than one quarter of Africa's population resides within such zones. This has, therefore, exposed these settlements to the danger of being submerged in the event of a rise in sea level.

Windstorms are common in tropical regions and are known to cause damage to poorly constructed shelter or those constructed with sub-standard material. Damage of houses due to strong winds in the western region of Kenya is very common.

With population explosion, lack of employment and non-performing economies, many people cannot afford to put up structures for shelter that would withstand the anticipated changes in the wind patterns. Consequently, strong windstorms are likely to cause extensive damage to such structures.

Governments such as ours in the East African Community are often affected yet cannot raise sufficient funds to put up strong structures every time there is a severe climatic event. This means that we must urgently develop and put in place, appropriate policies and strategies to ensure that the adverse impacts of climate change to infrastructure, among other sectors, are minimised and eventually eliminated.

It is also important to institute a system of monitoring the evolution of anticipated climate change scenarios. This will enable the affected sectors of the economy to absorb the shocks of severe climatic impacts.

Ladies and Gentlemen, I cannot over-emphasize the need to involve our institutions of higher learning in climate change research and development. This will provide our governments with sound policy recommendations.

I also take this opportunity to remind industrialized countries to demonstrate their political will by fulfilling their commitments in the Climate Change Convention on financial and technology transfer to developing countries. This will enable us to undertake sustainable adaptation programmes.

Thank you for your audience. I hope that the outcome of this workshop will go a long way in charting the way forward on climate change for our East African Community.

Thank you.

## **INTEGRATING CLIMATE CHANGE CONSIDERATIONS IN NATIONAL DEVELOPMENT POLICIES AND PROGRAMMES**

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### **A. The Climate Change Phenomenon**

#### ▪ *The link with anthropogenic activities*

The fact that global climate conditions having been changing beyond natural variability is now well established. Evidence accumulated over the last several decades indicate that this change has intimate links with anthropogenic (i.e. human induced) activities which are essentially responsible for substantially enhanced levels of emission of greenhouse gases (GHGs) into the atmosphere. The Intergovernmental Panel on Climate Change (IPCC) established in 1988 has conducted several assessments which show that unless deliberate steps are taken to reduce GHG emissions in the coming decades, irreversible changes will occur in the global climate system. Most vulnerable to change are :

- global and regional temperatures precipitation and other parameters,
  - soil structure and moisture,
  - global mean sea-levels, and
  - frequency of extreme events associated with changes in absolute temperatures.
- *These changes will, in turn lead to a number of adverse effects, inter alia on:*
- ecological systems,
  - health and epidemiological patterns,
  - hydrological and water resource balance,
  - food and fibre production,
  - coastal and marine systems,
  - human settlements, and
  - other socio-economic sectors

This clearly poses an enormous challenge for international and domestic governance.

### **B. The Global Framework for the Management of Climate Change**

#### **1. The Climate Change Convention**

Confronted with the evidence, the international community has, in the last decade, been involved in discussions about the steps necessary for mitigating or facilitating orderly adaptation to these changes and impacts. An agreement was eventually reached at the Rio de Janeiro Earth Summit in 1992 for a convention to define the strategies necessary for collective intervention into the climate change phenomenon. The United Nations Framework on Climate Change (UNFCCC), which was concluded at Rio, has as its ultimate objective.

[The] stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.. (Article 2).

The Convention adds that the level envisaged above should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food

production is not threatened and to enable economic development to proceed in a sustainable manner (ibid);

Because the available scientific evidence, though substantial, is not entirely free of controversy, the UNFCCC is offered as a “framework” Convention to:

- enable parties to build global consensus on what needs to be done to confront the climate change phenomenon;
- facilitate the development of guidelines for the fulfilment of commitments until new and more accurate scientific evidence becomes available;
- provide a flexible mechanism for the enforcement of specific obligations;
- permit its further elaboration through the development of more appropriate protocols on specific issues.

In that respect, the UNFCCC must be read together with other international environmental governance instruments, especially those negotiated after Rio such as:

- The Convention on Biological Diversity (CBD);
- The United National Convention to Combat Desertification (UNCCD);
- The Forest Principles; and
- Agenda 21.

which are, in broad and/or specific terms, concerned, as is the UNFCCC, with the reduction and elimination of unsustainable patterns of development.

## **2. The Kyoto Protocol**

In response to commitments under the UNFCCC, the parties concluded an important protocol in Kyoto, Japan in December 1997 under which emission reduction targets to 2012 were agreed especially for developed countries. The question of ensuring compliance with the Protocol, however, is one which has not been satisfactorily resolved. Indeed, the Protocol itself –

- does not establish an effective compliance regime, and
- leaves the important question of dispute settlement to the vagaries of bilateral/multilateral negotiation or conciliation.

In fact as of today, protocol awaits ratification by either Russia or the United States of America to come into force.

An important step as the conclusion of that Protocol may have been, its contribution to the management of the climate change phenomenon remains elusive. One must therefore, turn to climate change management through domestic policies and programmes.

## **C. Integration of Climate Change Parameters into National Policies and Programmes**

### **1. Commitment under the UNFCCC**

Under Article 4(1)(f) of the UNFCCC, parties commit themselves to

take climate change considerations into account.. in their relevant social, economic and environmental policies and actions...

In its Third Assessment Report issued in 2001, the IPCC notes that capacity of countries to adapt to and mitigate the effects of climate change can be enhanced when climate change policies are integrated with national development policies “including economic, social and other environmental dimensions”. The UNFCCC cautions, however, that such policies should be appropriate to the specific conditions of each country.

## **2. Integration Strategies and options**

The commitment to integrate climate change parameters into national policies and programmes presupposes deliberate response at several levels. The most important of these are –

- availability of adequate scientific information,
- long range assessment of vulnerability,
- design of adaptation and mitigation options,
- institutions of governance, and
- disaster preparedness

These response levels require further elaboration.

### **(a) Availability of scientific information**

Although scientific information on global climatic change and its consequences is now available, this is far from being precise or packaged in a form that could be easily incorporated into policies and programmes. It is also the case that many countries, especially those in the developing world, have not built capacity for independent inventory of that information. That capacity will need to be built by, *inter alia* –

- ensuring that climate change scientists are trained and are available,
- acquiring the technology required for accurate monitoring and interpretation of trends in the global climate system, and
- establishing machinery for the processing of climate change information for policy-making.

Although capacity-building may be expensive, it is important to equip policy makers with information necessary to make rational choices.

### **(b) Assessment of Vulnerability**

Proper management of climate change parameters requires accurate assessment of vulnerability of important economic, social and environmental sectors. The most vulnerable to variations in climate change include –

- Water,
- Energy,
- Health,
- Agriculture, and
- Biodiversity

It is that assessment which will determine the nature and timing of intervention strategies in any particular context.

### **(c) Design of Adaptation and Mitigation Options**

Once contextually prepared and processed data on climate parameters are available, policy-making then turns to the design of adaptation and mitigation strategies/options appropriate to the specific conditions of each country. The UNFCCC expects parties to take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. That expectation calls for policy responses at macro and micro levels.

Adaptation options comprise measures that would enable ecosystems and socio-economic sectors to adjust in terms of processes, practices and structures to projected or actual changes in climate parameters. Mitigation options, however, are anthropogenic interventions directed at reducing emissions or enhancing sinks of GHGs.

In order to ensure that adaptation and mitigation options are fully integrated into the policy-making process, it is important that countries –

- identify climate change induced stress factors in various socio-economic sectors,
- set targets for reduction of GHG emissions in terms that do not compromise overall development,
- initiate programmes for enhancement of sinks such as afforestation,
- protect and conserve natural resources and biodiversity colonies, and
- establish mechanisms for periodic review and assessment of the impacts of adaptation and mitigation options.

### **(d) Institutions of Governance**

The design and management of adaptation and mitigation options depend to no small extent on the manner in which institutions of governance respond to climate change induced stress factors. It is these institutions that define the overall context in which climate related anthropogenic activities operate. More specifically it is these institutions that shape the decision-making process which generate or limit GHG emissions or other climate change agents, and the availability of resources for policy intervention.

Development policy must therefore, take account of the nature of the institutions of governance particularly in sectors that are stress prone or most likely to destabilize natural climate patterns. Institutions concerned with the control and management of land and land-based resources, energy production and utilization, and human settlements, therefore, require redesign. Special attention must, therefore, be directed at the structure and functions of these and similar institutions.

### **(e) Disaster Preparedness**

Extreme events due to variability in climate parameters can be sudden and catastrophic. Floods, sea-level surges, tornadoes, and extremes in absolute temperatures, to mention but a few, can lead to irreversible damage to human settlement patterns and infrastructure. Development policy cannot afford to ignore the possibility of occurrence of such extreme events. Disaster preparedness must, therefore, form part of policy-making and planning. This should entail –

- early warning systems,
- emergency response capability and rapid deployment,
- strategic resource reserves, and
- constant monitoring of trends in the occurrence of these events.

Very often, countries in the developing world spend enormous resources in re-construction programmes arising from events that are cyclic, regular and oftentimes clearly predictable. This laxity must be arrested

#### **D. Concluding Remarks**

This paper argues that adequate management of the consequences of climate change must start with the integration of climate parameters into development policy-making and planning. The process of integration must be based not only on accurate scientific information but also on clear assessment of vulnerability, proper design of adaptation and mitigation options, and responsive governance systems. Countries can only ignore this advise at their peril!