

“Smart Climate Change” for Professional Societies Workshop

Theme: Is a Climate Smart Kenya Possible?

WORKSHOP REPORT

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“Smart Climate Change” for Professional Societies Workshop

BACKGROUND

Climate change is a reality we have to live with. The frequency of climate phenomena like drought and flooding has shortened. As soon as we come out of one climate related disaster do we enter into another. With no prospect of reaching a global agreement on the stabilization of greenhouse gases in sight it is now very apparent that we have to adapt to the evolving climate scenarios.

The mission of the workshop was to facilitate the sharing of experiences and analysis of best practices in climate proofing mechanisms, designing policy measures for the promotion of climate smart living, innovations and adaptation actions for each sector of our economy and life.

Organizers: The workshop was organized by the Institute for Climate Change and Adaptation in collaboration with Maseno University and the Office of the Prime Minister, Environment and Climate Change Unit.

Facilitators: The Institute for Climate Change and Adaptation at the University of Nairobi facilitated the workshop. The Institute, established in 2011, has the mission to build human capacity necessary to address the unique climate change and adaptation needs of vulnerable communities through teaching, action-oriented research, development of innovative technologies and community participation and to provide expert advice for national and regional policy formulation and implementation.

Structure of the Workshop: The workshop consisted of short 20 minutes presentations followed by group and panel discussions. The paper presenters highlighted the major concerns of climate change for professionals. The following questions were addressed at the Workshop:

- How can we inject climate smart solutions into our professional activities?
- How can we create climate smart synergies amongst ourselves?
- How can we create climate smart sustainable business?
- How can we move towards a green economy?

1. OPENING OF THE WORKSHOP

1.1 Introductions, Workshop Objectives, Expectations (Prof. Shem Wandiga, ICCA)

The main aim of the workshop was to help participants internalize climate change issues and green growth.

The objectives of the workshop were three fold:

- Create climate change awareness;
- Outline present climate change challenges and opportunities; and
- Map out existing resources that can be used to implement actions.

Climate manifests itself in different ways e.g. floods, droughts, tropical storms and typhoons. Climate controls our lives and hence must be taken seriously. Our climate is now changing, and this is evident through the extreme weather patterns and events that we are experiencing on the planet, and their associated flood and drought disasters. The impacts of the extreme weather patterns and events depend on the magnitude of the event and the vulnerability and exposure of the affected communities. However, some of the disasters aren't even caused by extreme events, for example; in 2009 a climate non-extreme event in Zimbabwe caused a cholera outbreak that affected 90,000 people and resulted in 4000 deaths. The vulnerability of the community and the exposure to climate risk made the outbreak severe.

Climate change impacts are felt in different sectors (e.g. agriculture, energy, water, public health, tourism and transport) at local, regional and global scales. The cost of disasters is increasing year to year and insurance is not paying for all the cost so the affected community bears the brunt of the costs of recovery and rehabilitation. This retards the economic growth of most countries. The cost of disasters is higher in developed countries than in developing countries because developed countries have expensive life and infrastructure; however, the fatalities are higher in developing countries.

Normally extreme events used to have a 20 year frequency but now climate models show that in East Africa the frequency of hot years is 1-2 year and 1 year for wet years. This will affect socioeconomic development because countries will always be in a recovery mode. Some examples of disasters from which we can draw lessons include; the heat waves in Europe; hurricane Katrina in the USA; localised flash floods in Nairobi as a result of rapid growth, settlements near rivers and blocked drainages; sea level rise in tropical small islands; and droughts in west Africa that are coupled with high populations, variable rainfall and ecosystem degradation.

It is, therefore, important to monitor, evaluate, plan for climate change, manage climate risks and adapt to climate change. This will involve:

- Improving forecasting and early warning systems;
- Reducing GHGs emission;
- Poverty reduction;
- Better education and awareness;
- Sustainable development; and
- Asset relocation.

Short term actions are not solutions for long term risk reduction: for example, the Kenya for Kenyans initiative that collected money from Kenyans to buy relief food for the starving Kenyans in the North was just a solution for the 2010/2011 drought. But with climate change these short term actions will not help, thus we need to think outside the box for long term solutions. The climate disasters aren't country bound but are global. This workshop thus offers us a platform to share experiences and chart a way forward.

1.2 Opening Address (Mr Abdul Mwasserah, for Permanent Secretary Office of the Prime Minister, Dr. Mohammed Isahakia)

The impacts of climate change and variability are evident in Kenya. Extreme climate events affect fund allocation and hence slow down development projects, thus climate change is now a development challenge. Climate change threatens the gains that have been made towards achieving Millennium Development Goals and as such calls for participation of all stakeholders.

There is need to work towards de-carbonizing the economy thus the investments taking place should be "green" in nature. A National Climate Change Response Strategy is in the process of being operationalized - it has eight interrelated components that will provide a conducive environment for investment.

Green opportunities need to be exploited by all professionals. There is need for the private sector to understand the opportunities for adaptation to climate change because adaptation is fundamentally about sound, resilient development in areas such as: disaster risk reduction, watershed management, forest management, health care as well as other social systems. The establishment of a clear policy framework will create a conducive environment for private investors. With clear government policies the business community will be confident to undertake low carbon investments.

Professionals have a great role to play in the green economy thus the government is engaging in sensitizing them on impacts of climate change. I hope that in this workshop all participants will work together and find innovative and effective ways to address climate change issues in a sustainable manner. The workshop would also help enhance our understanding of the risks and opportunities in addressing climate change and give recommendations for professional societies to act for a climate resilient and secure future for Kenya.

2. PRESENTATIONS

2.1 Climate Smart Development: the Role of ICPAC and National Weather Services (Dr. Alfred Opere)

“Climate is blamed for everything yet it gives everything”. Climate is organized, in that in some months it gives too much rain (March-May and October-December) and some too little (January and February), similarly in some years it gives little and others a lot. We have to develop strategies to deal with it. Floods and droughts are recurrent, and human pressure on the climate is aggravating these extremes. Human pressure on the climate includes desertification and GHG emissions.

For climate smart development, all the climate resources in an area should be taken advantage of, for example, when there is too much, store for lean periods (water harvesting). Being climate smart starts with the individual.

Considerations for smart climate development include the following:

- Learn how the climate behaves, master it and take advantage of it;
- Stop sticking to what we know, for example wanting to plant maize in Lodwar just like it's done in Kitale;
- Know and map climate hazards - when they occur, where, and how often;
- Develop multi-hazard strategies;
- Learn the characteristics of climate hazards. For example, drought has a slow onset and floods have a rapid onset;
- Know the status of the communities, poverty levels and vulnerability; and
- Have tomorrow's climate in mind when planning as the future climate may be different, with more floods and droughts.

Tomorrow's climate is affected by:

- Population growth;
- Economic development;
- Land use;
- Energy production and consumption; and
- Science and technology.

Climate cannot be blamed for everything, instead, there is need to learn to cope with the current climate and adapt to tomorrow's climate. We need to adapt to climate extremes as well as maximize the resources (e.g. water harvesting). Meteorological professionals should determine tomorrow's climate for different regions so that it can be integrated in future planning.

To determine the way forward for climate smart development, some questions should be addressed:

- Does climate pose a threat to development?

- What are the current known impacts of climate?
- Have we integrated climate in development?
- Is there evidence of climate change locally?
- What are the potential impacts on climate change?

2.2 Is Kenya's Legislation Climate Smart? (Dr. Robert Kibugi)

There are 3 options that Kenya has in terms of enacting climate smart legislation:

- Dedicated framework legislation - this provides obligations for sectors to perform;
- Dedicated substantive legislation - this creates hardcore standards most of which take long to fulfill, for example emission targets;
- Sector provisions; these are sector-based legislations - the danger in these is that there is no connection among sectors for example the Environment Management Coordination Act does not connect with climate change issues.

The legislation will need to address some key issues such as mitigation, adaptation, finance and technology, and institutional arrangements. The finance aspect will need to consider who will finance mitigation and adaptation. Since most financing is from public funds, how much can we borrow without burdening future generations?

There are distinct Kenyan characteristics that must be considered in legislation, these include: poverty and vulnerability; centralized government system and decision making; the role of business/industries/SMEs; the role of technology (which requires finance and intellectual property policies/legislation for securing innovations), and; climate finance. Kenya also now needs to prepare for devolution. The constitution: does not refer to climate change but sets the tone: e.g. Sustainable Development Article 10 provides that the national value of sustainable development must be binding when making policy decisions, Chapter Five on land and environment management, and the Fourth Schedule on the System of Devolution that clearly demarcates the functions of national and county governments. Since climate change is not included – how will this play out? The climate change issues could be under the national government, but implementation e.g. adaptation, will fall to local/county governments.

Legislative approaches that can be taken up in Kenya include:

- Infrastructure
 - Climate proofing should be done for basic/key infrastructure. Kenya Roads Act needs to be changed to include climate proofing. The Energy Act of 2004 provides for buildings to have renewable technologies but it was not synchronised with the building code. Buildings codes which were last revised in 1967 need to be revised to include green concepts.
- Agriculture
 - Agriculture has the distinction that mitigation and/or adaptation activities could be deleterious so it needs careful planning. High nitrogen fertilizer use has degraded some lands and this requires mitigation. The agricultural act doesn't

- uphold agronomic practices. There are some projects to develop e.g. drought-resistant seed varieties, but these are largely at project level with uncertain national scope. Irrigation has mitigation and adaptation roles – it increases resilience. There is a draft irrigation bill giving guidelines on support of small scale irrigation schemes. Social equity financing is needed and should be encouraged, for example, low tech irrigation (such as gravity) for poor farmers/families, but there is need for a policy to be used to identify those who really need the funds and so that programmes meet the targets. Agricultural extension is very important and there is need for more extension workers. There is a draft bill that aims at collapsing all agricultural research institutions into one, hence have directed and targeted research.
- Business law
 - There are some proposed changes in the draft Companies Bill which will require companies to submit reports with environmental information. This is an opportunity for climate change issues to be integrated in business.
 - Directors of companies should submit environmental report regularly. What effects do foreign investments have on the climate?
 - The Investment Promotions Act is quiet on, for example, climate change implications of foreign investments coming into the country such as the current Vision 2030 projects which are very large and fall under ambit of Strategic Environmental Assessments. They are, however, key because of money and technology influx.
 -
 - Devolution
 - Counties will be important because they will be in charge of most resources and have specific functions in relation to agriculture, forests, infrastructure, etc., so a framework climate change legislation should reflect or be mindful of devolution.
 -
 - Public health with respect to climate-related diseases such as malaria.
 - Disaster risk reduction
 - There are no laws on this in Kenya. There is need for a national framework on how various sectors should mitigate and manage disasters.
 - Transport
 - To reduce emissions.
 - Access to information.
 - The constitution provides for this, so the legislation needs to incorporate it.
 - The Climate Change Authority Bill.
 - This is a framework law that will likely provide a basis for the National Climate Change Response Strategy (NCCRS) and Action Plan but is facing the challenge of accommodating devolution.

In conclusion, we need to ask ourselves whether or not we are on a smart trajectory. The country's reaction to extreme event is indicative, as currently we are not managing disasters well enough. In order to align our legislation with climate smart thinking, we need to have: targeted legal and policy research; collaborative and inter-disciplinary

research, and; link climate change responses to the country's overall sustainable development objectives.

2.3 Climate Smart Engineering (Prof. Madara Ogot)

The key to smart engineering is in:

- Smart, clean energy production
- Reduction of energy use
- Adapting technologies to climate change

Wind energy is one of the energies that is produced in a smart and clean way. Currently in Kenya, there are 6 wind turbines that were installed on Ngong hills in 2009 that produce 5.9MW of energy. By 2014, the government is planning to put up the largest wind farm in sub-Saharan Africa. The farm will be in Turkana and will have 365 turbines, producing 300MW of energy, which will provide 20% of the energy needed in the country. Geothermal power currently produces 225MW, or 15% of Kenya's energy requirements. Current efforts in expansion of geothermal power exploitation will in future provide 800MW, or 53% of the country's energy needs. The country has potential for over 10,000MW from geothermal energy. Kenya has the potential to produce clean, smart energy to cater for all its energy needs.

The government has opened up the energy sector to private investors; this means more investors will be able to go into clean energy production instead of waiting on the government to do all the energy projects.

Energy use reduction starts with individuals. An example of South African low housing units in Cape Town was given. The houses were retrofitted with rooftop solar water heating systems, insulated ceiling and energy saving bulbs. This led to a 56% reduction in electricity costs, and is significant in that most electricity in South Africa is generated by coal-fired plants (not green energy). The use of paraffin lamps also decreased drastically. These modifications thus not only saved on energy used but also reduced respiratory diseases brought about by inhalation of gases from coal and paraffin, and also from breathing damp air because of the insulated ceilings eliminated water condensation that occurs particularly during the winter months.

Governments have a role to play in smart energy, by doing renewable energy projects or creating a conducive environment for investors who want to do the same. We all as individual have a role to play in smart energy. Are we ready to take up the challenge by using energy saving electronics and embracing new technologies?

2.4 Impacts of Climate Change on Natural Resources (Dr. Adan Ali)

Rural areas are the most vulnerable to climate change because the communities there depend on natural resources. The challenges faced in addressing climate change issues include:

- Limited data;
- Finances - most funding comes from donors who do not address national issues;
- Incoherent policy structures;
- High poverty levels;
- Weak institutions ;
- Professionals acting as closed groups instead of being integrated.

There are a number of important climate changes and related issues that need to be addressed particularly with respect to pastoral production systems in the semi-arid to arid regions of Kenya. These include:

- Water scarcity;
- Siltation in ponds;
- Food insecurity;
- Heritage sites that are endangered because climate change may cause loss of indigenous plants which have medicinal and other values;
- Communities that are becoming climate refugees, especially in Northeastern Kenya, where nomadic families have to camp outside chiefs camps to wait for relief food;
- Shanties in unserviced areas – use of plastic instead of grass (dujus) for roofing due to grass shortage;
- Reduction of natural resources, particularly water and biodiversity resources, which the country is heavily reliant upon;
- Human-wildlife conflict, especially on wildlife migration routes, is increasing as a result of reducing resources (water and pasture);
- Increased vulnerability of pastoral production systems to climate;
- Emergence of new infectious livestock diseases;
- Environmental degradation and soil infertility;
- Appropriate shelter; and
- Bioenergy for domestic use.

Some suggestions for smart climate solutions are as follows:

- Climate smart solutions must respond to local systems, and then they can be up scaled. Carry out strong case studies which can be used to upscale solutions to national level. Such case studies can also be used to seek funding from policy makers;
- Formulate policies that aim at minimizing the impacts of climate change and maximizing the opportunities that it presents;
- Solutions must be participatory and relevant;
- Give the beef production/livestock keeping industry strong policy attention;
- Encourage strong climate change science, and benchmark it with solutions that are applicable elsewhere;
- Regulate consumptive and commercial interests;
- Devise ways of protecting the 75% of natural biodiversity resources that lie outside of protected areas;
- Capacity for resilience should be strengthened among communities.

The way forward would include:

- Building partnerships;
- Basing decision-making on sound scientific knowledge;
- Developing benchmarks with other successful actions; and
- Development of decision support tools to monitor and evaluate natural resource management.

2.5 Finance and Carbon Markets (Mr. Obadiah Mungai)

The key milestones in the evolution of climate change negotiations are: adoption of the UNFCCC in 1992 and its ratification in 1994; the adoption of the Kyoto Protocol (KP) in 1997 and its ratification in 2005; the end of the Kyoto first commitment period in 2012. The KP introduced three flexible mechanisms:

- Carbon Trading (Article 17) => ETS for Annex 1 countries;
- Clean Development Mechanism (Article 12); and
- Joint Implementation (Article 6).

During COP 17 that was held in Durban, South Africa in December 2011, Governments adopted a comprehensive package of decisions—including:

- An agreement to initiate a second commitment period for the Kyoto Protocol;
- The “Durban Platform” to negotiate a long-term, all inclusive future mitigation regime that includes a process to address the “ambition gap” for stabilizing average global temperature increases at 2°C over pre-industrial levels;
- Adopting a range of decisions designed to implement the 2010 Cancun Agreements, including launching a new Green Climate Fund and developing stronger requirements for the reporting and review of countries’ mitigation efforts;
- An agreement on rules for activities to reduce emissions from deforestation and degradation (REDD), as well as standards for verifying national performance in mitigating emissions; the rules for “carbon capture & storage” projects under the CDM; a process to further consider the loss and damage faced by the most vulnerable countries; and
- A work programme on unintended consequences of climate change policies.

In 2010 the global carbon market value declined to 142 billion USD due to uncertainties associated to the Kyoto Protocol. The bulk of trade took place within the EU ETS followed by CDM. There are 7 CDM Projects registered and Trading in Kenya (details on NEMA website), with 1,236,469 reductions traded as of March 2012. The CDM activities in Kenya are:

- “35 MW Bagasse Based Cogeneration Project” by Mumias Sugar Company Limited (MSCL);
- Olkaria II Geothermal Expansion Project;
- Olkaria III Phase 2 Geothermal Expansion Project;
- Aberdare Range and Mt. Kenya Small Scale Reforestation Initiative Kirimara-Kithithina Small Scale A/R Project;

- Aberdare Range and Mt. Kenya Small Scale Reforestation Initiative Kamae-Kipipiri Small Scale A/R Project;
- Lake Turkana 310 MW Wind Power Project; and
- Redevelopment of Tana Hydro Power Station Project.

There are currently 17 CDM Projects under Validation, with 698,945 reductions expected as of March 2012.

The “Climate Finance” is a leveraging fund. The so-called “Fast Start Finance allocated \$30 billion for the period 2010 to 2012, but so far only \$6 billion has been disbursed as the process is very rigorous. The goal is to raise the fund to \$100 billion per year by 2020. Funding for adaptation will flow through the Green Climate Fund. Public sector climate funds are scarce and there is need to leverage with the private sector. The African Development Bank under Scaling up Renewable Energy Program (SREP) has been awarded 50M USD for developing the Menengai Geothermal project. In addition to these 60M USD is in the reserve.

To effectively tackle climate change, more than half of the additional global investment and financial flows would be needed in developing countries. The Ministry of Finance is formulating a policy for climate financing and emission trading in order to establish a climate change fund and carbon trading platform (to be completed by June 2012). It has also established a Carbon Finance Desk and has increased communication campaigns on climate change and related risks and opportunities. It is also enforcing regulatory instruments and fiscal incentives for making climate related investment relatively more attractive.

To which extent climate finance can catalyze a transition to a low-carbon economy, will, among others, depend on the existence of national-level institutions that are able to deliver emission reductions as well as adaptation benefits and in effective, efficient, and equitable ways. While international support may help to induce policy changes in developing countries and to enable accurate monitoring and reporting of the results achieved, it is essential that low-carbon development strategies be country driven and nationally specific in order to duly account for the particular needs and priorities of each country.

2.6 Climate Smart Infrastructure (Dr. Simeon Dulo)

Climate change will modify rainfall, temperature, sea level, and extreme events. The climate impact pathways can be: direct, short term or long term. There are added pressures from external factors e.g. demography, migration etc. For example, safe water supply has reduced at the same time that demand for water has gone up in urban areas.

There are a number of potential economic opportunities when developing climate smart infrastructure, for example:

- Seek to develop innovative approaches to adaptation, e.g. developing dual use and smart infrastructure and using the natural environment;
- Develop new technologies, skills and expertise on climate change adaptation for infrastructure to be used domestically and exported;
- Develop innovative approaches to climate risk, climate modelling and financing.

The focus should be on identifying: the potential impact areas and reducing vulnerability; improved information sharing and disclosure of risk evidence, and; evaluating risks of climate change to infrastructure.

Some strategies that can be applied to reduce vulnerability include:

- Protection through structural measures for property/land from sea level rise and floods;
- Access to good quality information, and early warning system that can help to mitigate disaster impacts;
- Reducing vulnerability of resource base to climate change, variability and extreme events (e.g. embankment to protect from floods, cyclone centre, etc).

Green and climate resilient infrastructure are necessary for sustainable adaptation to climate change, and specific measures will be needed. With respect to water supply, irrigation and drainage systems, for example, one can target: technologies and management methods to increase irrigation efficiency and reduce problems of soil degradation; economic incentives to reduce wasteful practices; increase use of drainage systems to avoid flooding and water-logging of soils; and improve drainage allowing for increases in rainfall intensity. New drainage standards for new works and renewals have to be introduced to spur adaptation. Other more generic examples would include:

- Enhancing adaptation expertise and skills;
- Integrate adaptation into infrastructure investment decisions, in particular assets with a 20 year+ lifetime;
- Look at innovative financial approaches to incentivise adaptation in long-life assets;
- Work with infrastructure owners to increase climate resilience to reduce exposure risk;
- What we can do - Adaptation and mitigation?
- Develop infrastructure so that it can perform two or more functions, such as: using reservoirs for flood control as well as water storage, and road/rail embankments as flood defences;
- Make use of near-term climate predictions, e.g. accurate six-month to one-year forecasts could possibly reduce losses due to weather variability. For example, predictions of El Niño events have proven useful in regions where El Niño strongly affects weather.
- Make management adjustments:
 - Virtually all components of the infrastructure system from planning to development to maintenance should be modified to adjust to climate

- Holistic approach to natural and development infrastructure/ resources management and climate change
- Address governance and political economy issues
- Scaling-up support to reach the MDGs
- Enhance coordination of donors
- Improve quality of fiscal spending
- Develop technical capacity to absorb incremental resources
- On technologies, for example in water engineering, energy, and transport, smart decisions from lessons learnt elsewhere are needed.

New infrastructure can be climate resilient by ensuring that an asset is located, designed, built and operated with the current and future climate in mind., while existing infrastructure can be climate resilient by ensuring that maintenance regimes incorporate resilience to the impacts of climate change over an asset's lifetime. One should also ensure that investment decisions take account of changing patterns of consumer demand as a result of climate change, as well as build in flexibility so that infrastructure assets can be modified in the future without incurring excessive cost. The result will be a more resilient and robust infrastructure network able to cope with projected climate impacts e.g. increased flexibility to cope with uncertainty without massive failure and economic cost.

2.7 Question and Answer Sessions

Questions	Response	Comments
Ali Presentation		
Explain further why heritage issues are important?	Heritage is disappearing faster than the livelihoods of pastoral communities due to climate change Natural heritage as an alternative source of livelihood is of greater concern e.g. the quarrying of hills in Madera, which form part of the hydrological cycle. This issue has been raised with NEMA and they are making a follow up on the issue.	Relief food has never been successful since it benefits only the select few with connections and furthermore it is not a sustainable solution.
Mungai Presentation		
There was word of a budgetary allocation (Ksh.2 billion) to fund carbon issues, has this been regularized?	This was not related to climate financing but rather SMEs.	We are awaiting the National Climate Change Policy that will approve a bill to disburse the funds. The innovation fund is available for carbon projects. There is a group of fishermen in Homa bay

		that are using it to fund a switch from kerosene lamps to solar lamps for fishing omena.
What website links could be provided for climate financing programs?	Google profit program under microfinance.	
Is it possible to finance media projects?	Yes. Through the innovation funds that one could submit a financially sound proposal and will receive funds.	
How much is in the innovation fund and since when has this been disbursed?	23.8bn USD. The fund was established last year June and so far a little over 500,000USD.	
What is the MOF doing to lower costs of solar technology, which is very costly in the region?	This is not a question to the Ministry of Finance but for everyone in the room. There is no one solution or response at the moment. One can make an application to the MOF from the innovation fund if there is a technology that has been identified with the intent of mass production and consumption locally since these products will be duty exempt.	EU investment interest in sub-Saharan Africa for solar energy means that soon, we may be able to enjoy some subsidies. A good solar energy policy would attract more investors. Egerton University is coming up with a project for mass solar production to supply Nakuru city. In urban areas with emerging estates, an intervention should be made by the government to approve only buildings that have solar water heating systems.
Is there any financing for adaptation to climate change? Is this the reason why we are lagging in adaptation?	There is very low motivation towards funding adaptation since adaptation is long term.	
Dulo Presentation		
Are there simple, smart solutions to the problems we are experiencing with the expensive infrastructure?	There are smart solutions which can be explored and scaled down to the costs, e.g. Uhuru highway used to flood a lot many years back, but this was addressed by building a storm drain tunnel along the road.	

3. GROUP DISCUSSIONS

3.1 Background to Group Discussions

The Workshop facilitator, Dr. Maggie Opondo, presented to the participants in a Plenary Session the following future scenario of a smart climate Kenya in 2030, with a view to stimulating thinking about the questions (see box below) that were to be considered by the Groups during the discussion.

Following the presentation of the scenario, the Provocateur, Mr. Michael Obora, gave a short consideration of the potential challenges and obstacles that we would face as Kenyans on our way to reaching the desired future state by the year 2030 in order to further spur critical debate of the questions posed for the group discussions. The challenges and obstacles to the climate smart pathway included changing extreme events as well as trends in disaster losses and their impacts on various sectors and communities within Kenya. He weighed in these challenges against some potential, climate resilient risk management options (holistic and sectoral) and their potential benefits such as improved livelihoods, protected biodiversity, and improved human well-being.

The participants then broke out into three groups to consider the following questions:

1. What are the sources of climate smart media reports?
2. Do we have the capacity to make climate smart media reports?

The outcomes of these discussions are presented in sections 3.2 and 3.3 below.

Future Scenario: Smart Climate Kenya in 2023

Good morning Kenya. It is six o'clock. It is a sunny, wet and cloudy day in Nairobi. Northern Kenya will be hot and dry, Western Kenya will be cool and wet while the rest of Kenya will receive intermittent rains in some places and hot in many places. As Jim Onsongo wakes up with the forecast weather in mind he thinks of what he will do. He is in Nairobi and he knows he needs to have an umbrella, dress in light clothes and wear shoes that will not make his feet soak. He has had several messages like this before and he knows he has to weather proof his actions.

Thanks to climate proofing awareness campaigns that have been done in Kenya by various organizations, Jim is not worried about the weather forecast because he has learnt to cope with all types of weather. He is assured that his fellow Kenyans have had the same training and have adapted to changed climate in their coping strategies. For example, those who are practicing agriculture have learned to do precision agriculture which incorporates the weather forecast into ploughing the field, choosing the types of seeds to be planted based on the weather seasonal forecast, For each seed they plant they know the nutrient requirements and plan in advance for their purchase.

Jim Onsongo uses a rapid transport system that is eco friendly. He rarely drives his car into town to avoid traffic jam. He uses recycled water in precise quantities and his green building uses natural cooling system that requires less electricity. The manufacturing factories no longer emit noxious gases that make people sick. In the country side and in towns there are open green spaces with trees and benches for leisure walk and resting. There are playgrounds for all ages.

The climate smart Kenya is starkly different from the era of Jim's parents which had no planned transport system, people were often dying from preventable diseases, water and air were polluted and workplaces had no environmental quality standards. A climate smart Kenya extends lifespan of inhabitants, gives comfort to rural and town dwellers and keeps cost down.

Today, with good crop yields, higher income and life comforts, cooperative community environment, and better health for his family, Jim sees a bright future. It is a beautiful day.

3.2 What are the sources of climate smart media reports?

Sources	G1	G2	G3
• Main sources, the people themselves e.g. farmers			
• Media reports			
• Watching trends			
• Civil Society Organizations, eg Kenya Rio +20			
• Internet searches			
• Observations			
• Published books			
• Journals			
• Links, networks			
• UN agencies and other international organisations			
• Universities			
• Indigenous knowledge			
• Policy makers in various institutions and organisations			
• Non-governmental organisations			
• The Academic Society			
• Relevant Government agencies and experts			
• Natural occurrences			

3.3 Do we have the capacity to make climate smart media reports?

Yes, there is capacity in (1) Training (2) Experience and (3) Interactions, but there are a number of challenges outlined below.

Challenges	G1	G2	G3
• Not enough capacity-they don't understand the information			
• Lack of interest			
• Limited exposure			
• Lack of relevant skills			
• Focus is on big shots			
• Lack of specialization			
• Jargon – i.e. poor communication of information from climate experts to media; media's lack of understanding of scientific concepts; need to use simple language.			
• Identifying journalists interested in reporting cc issues			
• Training on scientific reporting			
• Conducive environment for information delivery is important, e.g. going to the field site versus sitting in a scientists office			
• Scientists are encouraged to be more proactive to disseminate climate related knowledge to the masses and even send articles to the newspaper			
• Lack of access to frequent and adequate information			
• The climate people are unreachable			
• The climate people at times don't give information for fear of being misquoted			
• The editors/producers prioritize political issues			
• Financing- who will pay for the airtime of these stories?			

4. PANEL DISCUSSIONS

4.1 How can we create climate smart synergies amongst ourselves?

The panel discussions highlighted the following issues:

- Information dissemination – the Ministry of Agriculture and the Media should develop synergies to enable relevant climate and food security information to reach a bigger number of farmers, more than the 80% currently addressed;

- Integrate the new and emerging technologies for information dissemination using, for example, mobile phones (short text messages and call alerts);
- Practical exercises that promote proper use of the environment / conservation;
- Synchronised systems of disseminating information on climate change as opposed to competition in the market;
- Networking, sharing, blogging within the media fraternity, which is already being done under the MESH platform (Media for Environment, Science, Health and Agriculture in Kenya);
- Give it a human face so as to appeal to the masses;
- Alternative funding for showing environment / climate change documentaries;
- Reintroducing weather forecasting;
- Education on scientific information together with the error margins when reporting;
- Don't give conflicting information;
- Have the right journalist for the job;
- Cultivate better understanding and trust between the government and the media.

4.2 How can we promote and/or inspire climate smart journalism and media reporting in Kenya?

- Recognition and Awards from private/public institutions and individuals - journalists are not recognized even at meetings, no badges, no allowances, no material given;
- Journalists should lobby editors to allocate more space for climate change-related issues;
- Mistrust between journalists, scientists and policy makers resulting in unavailability of information for journalists in a timely fashion. There is need for a paradigm shift;
- Identification of Journalists interested in reporting climate change;
- Specialized media houses to report climate change;
- Journalists doing prior research;
- Short courses for Journalists;
- Training on scientific reporting for Journalists, understanding evidence-based issues as opposed to sensational stories;
- Lobby for more TV and radio airtime for climate change issues;
- Make the climate change subject interesting and relevant to the various sectors;
- Reporting of scientific matters should be done in a language that can be understood by the masses, i.e. be simple;
- Environment of information delivery is important – e.g. seminary room versus going to the field;
- Journalists should take the lead in asking questions to improve their understanding of the subject under discussion;
- Media houses can generate periodicals, weeklies, and pull-outs.

4.3 Top Challenges/Opportunities, Resources and Required Mechanisms

Challenges/Opportunities Needs To Take (C – Challenge; O - Opportunity)	Kenya	Existing Resources	Required Mechanisms that should be used
Access to information (C/O)		Innovative culture – use of mobile technologies eg MPESA, information dissemination	The scrutiny of the NCC bill by experts/stakeholders - Participatory approach
Legal and institutional framework under new constitution (O)		The internet: information source	Harmonization and implementation of existing laws and regulations
Science media networks (O)		Indigenous knowledge	Sponsorship of initiatives on cc by private sector
Digital/Modern media – Social networks (O)		Individual experts (Human resource)	More capacity building for journalists/Scientists
Collaboration among subjects in academia to develop curricula on climate change issues (O)			Charity begins at home- walk the mile and walk the talk
Misinformation and mistrust between scientists and journalists (C)			Scientists should become communicators: training scientists to communicate
			Champions for climate smart Kenya

5. CLOSING REMARKS – Patrick Chabeda, OPM

The OPM is supporting this workshop because the role of researchers in the country's development needs to be recognized.

It was mentioned that green economy doesn't really mean planting trees but involves a lot other aspects including, what to do for cities, where trees can't be planted. The hope is that the research community will look into these other aspects of going green.

There is need to sensitize people on specific climate change issues for example climate finance and carbon trading.

Holding interdisciplinary workshops such as this one will help people know where climate change opportunities lie. The OPM will continue supporting such forums where cross cutting sectors are brought on board.

Vote of thanks.

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WORKSHOP EVALUATION BY PARTICIPANTS

Sixteen (16) responses were analyzed. An overall satisfaction of 3.2 was attained. **A summary of the analysis is in Table 1.** Additional comments and suggestions for the open headed survey questions have been listed.

The level of satisfaction has been ranked from one to four as follows:

- 4 – Exceeded my expectation
- 3 – Met my expectation
- 2 – Needs improvement
- 1 – Below expectation

Table 1: Summary of analysis

Workshop Evaluation	Mean Score	Level of Satisfaction			
		4 (%)	3 (%)	2 (%)	1(%)
Workshop organization	3.4	41	54.5	4.5	0
Activities and involvement	3.3	27	72.7	0.0	0.0
Presentations	3.2	29.5	61	9.4	0
Presentation style	3.3	31.8	63.6	5	0
Level of presentation	3.2	27.3	68.2	5	0
Quality and relevance of presentation	3.1	28.6	57.1	14	0
Facilitator's knowledge of the subject	3.4	52.4	38.1	10	0
Clarity of message	3.2	22.7	72.7	5	0
Response to questions raised	3.0	14.3	66.7	19.0	0
Service Delivery	3.3	45	44	10.1	0.7
Convenience of the venue	3.1	39.1	34.8	22	4.3
Quality of accommodation	4.0	100	0	0	0
Cleanliness and hygiene	3.3	34.8	65.2	0	0.0
Customer care/customer relation	3.4	36.4	63.6	0.0	0
Time management	2.8	17	43.5	39	0
Meals	3.4	43.5	57	0.0	0

How soon do you think you will be using or applying the knowledge and skill gained in this workshop?

- Immediately

In what areas or issues would you like an improvement to be effected upon?

- Time management by presenters
- More hands-on (participatory) activities on the subject
- Travel reimbursement
- More clarity on finance and carbon market

Would you recommend this workshop to another person or institution(s)/organization(s)? If so, please write below the particulars or the name of the person, institution(s) or organization(s).

- Kenya Health Journalist Alliance

What other subject areas would you be keen to see that they are discussed, whether or not related to the current workshop?

- Green City
- Technology Reporting
- Health Reporting

Do you wish to make any other comment(s)? Please use the space below:

- The workshop was very well organized and a great platform for information sharing on complex multi-faceted issue - climate change. A presentation of research funding on climate change would be useful particularly to the communities
- Publicize ICCA and its mandate. Create linkages with other institutions to deal with climate change
- The Carbon Finance presentation did not meet my expectation
- The workshop was informative and eye opening. There was a better insight on Climate Change
- Follow through on the recommendations

How we can inspire climate smart innovation for a green economy

- Through expounding and articulating the benefits of green economy
- Providing incentives for initiating and implementing green economy strategies
- Legal and policy framework at national level
- Encourage community participation to ensure localized solutions to climate change
- Harmonize all climate change projects and have them centralized for reference

Do we have the capacity to develop climate smart research projects?

- Yes. This has been proven by the many research projects that have been won grants locally regionally and internationally. The required manpower and knowledge is available
- Yes but we need to improve infrastructure and financial capacity

Top challenges/Opportunities

- a) Health
- b) Energy
- c) Deforestation
- d) Lack of knowledge by small communities
- e) Infrastructure
- f) Linking industry and research
- g) Duplication of climate change projects and self-seeking proposals receiving funds on CC mitigation in any way possible without any control or coordination

- h) Resources – the government to centralize funding (doors) of CC projects to ensure build up of knowledge on CC

Top existing resources

- a) Human resources – increasing and aggressive population to implement mega and micro projects
- b) Natural resources – new resources being discovered
- c) Skills required are available
- d) Data is available
- e) Use of small communities
- f) Proper communication and dissemination of smart climate knowledge
- g) Science and innovation
- h) Solving problems in the industry through research/academic approach

Top required mechanisms

- a) Climate networks
- b) Integrated documentation of evidences, weather behaviors, adaptation and mitigation measures.
- c) Awareness creation

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