Climate Change in Uganda

Insights for Long term Adaptation and Building Community Resilience

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TITLE: **Climate Change in Uganda:** Insights for Long Term Adaptation and Building Community Resilience

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Introduction

This briefing paper highlights key challenges and issues for consideration in policy development and planning processes at community, local, national and regional levels towards creating awareness and building resilience to climate change impacts in Uganda. It's an output from a review of various documents and literature on climate change impacts and responses in Uganda and else where. Furthermore, it's informed by Environmental Alert's experiences and lessons generated through facilitating initiatives to support climate change adaptation at community and local levels particularly in the West Nile region (in the districts of Adjumani, Moyo and Yumbe) and Lukwanga Parish in Wakiso district, Central region of Uganda; and also targeted engagement with key policy and decision makers at all levels including local, national, regional and international on issues of climate change. It is targeting key stakeholders at all levels (including local leaders, Government, Development Partners, Civil Society, Policy Makers, Political Leaders, Private Sector, Academia, Research Institutions, Cultural and Faith Based Leaders and Communities among others; to mainstream, prioritize and support climate change adaptation actions at all levels of planning and development.

Climate is the prevailing or average weather conditions of a place as determined by the temperature and metrological change over a period of time. Various factors determine climate and the most important are rainfall and temperature (NAPA, 2007).

Climate change refers to any change in climate over time, whether due to natural causes or as a result of human activity (IPCC, 2001a).

Global Warming is the gradual increase in the average temperature on the earth and affects all sectors of development. It is the documented historical warming of the earth's surface based upon the worldwide temperature records which have been maintained by humans since 1880s. In real terms, it is the historical and/or recent climate change on the global scale (Ugandan NAPA, 2007).

1.0 Background

1.1 A brief about Environmental Alert's Program

Environmental Alert's new program, titled, 'Harnessing the Environment for Inclusive and Sustained Development, 2009 – 2011,' was developed out of realization that climate change would undo all the achievements registered by EA over the last 20 years in respect to advancing practice and policy change for improved livelihoods and suatainable natural resources management in Uganda. The program has 3 program areas and 1 institutional component including Addressing natural resource degradation and action on Climate Change; Enhancing Food and malnutrition security; Promotion of environmentally sound community ENR based enterprises; and Effectiveness, Efficiency and Institutional development, respectively.

Some facts about climate change:

- *Average global temperatures are rising, making the 20th century the warmest, the world has ever seen in 1,000 years, since the 1980s were the warmest decades on record;*
- *Climate change and the threat of related extreme conditions like flood and droughts have major implications for development particularly in poor countries like Uganda;*
- *Already, countries like Uganda have borne the effects of climate with clear changes in precipitation (rainfall), water availability, length of seasons, incidents of extreme weather patterns, floods, desertification, distribution and prevalence of pests and diseases;*
- *Areas like Kabaale that used to have cold weather are now warming up which has increased incidents of malaria than previously reported;*
- *At global level, about 40% of all the carbon emitted by human activity has come from cutting forests. Stopping deforestation is, in principle, cheap and simple;*
- *Livestock and livestock-related activities such as deforestation and increasingly fuel-intensive farming practices are responsible for over 18% of human-made greenhouse gas emissions.*

Figure 1.

Conversion of wetlands along River Nile banks into Maize gardens in Adjumani and Moyo, West Nile, Uganda; an unsustainable climate change coping mechanism

Photo by Environmental Alert

It is being implemented in geographical areas which were identified as hotspots for high rate of natural resources degradation, high poverty levels and food insecurity for livelihoods for purposes of leveraging but may occasionally be an entry point to area-wide ecosystem based interventions. i.e. West Nile Region in the districts of Adjumani, Moyo and Yumbe, Eastern Region in the districts of Tororo and Sironko; Central region in the district of Wakiso and Kampala; Western region in the district of Kyenjojo, Mubende and Kamwenge. Specific to natural resources management in the new program, EA has evolved an ecosystems approach to planning and development which is holistic and involves area wide ecosystem based interventions.

The overall goal of EA program is to, 'enhance capacities of rural poor communities to attain sustainable livelihoods and adapt to climate change through natural resources enterprise.' In the implementation of her program EA ensures that other key stakeholders are actively involved and opportunities for collaboration and partnerships are sought to build synergies, minimize duplication and ensure sustainability of facilitated initiatives.

1.2 Salient aspects on climate change discourse at international, regional, sub regional, national and local level

The following sections present some of the key processes and actions that have been undertaken and or still on going towards combating the climate change challenge and impacts at international, regional, sub regional, national and local levels.

International

The United Nations Charter provides for number of multi-lateral agreements but also guides and influences international actions on development and environment protection. It is the foundation for various multi-lateral agreements which Uganda is a signatory to such as: the United Nations Framework Convention on Climate Change (UNFCCC), Convention to Combat Desertification (CCD), Kyoto Protocol and the MDGs.

UNFCCC provides an international framework for mitigating causes of climate change and its effects at both international

Climate change discourse and key milestones at international level

- *1979 - First World Climate Conference held in Geneva, Switzerland*
- *1985 - United Nations Environmental Program/ World Metrological Organization held the conference on green house emissions especially carbon dioxide*
- *1988 - Intergovernmental Panel on Climate Change established by United Nations Environmental Program/ World Metrological Organization (www.ipcc.ch)*
- *1994 - United Nations Framework Convention on Climate Change came into force*
- *1997 - Kyoto Protocol drawn up and came into force in 2005. The United States of America, one of the leading polluters refused to sign it*
- *2006 - Asia-Pacific Partnership for Clean Development which comprises of USA, Australia, China, India, South.Korea and Japan*
- *2006 - Stern report highlighting the economic rationale and implication for Climate change published*
- *2007 - Thirteeth conference of parties in Bali, which drew a roadmap towards Copenhagen*

and national level. Indeed it commits countries to integrate climate change issues into their national planning process, sub regional or regional programs. Its objective is to stabilize concentrations of GHGs in the atmosphere at a manageable level; permitting development to proceed in a sustainable manner and natural ecosystems to recover from shocks of climate change. Each year the 192 countries that are party to the UN Framework Convention on Climate Change hold a "Conference of Parties" (COP) - this is the highest organ in climate negotiations and it is here all decisions of importance to the United Nations Framework Convention on Climate Change (UNFCCC) are made. All countries that have signed the UNFCCC are represented. The agenda and background material for the conferences is formulated and set out by the UN Climate Change Secretariat in Bonn, while the host country has the responsibility to make premises available. A total of 15 COPs have been held, the latest in Copenhagen, Denmark, in December 2009.

Unfortunately, the COP 15 did not achieve a binding agreement for long-term action. A 13-paragraph 'political accord' i.e. Copenhagen Accord was negotiated by approximately 25 parties including US and China, but it was only 'noted' by the COP as it is considered an external document, not negotiated within the UNFCCC process. The accord was notable in that it referred to a collective commitment by developed countries for new and additional resources, including forestry and investments through international institutions that will approach USD 30 billion for the period 2010 - 2012.

Longer-term options on climate financing mentioned in the accord are being discussed within the UN Secretary General's High Level Advisory Group on Climate Financing, which is due to report in November 2010. The negotiations on extending the Kyoto Protocol had unresolved issues as did the negotiations on a framework for long-term cooperative action. The working groups on these tracks to the negotiations are now due to report to COP 16 and Meeting of Parties of Kyoto Protocol (MOP) 6 in Mexico (Wikipedia, 2010).

A total of 138 parties expressed their intention to the UNFCCC Secretariat to be list as being in agreement with the Copenhagen Accord. On 22nd April 2010, Uganda formally submitted letter to the United Nations indicating association with the Copenhagen Accord (UNFCCC, 2010).

Some key criticisms over the Copenhagen accord include:

- *The accord is not legally binding;*
- *No decision was taken on whether to agree a legally binding successor or complement to the Kyoto Protocol;*
- *The accord sets no real targets to achieve in emissions reductions;*
- *The accord was drafted by only five countries;*
- *The mobilization of 100 billion dollars per year to developing countries will not be fully in place until 2020;*
- *There is no guarantee or information on where the climate funds will come from;*
- *There is no agreement on how much individual countries would contribute to or benefit from any funds;*
- *COP delegates only "took note" of the Accord rather than adopting it;*
- *The accord does not present an international approach to technology;*
- *Forgets fundamental sectoral mitigation, as transportation;*
- *It shows biases in silent ways such as the promotion of incentives on low gas-emitting countries;*
- *It commits developing countries to new obligations regarding mitigation actions, without adequate finance and technology. It imposes more stringent emission reduction burdens on developing than developed countries;*
- *The Accord undermines the UN process, the agreed principles of the UNFCCC and Kyoto Protocol, especially equity and common but differentiated responsibility, and threatens a deal under the UN that will truly safeguard Africa's future.*

Source: Wikipedia, (2010) and PACJA, (2010)

The Clean Development Mechanism

The Clean Development Mechanism (CDM) makes it possible for companies or countries that have to reduce emissions under the Kyoto Protocol to invest in emission reduction projects in developing countries. Such projects must contribute to sustainable development. The CDM leads to significant long-term investment; it creates jobs and income, triggers transfer of technology and helps developing countries to adopt climate-sensitive low carbon development paths. CDM projects cover many sectors, including sustainable energy production and use, waste treatment, reforestation and biofuels. Access of such funds is very competitive and involves development of project proposals and the most appropriate proposal based on specific criteria is chosen. Uganda has already benefited from the CDM projects for instance the Nyagak mini-hydro project implemented in Nebbi district; and solid waste composting project in the first phase implemented nine municipalities and town councils of Jinja, Mbale, Soroti, Lira, Fort Portal, Kasese, Kabale, Mbarara and Mukono to set up composting plants for the solid waste generated in these towns (Musoke, 2008).

CDM of the Kyoto protocol compensates countries which take actions tending to reduce carbon emissions. Where as this is an opportunity, there is no established institutional and legal framework to attract investments in CDM (PEAP, 2004/2005) in Uganda. However, the geographic distribution of CDM projects remains uneven. The bulk of the projects are currently located in Asia and Central/South America. The reasons for this are multifaceted, and include the complexity and high transaction cost of registration, but also weak institutional capacity and a poor investment climate. Both capacity building and technical support are needed to increase the participation of least developed countries (LDCs) and small island states (SIDS) in the CDM.

Reducing Emissions from Deforestation and forest Degradation plus (REDD+)

According to FAO (2000), a forest refers to land with tree crown cover (or equivalent stocking level) of more than 10 percent and area of more than 0.5 ha. In this case, the trees should be able to reach a minimum height of 5 m at maturity in situ. Deforestation is a non-temporary change of land use from forest to other land use or depletion of forest crown cover to less than 10 percent. Clear cuts (even with stump removal) if shortly followed by reforestation for forestry purposes are not considered deforestation (FAO, 2000).

Whereas, forest degradation is the impoverishment of standing woody material mainly caused by human activities such as over-grazing, over-exploitation (for firewood in particular), repeated fires, or due attacks by insects, diseases, plant parasites or other natural causes such as cyclones, both processes of deforestation and forest degradation are associated with release of greenhouse gases into the atmosphere. Figure 3 shows the relative fraction of man-made greenhouse gases coming from each of eight categories of sources, as estimated by the Emission Database for Global Atmospheric Research version 3.2, fast track 2000 project. These values provide a snapshot of global annual greenhouse gas emissions in the year 2000. The top panel shows the sum over all man-made greenhouse gases, weighted by their global warming potential over the next 100 years. This consists of 72% carbon dioxide, 18% methane, 8% nitrous oxide and 1% other gases. Lower panels show the comparable information for each of these three primary greenhouse gases, with the same coloring of sectors as used in the top chart. Segments with less than 1% fraction are not labeled.

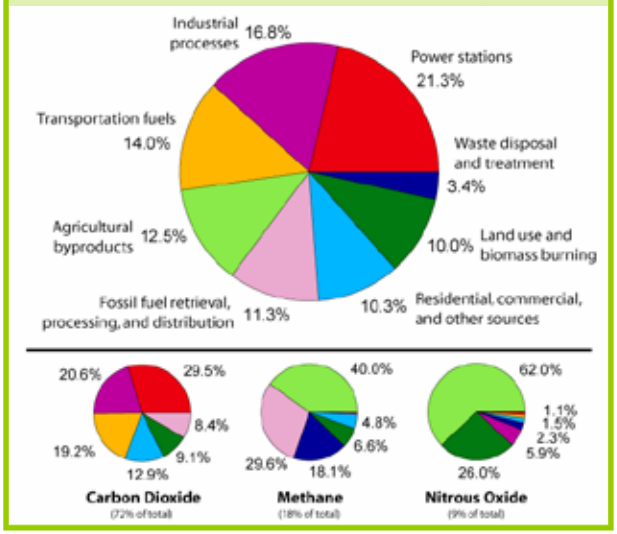
Figure 2:

Land degradation in Adjumani district, West Nile, Uganda

Photo by Environmental Alert

Figure 3:

Annual global greenhouse gas emissions by sector



By Wikipedia, 2010

About 20% of global CO2 emissions are caused by deforestation. In LDCs, 62% of total emissions originate in land-use change and primarily deforestation. For Uganda's case, some of the causes of deforestation include conversion for agriculture, settlement and urbanization. In addition majority of Ugandans depend on fuel wood as a source of energy at household levels, hence forest trees are cut for production of charcoal. This trend is likely to increase unless other livelihood opportunities are provided as alternatives.

Notably, regions with the highest deforestation rates in the world are Africa, Latin America and South-East Asia/Pacific. Deforestation has multiple economic, socio-political, demographic and environmental causes: logging, agricultural expansion, infrastructure development, use of biomass as main energy resource, but also policy and institutional failures, and cultural factors. The importance of engaging in meaningful action to combat deforestation is recognized in the UNFCCC and Parties are discussing policies and approaches to reduce emissions from deforestation in a post-2012 international agreement on climate change. The discussions are directed towards voluntary commitments by developing countries, which would take action to reduce their current deforestation levels and be rewarded on the basis of avoided emissions. Parties are expected to agree during the scheduled COPs to initiate pilot activities that will help countries to prepare for the future scheme to reduce emissions from deforestation and forest degradation. REDD+ is understood to include the policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (Bali Action Plan, 2007).

Sub regional Initiatives

At the sub regional level there exists initiatives from both governments and civil society's side with a broader interest of influencing the global negotiations and decisions made on climate change during the COP meetings. Some of the initiatives include the following:

- **The African Ministers Conference on Environment (AMCEN)** – This is an initiative by African Ministers of Environment. Various AMCEN conferences have been held towards building a common position and voice as Africa, which is taken in the global discussion and negotiations on climate change;

- **The Pan African Climate Justice Alliance (PACJA)** – this is a network of African CSOs advocating for climate justice and particularly influence the African position on climate change and subsequent climate change negotiations;

- **The East African Community Climate Change Policy** - was developed as a result of a directive by the Heads of State of the East African Community (EAC) Partner States, at their 11th Summit Meeting, which was held in Arusha, Tanzania on 20th November 2009 to address the adverse impacts of Climate Change in the region. It is responding to the growing concern about the increasing threats of the negative Climate Change impacts to the development of set targets and goals in the region. Furthermore, it's a fulfillment of one of the objectives of the Community; to develop policies and programs aimed at widening and deepening cooperation among Partner States. The overall objective of the East African Community Climate Change Policy is; 'to guide Partner States and other stakeholders on the preparation and implementation of collective measures to address Climate Change in the region while assuring sustainable social and economic development. (EAC, 2010).

- **African Forestry Forum Initiative** – this is CSO initiative comprising of researchers, academia, private sector and NGOs in forestry with a focus on climate change and forests.

- **The Forest Dialogues (TFD)** - The Forest dialogue (TFD) was formed in 1999 as an out growth of dialogues which were initiated under the auscipieces of the World Bank, World Business Council for Sustainable Development and World Resources Institute. These dialogues converged to create TDF when leaders decided to build an on-going, civil society driven, multi-stakeholder dialogue platform and process to address important global forestry issues. Overtime, TDF has organized various dialogues on forest and climate; investing in locally controlled forests; intensively managed planted forests; Forests and poverty reduction; Forests and biodiversity conservation; and Illegal logging and forests governance.

National

Uganda being signatory to the UNFCCC is obliged to develop and implement strategies at local and national levels to contribute to the overall goal of the combating climate change. In this respect, the following initiatives have been undertaken by the Government and other stakeholders at the national level.

(i) Development of the Uganda National Adaptation Program of Action (NAPA)

The development of NAPA by Least Developed Countries (LDC) and small island developing countries was initiated at the seventh Conference of Parties held in Marrakech, Morocco following a general concern and recognition that LDC and small island developing countries are the most vulnerable to adverse effects of climate change. It provides a framework for programs/projects with actions to address and adapt to the impacts of climate change in Uganda. NAPAs are quick channels of communicating urgent and immediate adaptation needs to COP 7 of the UNFCCC. COP 7 adopted a decision to establish an LDC fund to support the preparation and implementation of NAPAs. In Uganda, the preparation of NAPA was completed and it estimated to cost 39.8 billion US dollars (Figure 4). A strategy for its implementation was developed under the leadership of the Metrology department, but not yet implemented because of lack of funds.

(ii) Establishment of the Climate Change Unit in the Ministry of Water and Environment.

The unit has a key role of coordinating climate change activities among the different sectors in the country.

(iii) The REDD readiness process in Uganda

The development of the REDD+ readiness plan for Uganda is led and coordinated by the Ministry of Water and Environment through the National Forestry Authority (NFA). Currently, through initial interventions facilitated by Environment Alert among other stakeholders, a National REDD working group has been established to provide strategic guidance on REDD processes in the Country; REDD Secretariat established at National Forestry Authority for effective coordination of the REDD processes; and a new timeline to develop a REDD readiness Plan for Uganda has been develop and ounce completed will be submitted to

Figure 4: ***Uganda's NAPA budget***

Community tree planting	*$5.5 bn*
Land degradation management	*$4.7 bn*
Strengthening meteorological services	*$6.5 bn*
Community water and sanitation	*$4.7 bn*
Water for production	*$5.0 bn*
Drought adaptation	*$3.0 bn*
Vectors, pests and disease control	*$8.0 bn*
Indigenous knowledge and NR management	*$1.3 bn*
Climate change and development planning	*$1.2 bn*
Total	***$39.8 bn***

Source: Uganda NAPA, 2007

Key Definitions

REDD *– refers to reducing emissions from deforestation and forest degradation. REED+ includes other actions which reduce emissions from other land uses beyond forestry e.g. agriculture*

REDD + Principles

(i) REDD+ finance should be sufficiently robust to deal with in-country and international leakage, use credible baselines, must achieve verifiable additionality, and result in value for money

(ii) REDD+ should result in real reduction of carbon dioxide, enhance forest ecosystem functions and the supply of critical ecosystem services, protect and respect the rights of indigenous Peoples and local communities, and ensure equitable benefit sharing

(iii) In addition to reducing emissions from deforestation and forest degradation REDD+ finance mechanisms should also create incentives for additional actions in forest conservation, sustainable forest management, and the enhancement of carbon sinks

Figure 5:

A well conserved section of Zoka Central forest reserve in Adjumani district, West Nile, Uganda

the Forest Carbon Partnership Facility of the World bank for funding and actual implementation.

Critical questions which Uganda should address in the ongoing process for development of the REDD+ readiness plan for Uganda include the following:

a. Should REDD+ be implemented as a parallel program or should it be integrated in existing development initiatives as appropriate?

b. How can REDD+ initiatives/activities be integrated in existing policies and programs at National and Local levels?

c. How can local stakeholders (forest dependent communities, local governments) where the implementation of REDD+ projects is expected to happen be actively involved in planning and implementation to ensure that their rights and concerns are addressed?

d. What is the place/role of the other ecosystems and land uses (e.g. wetlands, grasslands, agriculture) regarding REDD+? There is a notion/thinking that REDD+ is about forests alone.

e. How can inter-sectoral planning and implementation be advanced to address the

Figure 6.

Key challenges faced by the REDD+ Readiness process in Uganda

- *Limited awareness and access to information on REDD+ at various levels*
- *Integration of REDD+ initiatives in the wider development strategies at various levels*
- *Clarifying tree and carbon rights and related implications for land tenure*
- *Limited capacity related to implementation of REDD+ projects/initiatives*
- *Limited funding/investments in REDD+ and how it can be made sufficient, sustained, locally owned and viable to the investors.*
- *Who determines the price of carbon? Will the determined market price offset the costs related to REDD+ activities*
- *Clarification of benefit sharing and distribution mechanisms at various levels*
- *Lack of supportive legal and policy frameworks to guide implementation of REDD + initiatives*
- *Understanding land use and livelihood relationships, economics/opportunity costs.*

real drivers of deforestation, especially those outside the forestry sector e.g. Energy, Agriculture and Infrastructure expansion?

f. What land tenure, security and access rights regime will ensure sustainability of REDD+ initiatives?

g. Is REDD+ targeting only Forest reserves, national game reserves or even private plantation forests, Natural forest on private land or both?

h. Should carbon credits from REDD+ be considered as additional incentives and benefits along side other ecosystem services and products as a result of sustainable natural resources management or should they be considered as sole payments for sustainable natural resources management?

i. How can effective coordination for active and productive involvement of key stakeholders in the development of the REDD+ readiness plan, strategy and associated implementation be advanced?

j. Forestry (and or natural resources) governance – How can political decision making reinforce policy making and implementation and vice versa? Hence, are the decisions made on policy provisions or not? What about the weak enforcement of forestry and other relevant policies and legislation; What about transparency and financial accountability in the implementation of programs and projects?

Figure 7:

A well managed and conserved landscape in Kabale district

(iv) Development of the National development Plan (NDP) for Uganda

The development and implementation of the NDP 2010/11-2014/15 is coordinated by the National Planning Authority. The NDP envisions, 'a transformed Ugandan Society from a peasant to a modern and prosperous country within 30 years.' The theme of the plan is, 'Growth, Employment and Social Economic transformation and Prosperity.' The plan appreciates and recognizes the challenges climate change brings in terms of ensuring sustainable livelihoods, growth and development. In this respect there is an objective on promoting sustainable population and use of the environment and natural resources. Furthermore, the plan considers climate change as an enabling sector and commits key strategies for management of climate change in Uganda including the following: Addressing legal and institutional frameworks necessary for the implementation of the UNFCCC; Re-defining climate change as a development issue; and providing and promoting incentives for clean development (NDP 2010/11-2014/15). This is good step towards addressing climate change impacts in Uganda. In addition, it's important for productive

stakeholder's involvement in the implementation of the plan and ensuring adequate financial resources allocation to the sector for effective implementation of the committed strategies.

(v) Climate Action Network Uganda (CAN-U)

CAN-U is a loose coalition of non-governmental organizations advocating for Climate adaptation justice in Uganda. Its secretariat is hosted by Oxfam Great Britain in Kampala, Uganda. CAN-U mobilizes non-governmental organizations for a common position on climate change issues to influence global negotiations and decisions on climate change during the COP meetings.

(vi) Multi-stakeholder Programme Implementation

Most of these program/projects have a common goal for contributing to poverty reduction, food security and environmental conservation and sustainability. Some of the projects from the government side include National Agricultural Advisory Services, Farm Income Enhancement and Forest Conservation Project and Northern Uganda Social Action Fund among others. The key gap in implementation of these projects is that they are not proactively integrating and supporting climate change adaptation practices, hence they are still doing business as usual even in the current context where climate has changed. This is partly because at the time of their conception, climate change information and variability was not considered to inform the underlying strategies. Despite this, the implementation of these projects provides opportunity for mainstreaming community climate change adaptation actions.

Environmental Alert is contributing to bridge this gap through piloting and supporting climate change adaptation actions to build community resilience to climate change impacts in Lukwanga parish, Wakiso district in Central Uganda and along the river Nile basin in West Nile region, particularly in the districts of Adjumani, Moyo and Yumbe. The initiative involves capacity building and awareness for climate change adaptation among key stakeholders including natural resources dependent communities, Civil Society, schools leadership, local government technical and political leaders in the region. Particular focus is placed on targeted documentation of climate change impacts and associated area wide dissemination through proactive engagement with the media.

Hi Joshua
Thanks for the briefing notes on Environmental Alert facilitated climate change adaptation initiatives; you have sent us, it can throw more light and fact to the effort of Moyo District Farmers Associations (MDFA) to sensitize her member farmers on climatic change. I am glad to inform you that the association has so far used the opportunity of farmers open day in the seven sub counties of Moyo District to sensitize the farmers on impact and coping mechanism for climatic change. The theme of the farmers open day was 'climatic change and its impact on Agriculture'. It was successfully done and attended by over 2,000 farmers; we invited the head of department for natural resource from local government to lead the discussion with the farmers assisted by EA Moyo.

In the process, climate change adaptation practices and technologies are demonstrated, supported and promoted through integrated enterprises approaches to provide alternative livelihood opportunities for vulnerable natural resources dependent communities.

Besides the local level interaction on climate change, EA proactively engages key policy and decision makers at local and national level on particular aspects of climate change such as mainstreaming climate change adaptation in planning and development; and advancement of the REDD+ readiness process for Uganda. This is achieved through targeted dialogues which provide opportunities for sharing experiences on the subject from the field.

(vii) *Scoping studies and consultative processes on climate change impacts in Uganda by various development partners to inform their strategic plans e.g. United Kingdom Department for International Development, United Nations Development Program, European Union, Food and Agriculture Organization, Katoomba Group, DENIVA. The respective study reports have been published. They have a wealth of information on the state of climate change impacts in Uganda and present various recommendations to address the challenge.*

A National stakeholders workshop towards advancing REDD+ readiness in Uganda, organized by Environmental Alert and other stakeholders earmarked key actions that resulted in formation of a National REDD working group charged with providing strategic guidance in the development of the RRP for Uganda. Furthermore, a web based yahoo group (i.e. ugandareddwg@yahoogroups.com) was formed to facilitate sharing and exchange of information on the process among key stakeholders at all levels. Thus the processes for development of the RRP for Uganda is on to come up with a final document for submission to the World Bank for funding and subsequent implementation under the Forest Carbon Partnership Fund.

2.0 General implications of climate change on livelihood and economic development

The impacts of climate change have grave implications on livelihood and economic development such as destruction of property (crop fields, animals, houses and roads among others) making the affected communities even more vulnerable. These communities have limited capacity to adapt to the impacts of climate change. There is inadequate access to information (in relation to weather and climate, environmental rights, policies and laws) by the communities, thereby limiting their preparedness for adaptation and coping mechanisms to climate change. Additionally, there is limited knowledge and varied understanding of climate change issues and their implications to livelihood and economic development among different stakeholders at various levels. Also worthwhile to note is the inadequate information flow and networking among stakeholders on issues of climate change at local, national, regional and international levels.

Furthermore, there are inadequacies in supportive policies and institutional frameworks at all levels (local, national, regional and global) to address the impacts of climate change. Indeed climate change threatens to undo many decades of development efforts thereby frustrating poverty eradication programs and undermining the achievement of the Millennium Development Goals (MDG 1 & 7 i.e. for eradication of extreme poverty and hunger; and integrating the principles of sustainable development into country policies and programs and reverse loss of environmental resources) in Uganda. More details of key issues and challenges on climate change in Uganda are diagnosed in Section 3.0.

Figure 8.

Teso Floods in 2007

Photo by Pilgrim

Some common climate change impacts in Uganda:

- *In each decade since 1950, average maximum and minimum temperatures have increased;*
- *Extreme torrential rainfall and associated floods resulting in loss of life and property;*
- *Variability in type, amount and frequency of rainfall which affects agricultural productivity;*
- *Regular severe droughts, with associated famine;*
- *Receding and falling water levels in lakes and rivers particularly, Lake Victoria and River Nile;*
- *Increasing incidences of malaria in places such as Kabale where it wasn't prevalent before;*
- *Receding ice caps on mountain Rwenzori.*

Source: Uganda NAPA, 2007

3.0 Addressing climate change in Uganda; Key issues for policy and practice change

This section presents salient issues for consideration by key stakeholders to advance responsiveness and adaptation to climate change impacts at household, community, local, national and international levels in Uganda. Each issue is diagnosed to clarify the root causes and associated implications to livelihoods and economic development.

3.1 Climate change variability and uncertainty

Climate change is mainly caused by the production of green house gases from human activities including agricultural production, industrialization, burning of fossil and bio fuels, and deforestation among others (Stern, 2006). These gases react with the thin layer (Ozone) which protects the earth from direct heat from the sun. When this layer is depleted, sun rays hit directly on the earth resulting in temperature raises which influence climate on the earth and these changes manifest as global warming, prolonged droughts, and unreliable rainfall. The developed countries particularly United States of America and European Union member states among others are the largest producers of these emissions and hence the largest contributors to climate change (Praveen, 2005). However, developing countries such as China and India with rapid economic growth are beginning to have an increasing contribution to climate change.

Greenhouse gases are gaseous elements of the atmosphere that absorb and emit radiation. They exist naturally in the Earth's atmosphere and are part of what keeps the Earth warm and habitable. The Earth is balanced like a greenhouse whereby the atmosphere allows heat from the sun in, but only lets a certain amount out. Thus, the Earth can support life just like a greenhouse does. Examples of greenhouse gases include carbon dioxide, methane, and nitrous oxide. A portion of greenhouse gases occur naturally; the rest are human-made. Because of human-caused greenhouse gases, the Earth is heating up, leading to such drastic effects like global warming and climate change (ecomii, 2009).

Figure 9:

An illustrative explanation of the climate change phenomenon during a community awareness interaction in Zoka, Adjumani district, West Nile, Uganda

Uncertainty in climate change predictions arise from lack of knowledge and human actions especially errors in measurement (Kabat, 2009). Climate change variability and uncertainity has implications on livelihood and economic development in Uganda. Considering Uganda's economy which is agro based with agriculture alone contributing 34% of national Gross Domestic Products (GDP) and employing close to 80% of the population (UBOS, 2006). The increase in Uganda's population raises demand for food and fiber thereby increasing pressure on natural ecosystems.

Climate change manifesting as prolonged droughts, unreliable rainfall patterns and floods exerts more pressure on natural resources and has implications to the Ugandan economy, which largely depends on rain-fed agriculture which is more vulnerable to climatic variability. Declining crop yields, especially in Africa, could leave hundreds of millions without the ability to produce or purchase sufficient food. In

Figure 10.

Thunder storm destroys house and property in Nabukalu village, Wakiso district, Central Uganda

Figure 11:

Flood homestead in Moyo district, Uganda

'The climate has changed dramatically and it is unreliable i.e. we are no longer sure whether it will rain tomorrow or not. This has great implication for livelihood and economic development for the Country whose economy is agriculture and natural resource based and also to a greater extent depending on rain fed agriculture.'

Uganda especially in Eastern and Northern parts of Teso and Lango, floods cut off the road network making communication difficult; submerged crop fields and destroyed crops and this will result in long term famine and increase in cost of food. This meant that over 1000 families were affected with famine and not able to meet their daily food requirements and subsequently addressing this requires adequate and timely provision of relief food rations to save their lives.

Falling farm incomes increase poverty and reduce the ability of households to invest in a better future, forcing them to use up meager savings just for survival. Furthermore, droughts lower the productive capacity of the country; reducing its agricultural exports, increasing food prices leading to food shortages, nutritional deficiencies and an unstable macro economy.

Secondly, livestock production is equally important to economic growth and development in Uganda. It contributes 7.5% of the GDP which is 17% of the

agricultural GDP (UBOS, 2006). It highly depends on rain water for the growth of pastures and water for animals to feed and drink, respectively. Livestock production is largely concentrated along 'the cattle corridor' which runs from southwest to northeast across Uganda, encompassing 29 districts. This is one of the most degraded areas in Uganda with a lot of soil erosion, poor soil fertility and water scarcity due prolonged droughts (NEMA, 2001). The climate change will worsen the current conditions resulting in loss of pastures and drying of water reserves. These increased trends of degradation in the area will greatly reduce livestock productivity and subsequently its contribution to the economy. Additionally, it will trigger conflicts among the herders/pastoralists but also the neighboring (Land, Land use and Soils Program, 2006). Over all, given that the national budget projections are heavily reliant on export revenue from agricultural produce, this poses a challenge of where such revenues will be generated from when climate change unfolds its implications on the agricultural sector as discussed above.

Figure 12:

Hailstone and strong wind destroy maize plantation in Nabukalu village, Wakiso district, Central Uganda

3.2 Limited awareness/knowledge and information about climate change and associated impacts

Various stakeholders (such as natural resource users, political leaders at all levels and technical leaders at all levels among others) are at different levels in terms of understanding climate change issues e.g. climate change impacts, appropriate response actions to adapt to the impacts among other aspects. Yet at what ever level, they make decisions and undertake actions which may aggravate, address, prevent or maintain the impacts of climate change. It's therefore important to advance awareness on climate change through innovative means targeting all categories of stakeholders so that they can make decisions and take actions from an informed point of view for adaption to climate change impacts. For instance due lack of access to weather information, farming communities in West Nile still plan their farming systems and management in the context of two rainy seasons per year yet they are currently receiving one long rainy season throughout the year.

3.3 Weak climate change adaptation capacity at all levels

Climate change adaptation capacity at all levels among various stakeholders is very weak. This is partly due to limited options for livelihood; lack of support to climate change adaptation actions (community, local and national levels) in policies and program implementation; limited knowledge on climate change adaptation options; and poor planning in the usual way without consideration of the current climate change variability and impacts.

The impacts climate change brings are so big, at extremes result in loss of property, lives and livelihood. Communities are very vulnerable to these impacts and hence are most affected. In order to survive,

communities have resorted to various coping mechanisms, some of which are detrimental to their livelihoods and long term survival e.g. stealing, prostitution, selling/ marrying off daughters at an early age. Subsequently, at a household level, there is increased alcoholism, domestic violence resulting in breakdown of families. In Adjumani district, husbands are reported to abandon their homes when they are overwhelmed with impacts that come with climate change. At the community level, there is hardly any economic activity that would go on when climate change impacts bite. For instance, when the roads have flooded and bridges swept away, communication and movements within such areas are totally cut off. Hence the impacts affect economic development directly and instantly.

Despite this, there is hardly any proactive response towards supporting community climate change adaptation. Responses only come by, when disasters hit and this is at the extreme level, for instance the Teso floods, land slides in Bududa, Sironko and Mbale districts and many others are likely or have been reported to come. At National level, National programs for climate change adaptation were developed in 2006 and approved in 2007 but not yet implemented.

Climate change adaptation refers to adjustments in practices, processes, or structures to take into account changing climate conditions, to moderate potential damages, or to benefit from opportunities associated with climate change. It includes measures to reduce the sensitivity of a system, such as making agriculture less drought-sensitive, as well as increasing capacity to cope with an event, such as drought.

Adaptive capacity is the potential or ability to institute adaptation; the capacity of a system to adjust practices, processes or structures to moderate or offset the potential damage or take advantage of opportunities created by a given change in climate.

Figure 13:

Demonstration of soil and water conservation to farmers in Ajujo community in Adjumani district

Testimony

"….food insecurity aggravated by climate change impacts has led to increament of school fees in most West Nile schools due to high food prices resulting from food shortage."

The response always given is that the climate change adaptation fund has never been realized. The question here is, "For how long should we wait for this fund from outside as our people are perishing?" Is there opportunity for mainstreaming climate change adaptation actions in on going development projects like National Agricultural Advisory Services (NAADS), Farm Income Enhancement program, Can the Government of Uganda through the Ministry of Finance, planning and Economic development put aside funds to implement the NAPAs?

3.4 Inadequate policies and strategies to guide and support climate change adaptation

At the time most policies or all policies were developed in all sectors (such as water, environment, health, education, energy), climate change was like a myth and not taken serious by policy makers. Consequently, most or all the policies across sectors are 'climate change blind' i.e. they are implemented in a business as usual sense. But now times have changed and climate is really biting and the impacts are evident and more are anticipated to come. Doing business as usual will be a costly venture. Despite this, Uganda does not have a comprehensive policy on climate change to guide all sectors to mainstream and or become climate sensitive.

The possible causes of this include limited prioritization and appreciation by key policy and decision makers for the need to develop a national comprehensive policy on climate change; limited funding for facilitating the policy making processes, limited participation and productive involvement of all stakeholders (including the most vulnerable categories) in the policy making processes; limited and varied understanding of climate change by different policy and decision makers at all levels. The overall impact of this is implementation of existing policies and programs without proactively addressing climate change issues in terms of supporting adaptation and mitigation. Furthermore, due to limited conceptualization of projects and programs in relation to addressing climate change impacts through a holistic approach. Most programs or projects are developed with a mind set that environment and climate change issues will be addressed by the appropriate lead institutions

Coping mechanisms to climate change impacts by communities in Adjumani district, West Nile region

- *Sugarcane growing in Labolonga wetland in response to dried up soils in the upland*
- *Casual labour e.g. craft making which gives an alternative source of income in the absence of agricultural crops*
- *Collection and sale of honey to provide income for buying food*
- *Eating one meal a day;*
- *Initiating and running group saving schemes*
- *Exchange of livestock such as chicken and goats with food*
- *Most households have resorted to eating 1 meal per day due to food shortage*
- *Charcoal burning to generate income for buying food*
- *Feeding on wild foods/fruits such as water lilies*
- *Casual labor for alternative household income to buy food as agricultural crops fail*
- *Engaging in small businesses within the community including retail shops*
- *Cultivation in fragile wetlands e.g. fishing and farming communities in Omi and Ajujo villages in Adropi sub-county and Gbalala village in Dufile sub-county in Adjumani and Moyo districts, have converted wetlands along the river bank and within the river into gardens of maize.*

The Climate Change Unit is mandated to initiate and coordinate the development of the climate change policy. How fast can we have this policy ready because we need it like yesterday? The Cabinet needs to give the required support to have this important policy completed and implemented and in the process, all sectors need to mainstream climate change adaptation actions in their programs. Such a policy would as well clarify the roles of different stakeholders at various levels.

3.5 Weak policy implementation and governance

With poor policy implementation and enforcement, even good policies remain on paper and are not translated into practical actions to address the issues. Furthermore, weak governance associated with corruption, failure to account for public resources by implementing institutions means that support will never trickle down to the venerable and most affected categories of society and community but would remain in the pockets of a few individuals. Consequently, this will result in further degradation of the environment and natural resources because the communities have to directly depend on the natural resources for livelihood but also meet their basic needs. Climate change is likely to open up various funding mechanisms from within and without for adaptation and mitigation. However, without a framework for effective policy implementation and good governance, all these resources would go to waste thus not addressing the real issues but end up in pockets of a few individuals.

A case in point is the poor governance in the water and environment sector which is accelerating degradation of the environment and natural resources country wide, specifically in the forestry and wetlands sub sectors. The following are key aspects in the forestry sector in light of governance, transparency and accountability which require streamlining and taking appropriate action:

- Non-compliance with forestry laws and administrative procedures. These have increased since the enactment of the national forestry and tree planting act of 2003, for instance National Forestry Authority has not at all occasions adequately followed the laws and procedures governing the award of forest concessions;

- Failure to comply with the land allocation guidelines for access and acquisition of land for planting trees in the central forest reserves. E.g. adjacent communities living near these central forest reserves are expected to get at least 5-10% of the land allocated as an incentive for these communities for their contribution towards conservation and sustainable utilization of these forests. Unfortunately, in many occasions they have not benefited, instead land is given to individuals or private companies who stay far away from the forest;

- Value for money from concessions – there is evidence of lack of transparency in the awarding processes of forest concessions which has resulted into lack of value for money in forest investment and also compromises other goods and services provided by the forests;

- Failure by Government to address the challenge of encroachment on forests. This has been highly politicized and is controversial issue. It stems from the President's Executive order to halt excavation of encroachers from forests in 2005. Consequently, politicians have continued to encourage communities to resist evacuation and in away its accelerating encroachment on forest resulting in further degradation and loss.

3.6 Poor coordination of climate change adaptation initiatives

Climate change being a cross sector issue calls for adequate and effective coordination of all actions towards addressing it at all levels. The Climate Change Unit (CCU) in the overarching institution at the National level mandated to coordinate climate change adaptation and mitigation actions in all the sectors and actors.

At the local government levels, the situation is even worse. For there is hardly any effort to coordinate integration climate change adaptation and mitigation actions in local government development planning process. If they exist they are adhoc actions responding to climate change impacts and disasters which have already happened and destroyed property and lives. This could partly be attributed to limited awareness on climate change issues and also lack of implementation of the national program for climate change adaptation (NAPA) and associated weak linkages between national level institutions working on climate change and local government stakeholders. Therefore, at the local level should the coordination of climate change adaptation and mitigation initiatives be a responsibility of the Chief Administrative Officer or District Planner or there is need for establishment of a multi-stakeholder working committee on climate change to provide appropriate support in this context. These and other ideas need to be thought through to come up with practical solutions to ensure that climate change adaptation actions are integrated in local government development plans.

However, effective coordination by such institutions requires adequate resources in terms both human resource capacity and funding. Unfortunately, these have not yet been adequately realized, for instance, the CCU currently has only five staff that are expected to provide technical guidance and support all over the country. Furthermore, there is limited facilitation in terms finance resources allocation to the CCU to undertake this task effectively. The situation is not very different in the case of NFA, where only one staff is coordinating the REDD+ process. Its important that Governments allocates resources were they are required if we are to strengthen our capacity to adapt to climate change impacts, otherwise we will perish.

Overall, this anomaly has resulted in limited inter-sectoral planning and implementation to address climate change impacts, for instance the NAPA was developed in 2007 but to date it has never been implemented probably because other sectors think that the CCU should single handedly spearhead the implementation of the NAPA across all sectors. Besides, the NAPA clearly stipulates what each sector can implement as a way of supporting climate change adaptation. In other words, the NAPA should be used as a guiding document for supporting climate change adaptation actions across all sectors. The CCU should consider providing technical guidance to the different sectors to develop competitive proposals to attract funding.

3.7 Limited research on climate change

Responding to climate change impacts through appropriate adaptation and mitigation mechanisms requires practical resilient solutions in form of technological, social and economic aspects. These can be developed through systematic research on climate change and associated impacts. Apparently, in Uganda there is limited research on climate change and related impacts on livelihood, natural resources. This is partly attributed to limited funding for research on climate change impacts, adaptation and mitigation; limited focus and prioritization by researchers to study climate change; inadequate facilities for

collection of weather information on climate change by region. Overall this has an implication of limited knowledge and information on appropriate options to support climate change adaptation and mitigation thereby increasing vulnerability to climate change impacts at all levels.

3.8 Climate change sensitivity and vulnerability

Climate change impacts affect various gender categories differently. Particularly, the most vulnerable gender categories include children, women, and people with disabilities. At household level in most Ugandan societies, women are charged with a major responsibility of caring for the rest of the family members. For instance fetching water, cooking food, house keeping, caring for the children, the old and the sick among other household chores. Hence, women in Uganda provide 70-80% of the agricultural household labor (Nabuumba, 2008).

Impacts of climate change manifesting as drying of rivers, springs and bore holes means that they have to move longer distances to look for water. Hence they are most affected by the impacts of climate change. On the other hand, given that men are the bread winners in the households and also charged with providing for all and ensuring security in the home, they are overburdened by impacts of climate change. Therefore, climate change adaptation actions should target both men and women as part of the solutions to leave with it.

Sensitivity is the degree to which a given change in climate will lead to positive or negative changes in a system, such as to the functions of an ecosystem or output from a particular type of agricultural production.

Vulnerability is the extent to which a natural or social system is susceptible to sustaining damage from climate change, determined by exposure, sensitivity and coping capacity (as well as structural processes). Hence, it may be biophysical or socio-economic vulnerability (GECHS, 2008).

Vulnerability = (adaptive capacity) – (sensitivity + exposure)

E = exposure — size of the area and/or population affected

S = sensitivity — the intrinsic (age, sex, SES, ethnicity, livelihood strategies, etc.) and extrinsic (institutions, entitlements, etc.) characteristics of a population

A = adaptive capacity — capacities of the population, place or system to resist impacts, cope with losses, and/or regain functions

Table 1. Ranking climate change vulnerability in Schools and local communities in Adjumani, Moyo and Yumbe

Schools		**Farming community in Ajujo**	
Category	Rank	Category	Rank
School girls	1	Children	1
School boys	2	Elderly	2
Support staff	3	Disabled	3
Female teachers	4	Women	4
Male teachers	5	Men	5

Community perspectives on gender and climate change in Adjumani district

Community members identified children as the most affected group of people when climate change impacts hit the community due to their vulnerability to malnutrition and other diseases including malaria.

Communities observed that sick people needed urgent attention during times of hunger in a household. They said that HIV/AIDS affected some households in the community and climate change impacts such as hunger could only worsen the situation.

They also noted that women/mothers due to their multiple responsibilities ranging from production and preparation of food in a household were more affected by climate change impacts in comparison to men.

4.0 Practical Recommendations towards climate change adaptation in Uganda

The following recommendations are presented targeting key stakeholders at village, local and national levels. They should proactively consider them in development planning and implementation to address the critical issues towards long term adaptation to climate change impacts in Uganda for improved livelihood and sustainable development.

Stakeholder at village level	***Key Practical Recommendation***
Individual	(a) Participation in decision making and implementation of climate change adaptation initiatives/programs at community level (b) Following engagement with media and participating in community interactions and gatherings to become aware of what is happening in the community (c) Diversify livelihood opportunities for household income generations especially off-farm activities (d) Undertaking appropriate coping mechanisms in context of climate change impacts e.g. prolonged droughts, floods
Stakeholder at local level	***Key Policy Recommendation***
Household/Village	(a) Supporting community self help initiative as coping mechanisms to climate change impacts at community level (b) Active participation in decision making and implementation of climate change adaptation initiatives/programs at community level (c) Support diversification livelihood opportunities for household income generations especially off-farm activities (d) Prompt reporting of climate change impacts to appropriate authorities and leader (e) Proper management of natural resources including forests wetlands, water sources, land/soils among others
Local Government	(a) Strengthen coordination of climate change activities and initiatives in the districts. This could be through establishing effective local multi-stakeholder committees to provide appropriate strategic and policy guidance

Stakeholder at National level	*Key Policy Recommendation*
Climate Change Unit under the Ministry of water and environment, Civil Society organizations, Development Partners	(a) Spearheading, coordinating and funding implementation of the Ugandan National Adaptation Programs of Action on climate change
Uganda Cabinet, Climate Change Unit under the Ministry of Water and Environment, Development Partners	(a) Developing a national policy and institutional framework to guide effective responses to climate change impacts in Uganda at community, local and national levels
Government of Uganda through Ministry of Water and Environment and the Ministry of Finance, Planning and Economic Development, Ministry of Local Government, Metrology Department	(a) Strengthening human resources and logistical capacity at the Climate Change Unit and local government levels
National Planning Authority, All Ministries, All Government parastatals, Civil Society Organizations, Academia, Research Institutions,	(a) Strengthen coordination of climate change activities and initiatives in the country. This could be through establishing effective national multi-stakeholder committees to provide appropriate strategic and policy guidance; (b) Mainstreaming climate change adaptation actions in development planning, programs and implementation informed by the anticipated climate variability
Metrology department, Ministry of Water and Environment, Ministry of Agriculture, Animal Industries and Fisheries	(a) Strengthening the generation and dissemination of accurate climate change information and early warning systems through provide adequate equipment and facilitation to mandated institutions
Religious and cultural institutions, Parliamentary Forum on Climate Change among others	(a) Deepening awareness for adaptations actions on climate change impacts, at the local and community levels; (b) Influence behavior change for better environmental management and stewardship among Ugandans at all levels
Office of the Prime Minister, Ministry of disaster preparedness, Civil Society Organizations, Development Partners	(a) Strengthening disaster preparedness and risk management at community level

Climate Change Unit, National Planning Authority, Ministry of Finance, Planning and Economic Development	(a) Strengthen inter-sectral planning and implementation of climate change adaptation actions
National Agricultural Research Organization, Academia, National Council for Science and Technology, National Forestry Research Institute	(a) Conduct and disseminate research in appropriate drought resistant and early maturing crop varieties; (b) Repackage and disseminate research findings on climate change and associated impacts to policy makers at different levels
National Forestry Authority	(a) Enhance coordination in the development and implementation of the REDD readiness plan for Uganda for productive involvement and participation of all stakeholders
Private Sector	(a) Undertake and implement environment and climate impact assessment prior to engaging in business; (b) Explore mechanisms for innovative crop and livestock insurance for protection of farmers and natural resources dependent communities against impacts of climate change; (c) Support access of micro finance to farmers and natural resources dependent communities (d) Providing financial support for climate change actions both adaptation and mitigation as part of their social corporate obligation and responsibility
Media Institutions	(a) Enhance collaboration and partnership with lead agencies and development institutions working on climate change to simplify and relay accurate information on climate change to masses; (b) Strengthen reporting and coverage of climate change events/impacts/climate information at community, national, regional and international levels
Legislators and Councilors	(a) To enact regulations, legislation, bylaws and ordinances which will promote and support climate adaptation; (b) Ensure that budgeted plans have adequate resources allocations for climate change adaptation

Development Partners	(a) Mobilize and provide resources to support climate change adaptation actions initiated by all stakeholders at community, local, national and regional levels; (b) Provide specialized technical assistance and back stopping to key lead Institutions in climate change adaptation and mitigation
Civil Society Organizations	(a) Advance awareness creation about climate change, associated impacts among stakeholders to illicit appropriate climate change adaptation actions; (b) Policy lobbying and advocacy for integration of climate change in development planning and policy processes at national and local and associated resource allocation to support climate change adaptation actions at the local level; (c) Piloting and up scaling climate change adaptation actions at community levels to reduce vulnerability of communities to impacts of climate change; (d) Strengthening partnership and networking on issues of climate change at local, national and regional levels among key stakeholders

Stakeholder at East African Sub regional level	***Key Policy Recommendation***
East African Legislative Assembly	(a) Monitor implementation of the East African Community Policy and Strategies on Climate Change and ensure that they informs national policies on climate change
East African Sub Regional Institutions	(a) Strengthening the capacity on climate change impacts modeling, understanding and communication of uncertainty, and possible adaptation within regional institutions and programs (b) Support regional coordination of climate change adaptation and mitigation actions and programs in the East African Region

5.0 An Appeal

Business as usual is not a solution to the uncertainties and risks associated with climate change variability and impacts. Leaving with the impacts of climate change requires building resilience through short term and long term climate change adaptation and mitigation initiatives. This requires proactive responses by everybody given that we are all part of the problem and therefore should part of the solution.

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The OneWorld Climate Change Guide: http://uk.oneworld.net/guides/climatechange

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8.0 About Environmental Alert

Environmental Alert is a Ugandan NGO founded in 1988 with the mission to contribute to sustainable development and improved livelihoods through sustainable natural resource management and development in Uganda. Environmental Alert envisions a poverty and hunger-free society that, is able to manage and sustain its natural resources base for attainment of sustainable livelihoods. Environmental Alert is also a 1st prize winner of one of the most prestigious awards for environmental sustainability in the world, The Energy Globe Award. Environmental Alert is a member of the International Union for Conservation of Nature (IUCN).

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