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Climate Change Case Studies

- *Introduction*

The Department of Meteorology, as National Focal Point for the UNFCCC has coordinated several climate change projects and programmes. Some, which we think can contribute to the 14th session of the United Nations Commission on Sustainable Development (CSD), are summarized here below.

- *The greenhouse gas Inventory Project*

Uganda carried out a National Inventory of Sources and Sinks of Greenhouse gases in 1993 with funding from the GEF. The project was implemented by UNEP and coordinated by the Department of Meteorology. The Inventory was partly updated in 1995 with funding from the United States Government under the United States Country Studies programme.

The Inventory gives a comprehensive list of emissions of greenhouse gases by source and removals by sinks in Uganda. It also contains a number of recommendations, including enhancement of legal, regulatory and policy framework. The recommendations are however of a general nature, they do not contain any specific details on the modalities of such a framework.

The institutions which participated in this project gained some capacity on the methodologies for GHG emission estimation. The Inventory is however supposed to be up-dated annually but this has not been the case due to lack of funds and capacity in the collection and analysis of the required data. There is therefore need to strengthen the capacity if the concern departments and organizations in data collection and analysis such as the departments of Meteorology and Energy, the Directorate of Water Resources, the National Forestry Authority and the Ministry of Agriculture, Animal Industry and Fisheries. The Private sector, especially the industries need also to have enough capacity in measurement, monitoring and control of environmental pollutants from the industries.

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- *Adaptation and Mitigation Policies and Measures.*

A Vulnerability, Adaptation and Mitigation Assessment study was carried out with in 1995 with funding from the United States Government under the United States Country Studies programme. It looked at the sectors of water resources, crops, forestry as well as livestock and rangelands. Mitigation Analysis was done for the Energy Sector.

Although climate change impacts upon Uganda are difficult to quantify due to uncertainty about the rate of climate change and its magnitude, the Uganda country study identified many specific impacts, which might be anticipated in agriculture, livestock and rangelands, forestry and water resources. The study also identified and recommended a range of adaptation measures which could be implemented to counter the identified impacts. The study however did not recommend ways of integrating the identified Adaptation and Mitigation measures into the countries development planning process.

Although some policies in Uganda address some aspects of climate change, there are policies specifically designed to address climate change issues.

Uganda's challenge now is to identify and evaluate potential adaptation measures, and incorporate them into the country's development policy and management practices such as the PEAP, National Environment Action Plan (NEAP), the Water Action Plan (WAP), the Forest Action Plan (FAP), the Poverty Eradication Action Plan (PEAP), and the Decentralization Process.

The study enhanced the capacities of the participating institutions in Vulnerability, Adaptation and Mitigation Analysis and also identified some areas in which more capacity needs to be developed. Here below is a summary of some of them:

- a) Strengthen Uganda's meteorological services so that they may provide reliable medium to long-term advisories with respect to droughts and floods.
- b) Strengthen the Early Warning Information capacity, especially for food security and short-term climate prediction.

- c) Carry out an inventory of existing practices and policies used to adapt to different climate variability episodes in all line agencies and sectors, so as to begin more detailed identification of adaptation measures for evaluation and adoption.
- d) Ensure that the Uganda Disaster Preparedness Committee (UDPC) includes in its work plan long-term hazard reduction related to climate change and climate variability.
- e) Promote awareness of climate variability and change and potential response alternatives throughout Ugandan society.
- f) Carry out capacity building in water conservation at all levels of the community using appropriate methods including the use of market-based systems
- g) Build capacity of and identify the roles that can be played by the non-governmental groups, organizations and individuals comprising "civil society as the suggested adaptation measures depend for their success upon the active cooperation of individuals and organizations.

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- *Technology Innovations and Transfer*

Uganda is in plans of assessing its technology needs and technology transfer barriers under the Enabling Activities project Phase II. The Project is funded by GEF and implemented by UNDP. It is coordinated by the Department of Meteorology. A consultant has been identified to carry out the work.

- *Domestic and International emissions trading*

(Paul to add)

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- *Market Based Mechanisms to reduce emissions (such as CDM, Joint Implementation)*

Uganda has carried out some CDM capacity building projects such as:

(i) *UNEP / DANIDA Capacity Building Projects*

The United Nations Environment Programme (UNEP) through the UNEP Collaborating Centre on Energy and Environment (UCCEE) formulated a regional project to build capacity in four African countries including Uganda. The specific objectives of the project in Uganda were:

- (i) to build technical capacity between key and relevant institutions, including the private sector which will play an important role in the implementation of the CDM; and
- (ii) To raise the level of awareness of the public, Government institutions, NGOs and the private sector, and identify specific strengths, weaknesses and needs of these institutions in relation to climate change issues.

The forestry, Energy and Transport sectors were considered for the study. An extra task Force on socio-economic issues was also formed to look at cross-cutting issues. At the end of the project:

- (i) task force members had gained relatively good understanding of the UNFCCC and the Kyoto Protocol in general and the CDM in particular;
- (ii) the level of awareness in the private and sectors had been raised so that these institutions can take advantage of the opportunities in the CDM;
- (iii) Capacity had been developed to enable Uganda to participate effectively in the implementation of the CDM and this was recognized as a critical and important process; and
- (iv) Participants recognized that enhancement and protection of natural resources such as forestry have multiple benefits.

The capacity gained from this project is expected to contribute to:

- (i) assisting the private sector and public institutions to develop bankable projects;
- (ii) increasing level of investment in Uganda in climate change related projects and hence increase economic development, leading to poverty reduction;
- (iii) enhancing cooperation with the developed countries, especially on climate change issues;
- (iv) transfer of appropriate technology;
- (v) employment opportunities through industrialization; and
- (vi) avoidance of emissions for a cleaner future environment.

The project points out the following Capacity building issues:

- (i) Significant capacity building, in terms of promoting environmental awareness, which could lead to the reduction of GHGs and its investment, technical knowledge, and business skills, should be promoted.
- (ii) National awareness campaigns and capacity building programmes should be established and implemented to publicize the UNFCCC and the Kyoto Protocol and the opportunities there in for the private sector, local authorities and the communities.
- (iii) Capacity building should also be provided for relevant public sector staff especially the Department of Meteorology and other line ministries and departments. This would be in conformity with the principles of the GEF.
- (iv) Furthermore, NGOs and other relevant stakeholders, especially local governments, should be approached to assess their willingness and capacity to participate in the development and management of climate change related projects, especially CDM projects. This would provide opportunities for capacity building within the districts and NGOs.
- (v) Overall, capacity building services should be available across a wide range of fields necessary for the implementation of climate change projects. These may include market assessment, preparation of business plans, evaluation and choice of technology options, investment promotion, financial advisory services, financial analysis, support to the organizations, management of tariff and setting accounting procedures.
- (vi) There is also need to establish necessary capacity for an effective monitoring and evaluation system in all climate change projects,

especially CDM projects. The effective monitoring and evaluation arrangements should be integrated into project design and implementation levels.

- (vii) Specific capacity building needs could be further strengthened through training of staff. The focus should be on a participatory approach. In this regard, local professional expertise could be built in the process with the help of short-term consultants.

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(ii) Capacity Development for the Clean Development Mechanism

With the funding from the Royal Netherlands Government (implemented by the United Nations Environment Programme) Uganda is participating in the global capacity development project for CDM with the aim of strengthening institutional and technical capacity in the country to enable it participate effectively in the implementation of CDM. The project is on-going and is being coordinated by the Department of Mechanical Engineering, Makerere University.

The aims of the project are:

- to assist Uganda to understand the opportunities offered by CDM; and
- To develop necessary institutional and human capabilities that will allow the implementation of CDM in Uganda.

The expected outputs of the project are:

- an operational DNA;
- imparting the project skill development;
- training of financial institutions; and
- Creation of a pipeline of CDM projects.

It is hoped that this project will significantly contribute to effective implementation of the UNFCCC and that it will raise some capacity building issues for future consideration.

The review of the above projects reveals the following lessons:

- Due to lack of both financial and institutional capacity, the project activities did not continue after the projects ended. This leads to a loss of the trained manpower as the people concerned continue with other duties which are not directly addressing issues of the implementation of the UNFCCC. At the beginning of the next project, it becomes

necessary to train a different set of technical staff which leads to a waste of time and resources.

- During project implementation, there wasn't adequate stakeholder involvement, especially at the local level where policies are implemented. Stakeholders should therefore be deeply involved in all stages of project implementation and there should be adequate awareness rising and capacity building for the stakeholders to have a clear understanding of the project objectives to be able to commit themselves to the project.

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(iii) The Uganda Photovoltaic Pilot Project for rural Electrification

The Uganda Photovoltaic Pilot Project for rural Electrification (UPPPRE) project which was coordinated by the department of Energy aimed at popularizing the use of photovoltaics in the rural areas where the hydro-power grid has not reached. The following are some of the capacity building achievements of the project which could be relevant to the implementation of the UNFCCC:

- (i) Awareness was increased in rural areas among decision makers on environmental issues of energy use and the important role of the PV systems.
- (ii) Adequate capacity was built in the Ministry of Energy and Mineral Development to promote, monitor and evaluate PV projects and review policies which promote the solar industry.
- (iii) National level solar based rural electrification policies were established.
- (iv) The capacity of institutions of higher learning to develop and implement curriculum for solar energy training was enhanced.
- (v) An NGO called Uganda Renewable Energy Association (UREA) was formed. and
- (vi) An investment plan to up-scale PV technology was prepared.

Although the project was not executed with climate change in mind, the above achievements can greatly contribute to the reduction in the consumption of wood fuel in the rural areas and thus result in GHG emission reduction and/or avoidance. The capacity gained from the project can also contribute to the formulation of CDM projects in this area.

- *Voluntary Initiatives for carbon sequestration*

No case study

- *Other relevant Projects*

The following are other projects which have been carried out in the field of climate change:

(i) *The Enabling Uganda Project*

The Enabling Uganda Project assisted Uganda to compile its First National Communication to the conference of the Parties. The Communication gives a comprehensive review of the current climate change situation in Uganda. The report points out further that although there are no policies in Uganda specifically designed to address climate change and the implementation of the Convention, several sectoral policies do provide a basis for addressing climate change concerns. It also notes that plans are in advanced stages to establish a climate change secretariat and to carry out a detailed assessment of National Adaptation Strategies.

The Communication states that Uganda committed itself to reduce illiteracy levels through the introduction of Universal Primary Education and Functional Adult Literacy Programme. High literacy levels will enable dissemination and assimilation of development information. This lays a foundation for disseminating environmental information, including climate change.

It further points out that effective implementation of the Convention depends on the level of awareness of the population at the various levels of society. Existing training programmes do not however include climate change. Incorporation of climate change issues into the education system will therefore ensure that young generations are well informed about climate change and its adverse effects. The project then advises that:

- a) Public awareness must therefore be an integral component of national programmes to address climate change and its adverse effects.
- b) Education and training must also be carried out to complement public awareness. It is therefore necessary that training and research institutions include climate change issues into their programmes.
- c) Methods of acquiring financial and technical assistance should be devised as lack of them remains the main barrier to education, training and public awareness.

(ii) *MISP Project on Opportunities for integrating four selected Conventions in the Planning Processes in Uganda.*

The Earth Council developed a prototype project titled “Multi-stakeholder Integrative Sustainability Planning (MISP) whose main objective was to develop, test and promote a multi-stakeholder planning methodology for integrating the key global environmental Conventions into national and local development planning Processes. In Uganda, the project considered the UNFCCC, CBD, CCD and the Ramsar Convention on Wetland use.

The project analysed the current planning process in Uganda in terms of their strengths, weaknesses and to what extent the national environmental concerns and the requirements of the global Conventions on Environment are integrated into the national development plans. It was observed that global environmental concerns are not explicitly addressed in Uganda at all levels, especially at the community level where development activities are implemented. This was mainly due the fact that:

- (i) there is inadequate understanding of the linkage between economic development at all levels and the environmental concerns, especially at local government and community levels; and
- (ii) there is inadequate participation of all stakeholders, most especially the grassroots communities who are supposed to be the primary beneficiaries in the planning processes.
- (iii) there is hardly any effort being taken to deliberately popularise the global conventions on environment.

The project advises among others that for the proper implementation of the UNFCCC and other environmental Conventions:

- (i) awareness on the importance of the UNFCCC on the environment should be raised at all levels;
- (ii) the capacities of planners, relevant stakeholders and the communities to understand and address climate change issues and develop plans that incorporate climate change issues should be built at all levels;
- (iii) Capacity to develop and implement formal and non-formal public education and awareness programmes relating to the global conventions on environment should be built so as to enable stakeholders to:

- Develop and disseminate awareness materials on the global conventions on environment,
 - Develop and implement training programmes on the global conventions on environment for the different interest groups such as civil society, the private sector and local communities,
 - Integrate issues of the global conventions on environment into extra-curricular activities, and
 - Integrate issues of the global conventions into the curricula of the formal education system.
- (iv) Develop capacity to initiate policies and laws which promote the integration of global conventions on environment into development plans.

(iii) *National Capacity Self Assessment (NCSA)*

The NCSA project was implemented by the United Nations Environment Programme (UNEP) and coordinated by the National Environment Management Authority (NEMA). It identified capacity needs for implementing the UNFCCC in Uganda. The project was funded by GEF and its main output was a prioritised list of capacity needs and a framework for addressing them. The specific objectives of the NCSA project were to:

- Identify gaps and priority areas for capacity building at various levels in the global environmental Conventions,
- Help implement the global conventions on environment
- Identify gaps and overlaps across the conventions activities so that synergies can be built upon.
- Develop strategic activities for addressing the capacity gaps.

The results revealed that the scope of environment integration in the current regulatory and policy framework is limited. This is also true for the ENR institutions, which is a sign of low awareness on climate issues and more so, climate change and the UNFCCC.

Aspects of conservation and sustainable management resources like; water, soil, minerals, air and the ecology in light of socio-economic development are specifically reasonably addressed, but with no intimate linkage with the climate resource.

The situation is even worse with academic and research organisations whose knowledge on conventions is presumably very limited. This is definitely an omission because these institutions are major extension centres.

The main attributes to this scenario include:-

- Inadequate recognition of ENR by the Finance Ministry, leading to limited budgetary provision.
- Lack of mainstreaming guidelines for the climate issues.
- Low awareness on climate change convention at all levels as well as institutional roles or contributions.
- Poor co-ordination and consultative approaches during policy reviews and formulation process.
- Low technical capacity on the climate change convention
- Lack of investment plan for the Department of Meteorology leading to poor finding and therefore not able to play the full co-ordination role for the other institutions.
- Lack of monetised economic benefits of the climate resource to the sectoral socio-economic activities and the national economy in general.

Therefore several proposals were floated as potential remedies to the situation. These include:

- The ENR Sector SWAP process should be finalised to ensure balanced funding of the sectoral activities.
- Increased capacity building through awareness campaigns on climate change at all levels.
- Adequate consultations should always be made during policy, laws and regulation reviews and formulations.
- Climate issues, like gender and HIV/AIDS should be taken as cross-cutting and mainstreaming guidelines should be developed.
- UNFCCC concerns should be made requirements for Environment Impact Assessments.
- Measures to promote mitigation and adaptations vis-à-vis the convention requirements should be supported.
- Networking in research especially on Adaptation and mitigation technologies should be supported.