



National Strategy and Action Plan to strengthen human resources and skills to advance green, low-emission and climate-resilient development in Uganda 2013 - 2022

Uganda National Climate Change Learning Strategy

Ministry of Water and Environment
Climate Change Unit

June 2013



One UN Training Service Platform
on Climate Change: UN CC:Learn



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development
and Cooperation SDC

**National Strategy and Action Plan
to strengthen human resources
and skills
to advance green, low-emission
and climate-resilient development
in Uganda 2013 - 2022**

Uganda National Climate Change Learning Strategy

Ministry of Water and Environment

Climate Change Unit

June 2013



THE REPUBLIC OF UGANDA

Table of Contents

ABBREVIATIONS	.....	3
FORWARD	.....	5
ACKNOWLEDGEMENTS	.....	7
EXECUTIVE SUMMARY	.....	8
1.0 INTRODUCTION	.....	15
1.1 International Context: The Climate Change Convention	.....	15
1.2 The Human Resource and Skills Challenge.	.....	17
2.0 THE NATIONAL CONTEXT: UGANDA'S RESPONSE TO ITS COMMITMENT	.....	19
2.1 Impacts of climate change on development in Uganda	.....	19
2.2 Rising Greenhouse Gas Emissions in Uganda	.....	21
2.3 Role of Key Sectors in Uganda's Response to Climate Change	.....	22
2.4 National Policy Priorities	.....	23
2.5 Relevant Initiatives: Key Actions	.....	24
3.0 THE CAPACITY CHALLENGE	.....	27
3.1 New and Changing Skills Needs	.....	27
3.2 Human Resource and Technical Capacity Gaps	.....	28
3.3 Institutional Capacities to Deliver Climate Change Learning	.....	30
4.0 RATIONALE AND OBJECTIVES OF THE NATIONAL STRATEGY	.....	33
4.1 Strategy Goal and Objectives:	.....	33
4.2 Guiding Principles	.....	33
4.2.1 The United Nations Framework Convention on Climate Change (UNFCCC)	.....	33
4.2.2 Article 6 of the UNFCCC and its Doha Work Programme	.....	33
4.2.3 The Climate Change Policy of Uganda and the East African Community (EAC) Climate Change Policy	.....	34
4.3 Strategy Development Process	.....	34
5.0 THE STRATEGY	.....	37
5.1 Build capacity and strengthen the UNFCCC National Focal Point for Uganda (CCU MWE)	.....	37
5.2 Strengthen the Department of Meteorology	.....	38
5.3 Other sectors	.....	38
5.3.1 Agriculture	.....	38
5.3.2 Water	.....	38
5.3.3 Energy	.....	38
5.4 Support the ongoing actions in order to maintain continuity	.....	39
5.5 Undertake sector-specific economic valuation of climate change impacts in key sectors	.....	39
5.6 Continue to undertake climate change learning as a continuous process	.....	28
5.7 Assess the impacts of climate change learning	.....	39
5.8 Harmonize climate change learning among different institutions	.....	39
5.9 Provide fellowships, scholarships, and undergraduate/graduate assistantships in Climate Science	.....	39

5.10 Promote education, research and outreach programmes through development and implementation of an education and outreach programme.....	40
5.11 Build the capacity of high and mid-level government officials, civil society, private sector actors and the media	40
5.12 Design and deliver short-term, medium-term and long-term training programmes on climate change	40
6.0 PROPOSED ACTION	43
7.0 STRATEGY IMPLEMENTATION FRAMEWORK	47
7.1 National Coordination	47
8.0 RESOURCE MOBILIZATION	49
9.0 MONITORING AND EVALUATION	51
10.0 RISKS AND BARRIERS	51
11.0 CONCLUSIONS AND RECOMMENDATIONS	53
ANNEXES	55
Annex 1: Selected bibliography	55
Annex 2: Summary sheet for priority actions	56
Annex 3: Climate change learning-related initiatives in Uganda	65

Abbreviations

AfDB:	African Development Bank
ACCRA:	African Climate Change Resilience Alliance
ADC:	Austrian Development Cooperation
BTC:	Belgian Technical Cooperation
BTVET:	Business, Technical, vocational Education and Training
BU:	Busitema University
CC:	Climate Change
BUU:	Bugema University
CCU:	Climate Change Unit
CDM:	Clean Development Mechanism
DANIDA:	Danish International Development Cooperation
DESD:	Decade of Education for Sustainable Development
DfID:	Department for International Development
DoM:	Department of Meteorology
EU:	European Union – Delegation to the Republic of Uganda
FAO:	United Nations Food and Agriculture Organization
FGD:	Focus Group Discussion
Gg:	Giga grammes
GHG:	Greenhouse Gas
GIZ-NBI:	German Agency for International Cooperation – Nile Basin Initiative
GIZ-PREEP:	German Agency for International Cooperation – Promotion of Renewable Energy and Energy Efficiency Programme
GIZ-REAP:	German Agency for International Cooperation, Regional Energy Advisory Programme
GIZ-RUWASS:	German Agency for International Cooperation – Reform of Urban Water and Sanitation Sector Programme
GU:	Gulu University
HE:	Higher Education
ICEIDA:	Icelandic International Development Agency
IITCP:	Inter-institutional Technical Climate Change Focal Person
IPCCC:	Intergovernmental Panel on Climate Change
JAF:	Joint Assessment Framework
JICA:	Japan International Cooperation Agency
JWESSP:	Joint Water and Environment Sector Support
KABU:	Kabale University
KFW:	Kreditanstalt für Wiederaufbau (<i>Reconstruction Credit Institute</i>)
KU:	Kyambogo University
LDC:	Least Developed Countries
LEC:	Least Developed Countries Environment Centre
Mak:	Makerere University
M&E:	Monitoring and Evaluation
MET:	Meteorology Department
MoES:	Ministry of Education and Sports
MoLG:	Ministry of Local Government

MWE:	Ministry of Water and Environment
MUST:	Mbarara University of Science & Technology
NAADS:	National Agriculture Advisory Services
NAPA:	National Adaptation Programmes of Action
NARO:	National Agricultural Research organisation
NCDC:	National Curriculum Development Centre
NCM:	National Coordination Mechanism
NDF:	Nordic Development Fund
NGO:	Non Government Organization
NPA:	National Planning Authority
PE:	Primary Education
PFCC:	Parliamentary Forum on Climate Change
PM:	Prime Minister
UCU:	Uganda Christian University, Mukono
UMU:	Uganda Martyrs University, Nkozi
UN:	United Nations
UNCDF:	United Nations Capital Development Fund
UNDAF:	United Nations Development Assistance Framework
UNDP:	United Nations Development Programme
UNEP:	United Nations Environment Programme
UNFPA:	United Nations Population Fund
UNFCCC:	United Nations Framework Convention on Climate Change
UNITAR:	United Nations Institute for Training and Research
UNJPPC:	United Nations Joint Programme on Climate Change
UPE:	Universal Primary Education
USAID:	United States Agency for International Development
USAID (LEAD):	Livelihoods and Enterprises for Agricultural Development Project
USE:	Universal Secondary Education
WB / IDA:	World Bank / International Development Association
WB/IDA-ARDU:	World Bank / International Development Association – Agriculture and Rural Development Unit
WB / IDA-CTU:	World Bank / International Development Association – Carbon Trade Unit
WB / IDA-EU:	World Bank / International Development Association – Energy Unit
WB / IDA-ENR:	World Bank / International Development Association – Environment and Natural Resources Unit
WB / IDA-WS:	World Bank / International Development Association – Water and Sanitation
WFP:	World Food Programme

FOREWORD

Uganda Vision 2040 expresses the aspiration of Ugandans about the future Ugandans want. It is “A transformed Ugandan Society from a peasant to a modern and prosperous country within 30 years.”

This implies transiting from a predominantly peasant and subsistence to monetary and middle income country. The future Ugandans want is a stable, and peaceful as well as a socially harmonious country united in cultural and religious diversity. Ugandans aspire to transform their country into an industrialized, knowledge -based and highly skilled society ; globally competitive and patriotic of being an independent nation.

The basic drivers of the economy to achieve Uganda Vision 2040 are Ugandans themselves. The National Development Plan (2010-2015) observes that one of the most binding constraints to Uganda’s accelerated growth and transformation is inadequate quantity and quality of Human Resource. It should be evident that limited availability of diversified skilled labour force remains a critical challenge for structural transformation of the economy. Hence, the necessity of “National Strategy and Action Plan to strengthen human resources and skills to advance green, low-emission and climate-resilient development in Uganda 2013-2022”.

Uganda Vision 2040 recognizes the need to develop appropriate adaptation and mitigation strategies on climate change over the vision period and to ensure that the country is cushioned from the associated adverse impacts. The Environmental concerns must be mainstreamed in all sectoral policies and plans and to ensure sustainable management of environmental resources. This is an imperative state policy.

A baseline study conducted in 2012 across selected institutions in the country and the different sectors, indicates the urgent need to strengthen human skills and capacity development for purposes of addressing climate change. The in-depth investigations and analysis of the study results, highlight the priority topics required by individuals to include among others; Fundamentals of climate change, Predicting climate change scenarios, Vulnerability and adaptive capacity assessment, Climate Change and disaster risk management, Greenhouse Gas inventory, development, Carbon markets and Clean Development Mechanisms. Enhancing vocational and technology development was also one of the recommendations to facilitate individual learning to propel growth.

The National Strategy and Action Plan to Strengthen Human Resources and skills to advance green, low emission and climate resilient development in Uganda (2013-2022) therefore, comes in timely to address the above gaps and challenges. The systematic approach taken to develop this strategy made it possible to gather and identify capacity gaps and suggesting results-based implementable actions, which appears to present a potentially valuable means of exploring the complex web of interactions between the capacities required to understand and respond to the challenges posed by climate change.

The strategy provides a comprehensive review concerning climate learning needs for individuals and institutions, outlines priority topics and the short-term actions, medium to long term measures necessary to attain a green climate low resilient development in Uganda. The strategy also helps us examine the learning needs of key sectors and institutions to be undertaken to ensure clear understanding of the most appropriate response measures.

In the short-term, the strategy proposes that investing in strengthening human capacities to integrate climate change in primary and secondary education is critical. Equally striking

the right balance between investing in structural and non-structural measures is key for the medium term, for instance, support to universities as leaders of excellence in climate change education as well as provision of fellowships to support undergraduate, postgraduate and diploma programmes to improve research in climate change adaptation and mitigation in Uganda is very strategic.

With this action plan, there is much to be done collectively to deliver on the capacity gaps that exist, as the strategy outlines in partial fulfillment of the country's commitments under Article 6 of the United Nations Framework Convention on Climate Change (UNFCCC).

It is critically important to note that the pathway to a green, low-emission and climate-resilient development will require not only the strengthening of human resources but also to significantly mobilize new financial resources from public and private sources. This implies a realignment of policy goals and priorities and related allocation of capital, while addressing the immediate and pressing development concerns for medium to long-term poverty eradication objectives as outlined in this national strategy, as well as the country's Vision 2040.

Finally, I wish to thank, on behalf of Government of Uganda, the many institutions and individuals whose commitment and contribution resulted in this strategy. The Government of Uganda expresses deep gratitude most especially to the Swiss government and UN CC : Learn for generously providing the financial and technical support respectively that made the strategy development process possible, while also supporting the implementation of some short-term priority actions.

I call upon all stakeholders including our Development Partners to fully embrace this strategy and support its implementation in all practical ways for the full realization of the objectives of the Work Programme on Article 6.

For God and My Country.



Prof. Ephraim Kamuntu

MINISTER FOR WATER AND ENVIRONMENT

ACKNOWLEDGEMENTS

The road leading to the development of the National Strategy has been in the making since Uganda, together with other four Pilot countries, were selected to take part in the UN CC: Learn pilot capacity development projects entitled “Strengthening Human Resources, Learning and Skills Development to Address Climate Change”.

Along the way a significant number of people and institutions have provided invaluable suggestions, criticisms, ideas, challenges, and labour through the different task teams, group consultations and mid-term evaluation meetings.

I thank everyone who has offered a suggestion, presented a criticism, volunteered an idea, challenged the Task Team, or committed time and labour to the cause of realizing this national document as we strive to develop a low climate-resilient development in Uganda through strengthening of human resources, learning and skills development.

My heartfelt thanks goes to the Coordinator, Climate Change Unit, Mr Paul Isabirye, for his impressive leadership in steering this in a direction well designed and crafted to have a final product.

Professor John Kaddu of Makerere University and Mr. Bob Natifu of the Climate Change Unit put in strongly dedicated hard work that ensured the chapters made sense.

Special appreciation goes to the talented Task Team that helped further shape this document, particularly, Mr Philip M. Gwage, head of the Task Team, Mr. Fred Onduri, Mr Lawrence Aribbo, Mr Joseph Epitu, Ms Prossy Mulyowa from the National Curriculum Development Centre (NCDC) and Dr Charles Walaga, who made this strategy exceed expectations. The statistician, Dr. Robert Wamala, was instrumental in the analysis of the survey results.

Finally, I would like to thank UN CC: Learn and its international partners for their support in developing this Strategy. I would like to thank especially the United Nations Institute for Training and Research (UNITAR), which serves as the Secretariat of UN CC:Learn, and the United Nations Development Programme (UNDP) in Uganda for their technical support. The UNITAR team (Mr. Achim Halpaap, Mr. Angus Mackay, Ms Amrei Horsbrink,) was pivotal in the provision of the methodological guidance during the development of the Strategy. Funding for the development of this Strategy was provided by the Government of Switzerland through the Swiss Agency for Development and Cooperation (SDC).



Professor Ephraim Kamuntu (Hon.)
MINISTER OF WATER AND ENVIRONMENT

EXECUTIVE SUMMARY

Introduction

Climate change, the alteration in the prevailing weather condition over many years owing to human activities is a global threat to economic and other forms of development. It stifles progress across sectors, hence calling for international as well as national responses at all levels.

International context

The United Nations Framework Convention on Climate Change, adopted by the international community in 1992, provides an overall framework for intergovernmental endeavour to address climate change. Its objective is to achieve stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system, within a time frame to allow ecosystems to adapt to climate change and ensure food security as well as economic development in a sustainable manner. Furthermore, the Convention, in its principles, calls on parties to take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.

The Convention in its Article 4 commits Parties to formulate, implement, publish and regularly update national and where appropriate regional programmes containing measures to mitigate climate change, and measures to facilitate adequate adaptation to climate change. Furthermore, the Convention commits Parties to cooperate in a number of actions, including: (a) preparing adaptation to impacts of climate change, (b) exchange of information relating to climate change, and (c) in education, training and public awareness relating to climate change.

Article 6 of the Convention (on education, training and public awareness), calls upon governments to educate, empower and engage all stakeholders and major groups on policies relating to climate change. Equally significant, the Convention reaffirms that in carrying out their commitments under Article 4, the Parties shall:

(a) Promote and facilitate at the national and, as appropriate, sub-regional and regional levels, and in accordance with national laws and regulations, and within their respective capacities:

- the development and implementation of educational and public awareness programmes on climate change and its effects;
- public access to information on climate change and its effects;
- public participation in addressing climate change and its effects and developing adequate responses; and
- Training of scientific, technical and managerial personnel.

(b) Cooperate in and promote, at the international level, and, where appropriate, using existing bodies:

- the development and exchange of educational and public awareness material on climate change and its effects

The development of human resources through education, training and skills development is fundamental in the achievement of sustainable development among countries. Furthermore, education aims to not only promote changes in lifestyles, attitudes and behaviour needed to foster sustainable development but, also, in connection with global warming to prepare society to adapt to the impacts of, as well as mitigate, climate change.

Accordingly, the importance of Article 6 of the Convention, and its "Doha work programme" lies in the fact that it contributes to achieving the ultimate objective of the Convention and the effective implementation of adaptation and mitigation actions.

The human resource and skills challenge

Inadequacy of human resources and suitable skills to propel sustainable economic development has plagued human society since time immemorial, although some regions of the world are overcoming the challenge faster than others. Fortunately, the Convention and other development agendas recognize the capacity disparity among Parties, and calls on the developed country Parties to provide support to the developing country Parties, particularly the LDCs.

The national context and the role of sectors in Uganda's response to climate change

Uganda ratified the Climate Change Convention, and has continued to actively pursue actions to fulfil her commitments under the Convention. However, the country, like other parts of the developing world, is still plagued with insufficient technical capacities, skills; as well as institutional weakness; amidst the continuing effects of climate change, namely, temperature rise, increased drought, and increased frequency of rainfall, experienced differently in the various ecosystems and sectors.

Hence climate change has invoked national efforts to address capacity challenges. It is calling for the rebranding and / or development of human resources to generate skills to advance green, low-emission and climate-resilient development. Development encompasses a multi-sector approach and activities. Accordingly, each sector has a role to play in Uganda's response to her commitments under the Convention. The roles of the key sectors, in this connection, have been articulated in Uganda's climate change policy.

National policy priorities and the capacity challenge

The continuing impacts of climate change in the various ecosystems of Uganda call for robust response and sustained national and sub-national resolve and action to strengthen human resources and skills. This emerging new capacity needs, plus the inherent gaps compound the situation. Realizing this challenge, the government of Uganda in her "Uganda Vision 2040" proposes to "review the entire education curriculum to align it with the global and national socio-economic needs" as a way, at the foundation level, of addressing the human resources and technical capacity gap.

In Uganda, although climate change-related learning and awareness is eluded to in the National Climate change Policy, at the time of development of this strategy, literature showed that climate change-related learning existed in only five ministries (Education, Agriculture, Water and Environment, Forestry and Energy) From a regional perspective, climate change-related learning is enshrined in various institutional arrangements, including the East African Climate Change Policy. Priorities related to climate change learning vary among sectors or ministries. Indeed, in some sectors they are not yet existent, but with the Uganda Climate Change Policy in existence action in the affirmative should be expected.

New and changing skills needs

Although climate change is a major threat to development, the fact that its impacts continue to be experienced avails a window for the generation of new skills in various sectors, for example: agriculture, meteorology, environment and energy (ILO, 2010). The synthesis report on skills for green jobs by ILO (2010) based on 21 countries shows that although skills development is vital in unlocking the potential for green job employment, shortages of skills are increasingly becoming an obstacle in realizing the potential. Without suitable skills, this potential cannot be realized. Today, skills gaps are recognized as a major bottleneck in a number of sectors, such as, infrastructure, energy and environmental services. Capacity gaps hinder or retard the drive to advance to green, low-emission and climate-resilient development, which calls for green job employment. Green jobs are defined by the ILO as "positions in a country's economic sectors such as in agriculture, manufacturing, construction, installation and maintenance, scientific and technical, administrative, and service-related activities that contribute substantially to promoting, preserving, protecting, and or restoring environmental quality and health."

Human resource and technical capacity gaps

Despite the fact that adequate capacity is a key asset in economic advancement, Uganda, like other LDCs, has low capacity. To find out about capacity availability for the advancement of low-emission and climate-resilient development in Uganda, a survey, during the development of this strategy, was conducted to identify the capacity gaps of individuals that are necessary for learning and improved skills. The sampling frame was constructed around four ecosystems/ecological zones as outlined in the Uganda NAPA, namely, highland ecosystem, low land ecosystem, aquatic ecosystem and semi-arid ecosystem. The results showed that climate change issues are highly relevant among institutions and that lack of knowledge and skills constitute the predominant capacity gap.

Rationale and objectives of the national strategy

Dealing with climate change demands the understanding of how it might affect a range of natural and social systems, and to identify and evaluate options to respond to these effects. Equally demanding, the transition to green, low-emission and climate-resilient development requires unprecedented levels of awareness, knowledge

and skills of individuals. It, too, necessitates that national learning institutions and systems strengthen their capacity to deliver learning and skills development action in support of national policy objectives and priorities.

Strategy goal and objectives:

The overall goal of the strategy is to strengthen Human Resources and Skills to advance low-emission and climate-resilient development in Uganda.

In response to this, investigations were carried out and analysis conducted to identify capacity needs to strengthen human resource capacities through a strategic approach for climate change learning and skills development in Uganda with the objectives to:

- take stock of policy priorities and related capacity development initiatives;
- assess human resource capacities and skills in key sectors to achieve policy priorities;
- identify priority action to strengthen learning and skills development;
- strengthen national education and training system to deliver leaning action; and
- Support the establishment of a sustainable human resource base to address climate change.

Various principles of global, regional and national nature, guided the process of development of this strategy, namely; The United Nations Framework Convention on Climate Change (UNFCCC); Article 6 of the UNFCCC and its Doha Work Programme; The Climate Change Policy of Uganda; and the East African Community (EAC) Climate Change Policy.

The strategy development process involved a number of steps, namely, an inception workshop; desk review of literature; field survey and assessment of results; data compilation and analysis; and presentation of results in the mid-term review meeting.

The Strategy

The key elements of the strategy to strengthen human resources and skills to advance green, low-emission and climate-resilient development in Uganda are:

Build capacity and strengthen the UNFCCC National Focal Point for Uganda (CCU MWE). The Climate Change Unit of the Ministry of Water and Environment is the coordinating entity for climate change-related actions in Uganda, and therefore should fully capacitate to enable smooth execution of its mandate.

Strengthen the Department of Meteorology: The Department of Meteorology is responsible for climate change monitoring, but faces many challenges in terms of human resource and infrastructure, which warrant capacity strengthening.

Other sectors: various sectors, such as, Agriculture, water, and Energy have different mandates in the climate change arena, involving adaptation and mitigation, and therefore require corresponding capacity strengthening.

Support the ongoing actions in order to maintain continuity: There are already ongoing actions to integrate climate change learning in curricula, and this should be supported.

Undertake sector-specific identification of costed climate change impacts in key sectors: The impacts of climate change on society vary depending on the sector; hence the communities' response will be dissimilar among sectors. This understanding calls for undertaking of sector-specific identification of climate change-related impacts. Furthermore, attaching monetary value to the impacts reinforces precision in budgetary actions.

Continue to undertake climate change learning as a continuous process: The impacts of climate change will continue to be experienced for many years to come. This warrants the enhancement of the institutionalization of climate change learning.

Assess the impacts of climate change learning: Review the effectiveness of the implementation of the action in this

strategy in 2022 or thereabout, after all the educational levels have anchored climate change learning in their respective curricula; and take appropriate action as the prevailing condition will determine, with intermediate review(s) of the progress at appropriate date(s).

Harmonize climate change learning among different institutions and levels: There will be need for the parties concerned with the coordination (MOES, NCDC, CCU) to bring together the stakeholders through a series of harmonization meetings to streamline climate change learning which is springing up independently at the various levels (PE, SE, BITVET, and HE). This should cause decision on who imparts what knowledge at each level.

Action plan

The proposed action plan for the strategy hinges on the following activities, each with particular objective(s), target group(s) and lead institution(s):

Activity 1: Enhance the capacity of the national UNFCCC and IPCC focal institutions in Uganda.

Activity 2: Integrate climate change learning in the education curricula (primary, secondary and tertiary education).

Activity 3: Support to university and research institutions as leaders of excellence in climate change education.

Activity 4: Design and deliver short-term, medium-term and long-term training programs in climate change.

Activity 5: Undertake regular assessment of climate change impacts including economic and non-economic aspects in different ecosystems.

Activity 6: Provide fellowships, scholarships, and undergraduate / graduate assistantships to support undergraduate, graduate, diploma, and postgraduate education including existing staff in leading institutions as outlined in the strategy, to improve in climate change adaptation and mitigation in Uganda.

Activity 7: Promote education, research and outreach programmes.

Implementation framework of the strategy

The strategy will be implemented through a sector-wide approach owing to its multi-sector and multi-stakeholder nature, and will involve public, private and civil society organizations as well as the UN Country Teams. The overall coordination of the actions is by the Ministry of Water and Environment, through the Climate Change Unit, and is managed through a multi-sector and multi-stakeholder arrangement herein referred to as the National Coordination Mechanism at the national level. At local government level, the Environment and Natural Resources Officers shall be responsible for the routine reporting to the various organizational levels.

Priority actions, in the short-term (2013 to 2015), and building on the ongoing in-country action, were identified, and they include support to the NCDC by UN CC : Learn and UNICEF in development and production of some resource books and learners materials (as well as training workshops for trainers) all in the area of climate change education.

Funding of the actions

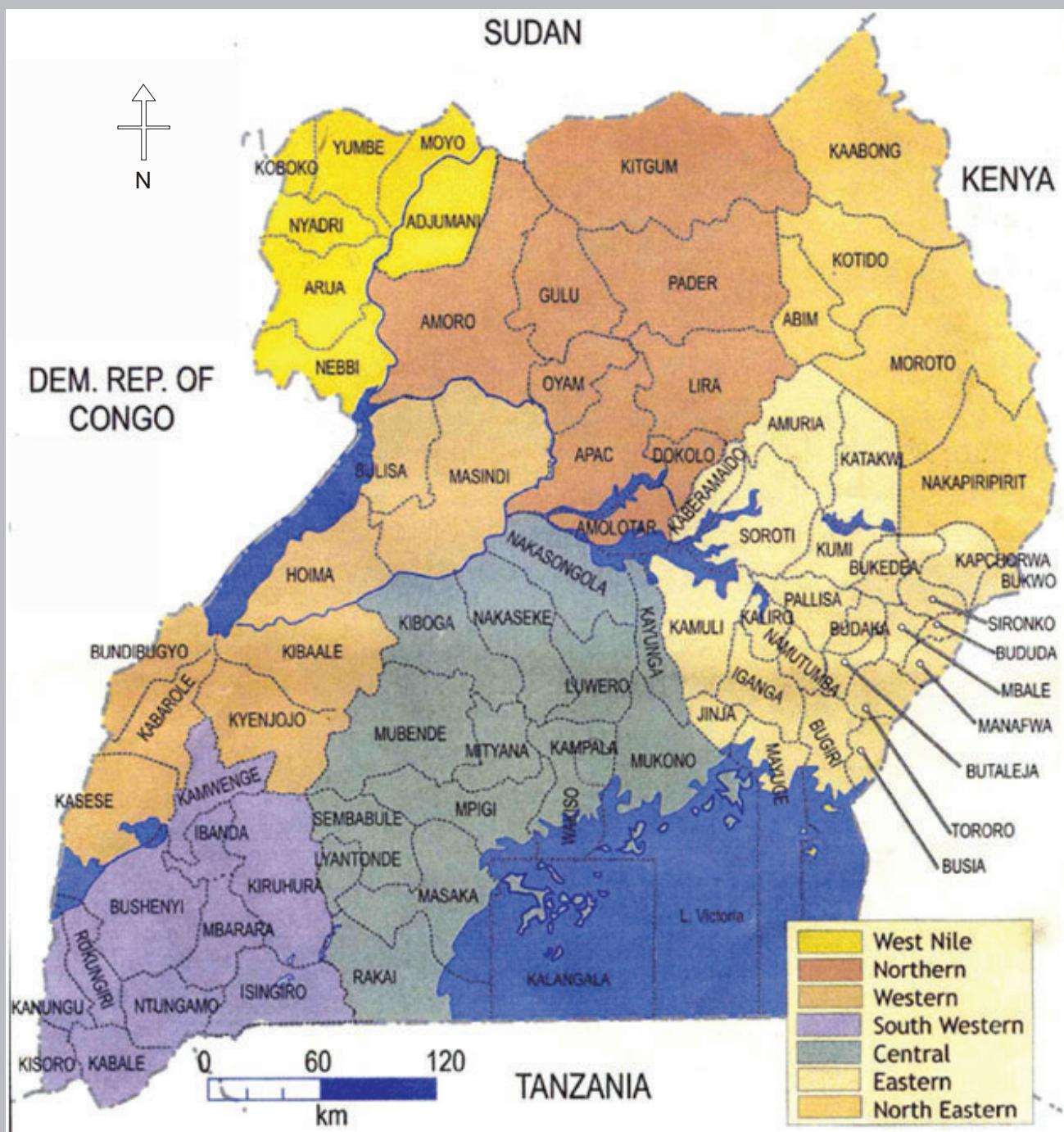
Regarding the resources for implementation of the actions, short-term seed funding by the Swiss Government through UN CC : Learn will kick-start the actions. The funding of the medium to long-term actions will follow principally the normal government funding of education, supplemented by a range of other sources, including, but not limited to, development partners, and other players in climate change actions.

Monitoring and Evaluation

The mechanism in place to monitor these actions of the strategy stretches from the top political leadership of the Ministry of Water and Environment, through the Permanent Secretary, the Sub-sector Working Group, the National Coordination Mechanism, and the district local governments.

Conclusions and recommendations

- Uganda recognizes the importance of climate change, and hence continues actions to fulfil her obligations under the United Nations Framework Convention on Climate Change.
- Action must be taken to adapt to and to mitigate the impacts of climate change. Tackling climate change requires integrated approach involving many different actors. The coordinating institution must therefore be strengthened to enable it to effectively handle the expanded responsibility.
- Human resource and institutions are key assets of the country and therefore must be strengthened and availed opportunity to acquire skills to advance the shift to green, low-emission and climate-resilient development.
- The ongoing action to integrate climate change learning in curricula must be supported to foster the anchoring of climate change knowledge and associated best practices in society.
- While strengthening the human resource capacities and skills of various institutions and individuals, the strategy should aim at exploring the connectivity between the ongoing initiatives under the UN Joint Programme on Climate Change that focuses on capacity building and policy advocacy – this will catalyze the shaping of the country along a green low-emission and climate-resilient development path.
- In designing climate change learning modules to strengthen both individuals and institutions particular consideration should be given, but not limited to:
 - Flood management schemes to raise agricultural productivity of many thousands in low-lying areas like Katakwi, Serere, Soroti and the Karamoja region to protect them from severe and extremely damaging floods;
 - Flood protection and drainage schemes to protect the urban areas from rain water and river flooding during the heavy rainy seasons;
 - Comprehensive disaster management projects involving community-based programmes and early warning systems for floods to avert incidences like the Bududa landslide from recurring;
 - Investment in agricultural research programmes to develop drought and flood resistant/adopted yield varieties for the primary crops to ensure food security;
 - Strengthening capacity to integrate climate change in the various levels of education, namely, PE, SE, BITVET, and HE.
 - Conducting skills needs assessment and developing learning strategies for the Agriculture, Education, and other key sectors;
 - Building basic climate change knowledge / competences of key sectors (based on a series of introductory learning modules); and
 - Action to support implementation of the national climate change learning strategy.



Uganda: Administrative districts

1.0 INTRODUCTION

Uganda, a landlocked country astride the equator in East Africa, covers an area of 241,038 square kilometers with about a third covered by water. The country is particularly vulnerable to climate variability and climate change owing to factors which include: reliance on exploitation of natural resources, rain-fed agriculture, high population growth at 3.2% per annum, and low income level. Uganda's population of 31 million is endowed with abundant natural resources, making it paramount that the people have the opportunity to develop their potential to use their resources in a sustainable manner, both nationally and globally. In this connection awareness-raising takes centre stage. Raising awareness, be it learning or skills enhancement, in the contemporary society, is a continuous exercise, taking on new challenges as they emerge. Among the new global challenges, but with local impact, is climate change. Climate change, the alteration in the prevailing weather condition over many years owing to human activities, is a global threat to economic and other forms of development, as it stifles progress across sectors as well as ecosystems. Hence climate change requires both international and national responses at all levels.

In Uganda, like other parts of the developing world, climate change has invoked national efforts to address capacity challenge, not only of individuals but also institutions. It calls for rebranding and / or development of human resources to generate skills to foster the shift to green, low-emission and climate-resilient development.

The human being is the greatest resource of a nation. It is the "soul of the country". Therefore nations must, as an obligation, respond to human resource capacity challenges. Although this may take various forms, responding to human resource capacity challenge through learning is key. In this connection the climate change learning strategy is an icon in both the policy and the technical contexts of climate change action in Uganda.

1.1 International Context: The Climate Change Convention

The international community recognized the serious potential impact of climate change and adopted the United Nations Framework Convention on Climate Change (UNFCCC) on 9 May 1992, to mark a turning point, amidst uncertainty, in the human endeavour to protect the environment for the present and the future generations. From the time the Convention came into force, member states have continued to vigorously forge their efforts, both individually and jointly, to search for ways of improving the global environment through various actions of mitigation and adaptation.

The Convention on Climate Change is the top instrument in the climate change process as it provides an overall framework for intergovernmental endeavour to address climate change. Its objective is to achieve stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system, within a time frame to allow ecosystems to adapt to climate change and ensure food security as well as economic development in a sustainable manner. Furthermore, the Convention, in its principles, calls on parties to take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.

The Convention in its Article 4 commits Parties to formulate, implement, publish and regularly update national and where appropriate regional programmes containing measures to mitigate climate change, and measures to facilitate adequate adaptation to climate change. Furthermore, the Convention commits Parties to cooperate in a number of actions, including: (a) preparing adaptation to impacts of climate change, (b) exchange of information relating to

climate change, and (c) in education , training and public awareness relating to climate change.

Article 6 of the Convention (on education, training and public awareness) as well as Article 10(e) of the Kyoto Protocol, calls upon governments to educate, empower and engage all stakeholders and major groups on policies relating to climate change. Equally significant, the Convention reaffirms that in carrying out their commitments under Article 4, paragraph 1(i), the Parties shall:

(a) Promote and facilitate at the national and, as appropriate, sub-regional and regional levels, and in accordance with national laws and regulations, and within their respective capacities:

- the development and implementation of educational and public awareness programmes on climate change and its effects;
- public access to information on climate change and its effects;
- public participation in addressing climate change and its effects and developing adequate responses; and training of scientific, technical and managerial personnel.

(b) Cooperate in and promote, at the international level, and, where appropriate, using existing bodies:

- the development and exchange of educational and public awareness material on climate change and its effects; and
- the development and implementation of education and training programmes, including the strengthening of national institutions and the exchange or secondment of personnel to train experts in the field of climate change, in particular for developing countries.

The development of human resources through education, training and skills development is fundamental in the achievement of sustainable development among countries. Furthermore, education aims to not only promote changes in lifestyles, attitudes and behaviour needed to foster sustainable development but, also, in connection with global warming to prepare society to adapt to the impacts of, as well as mitigate, climate change. Accordingly, the importance of Article 6 of the Convention lies in the fact that it contributes to achieving the ultimate objective of the Convention and the effective implementation of adaptation and mitigation actions. It is in this connection that the eight-year “Doha work Programme on Article 6 of the Convention” was adopted at COP 18, to provide the basis for action on activities relating to Article 6, in accordance with the provisions of the Convention, and serves as a flexible framework for country-driven action addressing the specific needs and circumstances of Parties and reflecting their national priorities and initiative”.

The above aspirations are enhanced by various international agreements that aim to strengthen human resources and skills development, such as the Millennium Development Goals (MDGs) whose targets have far-reaching implications towards the imparting of knowledge and environment sustainability; the “Decade of Education for Sustainable Development, 2005-2014 (DESD)” emphasizing education as an indispensable element for achieving sustainable development; as well as the Rio plus 20. Among the steps the UN took in response to the recognition of the challenge of individual and institutional capacity gaps, particularly with regard to the transition to green, low-emission and climate-resilient development, was to establish the UN CC: Learn in 2009 as a constituent of the “One UN climate change action Framework” of

the UN system, to propel the strengthening of human resources capacities in partner countries. The United Nations Institute for Training and Research (UNITAR) provides the secretariat.

1.2 The Human Resource and Skills Challenge

Inadequacy of human resources and suitable skills to propel sustainable economic development has plagued human society since time immemorial. Some regions of the world have moved faster than others in overcoming the challenge owing to certain circumstances and endowments. Fortunately, the Convention recognizes the capacity disparity among Parties and not only provides room for recognition of regional groupings and capability, but calls on the developed country Parties to provide support to the developing country Parties, particularly the LDCs. Similarly, the United Nations Conference on Sustainable Development (Rio +20) reaffirms the need to provide support to developing countries with the aim of facilitating cooperation and exchange of information, including capacity building, and exchange of experience and expertise.



The crested crane: Uganda's national symbol and a sign of national commitment.

2.0 THE NATIONAL CONTEXT: UGANDA'S RESPONSE TO ITS COMMITMENT

Uganda ratified the Climate Change Convention, and the Kyoto Protocol, as a first step in responding to her commitment; and has continued to actively participate in the climate change-related activities pursuant to the endorsement. The key activities include participation in climate change negotiations; production and submission of National Communications; identification of National Adaptation Programmes of Action (NAPA); and production of the Uganda National Climate Change Policy. Furthermore, Uganda has established various institutional arrangements with modalities to propel the response to her commitments under the Convention. These include the Climate Change Unit which coordinates national climate change response; the Climate Change Policy Committee that offers policy guidance on climate change issues in the country; and the Parliamentary Forum on Climate Change providing a platform for members of parliament to comprehend and support legislation on climate change in Uganda. There are also mechanisms for various players in the public and the private sectors, NGOs, as well as faith-based organizations, and cultural readers to engage in climate change-related actions.

2.1 Impacts of climate change on development in Uganda

The Intergovernmental Panel on Climate Change (IPCC), an authoritative body of scientists, assesses climate change research and, through assessment reports (ARs), provides policy advice to governments. The IPCC in its AR4 states that emissions of GHGs are increasing, that the average temperature rise to-date is about 0.7°C and it advises on the need to contain the rise in global temperature to a maximum of 2°C above pre-industrial levels to avoid dangerous interference with the global climate system. The continued increase in GHG emissions makes it difficult to achieve the objective of the UNFCCC, thus exposing the global community to higher risks. To achieve this, the IPCC recommends immediate deep GHG emissions cuts and enhancement of sinks.

In the case of Uganda the global climate change models project an increase in average temperatures by up to 1.5°C in the next 20 years and up to 4.3°C by the 2080s, according to the Fourth Intergovernmental Panel on Climate Change Assessment Report. Changes in rainfall patterns and total annual rainfall amounts are also expected. Based on the models, predictions indicate an increase in rainfall of 10–20% over most of the country with a decrease expected over the semi-arid cattle corridor. From the precipitation predictions, it is estimated that there will be 10 to 20% increase in runoff under future climate change scenarios for most of Uganda. Recent recorded rainfall data indicate some significant variations and changes in various parts of the country (MWE, 2007).

Climate change is a cross-cutting phenomenon affecting all sectors, as it stifles the country's attainment of development objectives. The three broad effects of climate change, namely, temperature rise, increased drought (Figure 1) and increased frequency of rainfall (Figure 2), identified during NAPA process, are experienced differently in the various ecosystems and sectors. The most common extreme events in Uganda include: erratic rainfall, prolonged dry spells, frequent hailstorms in some parts of the country and floods (MWE, 2007).



Figure 1: Impacts of Drought: Incursion of domestic animals in River Rwizi Basin, in Lake Mburo National Park in 2005. (Courtesy: JBK)



Figure 2: Impact of heavy rains: Buldings washed away by rubbles carried down by mountain rivers in Kasese District in 2013. Courtesy: ACCRA

Based on the effects and the importance of the sectors to the growth of Uganda, the key sectors and the corresponding climate change-related impacts are summarized in Box 1.

Box 1: Impacts of climate change on selected sectors in Uganda

Agriculture and food security sector

- Higher average rainfall, high intensity events leading to soil erosion and crop damage;
- Drought affects pastoralists in cattle corridor, leading to reduced productivity and escalation of climate-induced migration;
- Fisheries experience changes in nutrient cycling and loss of spawning owing to changes in temperature and water level, leading to reduced productivity.

Water sector

- Change in river flow regimes owing to temperature rise and glacial melting of Rwenzori Mountains;
- Flooding owing to increased rainfall leading to loss of life and property and infrastructure damage.

Health sector

- Water-related diseases: Malaria owing to altitudinal shift in vector habitat induced by temperature rise in previously malaria-free geographical areas;
- Water-borne diseases, e.g., cholera arising from flooding;
- Respiratory diseases associated with prolonged dry spells;
- Malnutrition and famine linked to reduced food production plus insecurity; particularly with widespread damage brought about by floods and droughts;
- Seasonal rainfall changes with erratic onset and cessation of the rainfall seasons, resulting in shorter rains, all leading to crop failure or lower yields of staple foods like beans, cassava, maize and banana; reduction in traditional varieties; and more crop diseases;
- Additional agricultural workloads, particularly women, provoking gender issues.

Environment sector

- Land degradation and deforestation imposed by collapse of livelihoods; Species extinction caused by loss of habitat;
- Change in ecosystems dynamics and production imposed by additional pressure on natural resource use through fall-back on forests and wetlands.

Infrastructure sector

- Transport links and settlements interrupted owing to damage to bridges, roads, telecommunication links and buildings during flood and storm events.

Sources: MWE (2007); Hepworth and Goulden (2007); and Orindi & Eriksen (2005).

These cross-cutting impacts of climate change in Uganda are increasingly becoming issues of national as well as individual concern; and have hence drawn the attention of various institutions to engage in climate change-related knowledge generation through various actions.

2.2 Rising Greenhouse Gas Emissions in Uganda

Although in her Development Plan Uganda embraces a low-emission economic development path through: ensuring climate-proof development, and promoting low-carbon economic development path, the projections reflect an increasing trend in the carbon emissions, like in many other developing countries.

Box 2: Inventory of Greenhouse gases in Uganda

Sector	Greenhouse gas in Gg	
	Carbon dioxide	Methane
Transport	507	-
Energy	197	74
Industry	43.5	-
Forestry	9.4	5.67
Agriculture	-	227
Waste	-	2.92
Total	756.9	309.59

Source: MWE, 2002

Through the Initial National Communication, the sources and sinks of greenhouse gases (GHGs) in Uganda were identified (Figures 3, and Box 2). Identification of key impacts, sources and rising trends in GHG emissions undoubtedly calls for enhanced adaptation and mitigation actions that will converge Uganda's development to a low-carbon path.

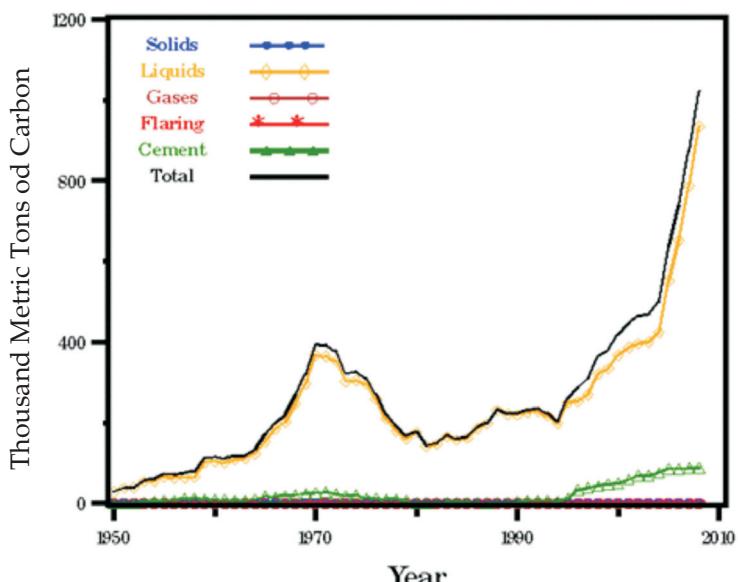


Figure 3: Carbon dioxide emissions from Uganda.

2.3 Role of Key Sectors in Uganda's Response to Climate Change

Development encompasses a multi-sector approach and activities. Accordingly, each sector has a role to play in Uganda's response to her commitment under the Convention. The role of the key sectors has been articulated in Uganda's Climate Change Policy (see Boxes 3 and 4 on Adaptations and Mitigation, respectively.)

Box 3. The role of key sectors in Uganda's response to climatic change: Adaptations

Sector	Role
Agriculture and Livestock	To promote CC adaptation strategies for sustainable agricultural and food management systems.
Water	To ensure integration of CC concerns into utilization and management of water resources.
Fisheries and Aquaculture	To ensure sustainable fisheries production.
Transport and Works	To develop and ensure integrated planning and management of transport and other physical infrastructure that encompasses climate predictions.
Forestry	To ensure the sustainable management of forestry resources.
Wetlands	To promote long-term wetland conservation and restoration of degraded wetlands.
Biodiversity & Ecosystem Services	To address climate change impacts on biodiversity and ecosystems.

Health	To strengthen adaptive mechanisms and enhance early-warning systems and preparedness for climate change-related diseases.
Energy	To promote sustainable energy access and utilization of energy.
Wildlife and Tourism	To ensure the conservation of wildlife resources and plan for improved resilience of tourism resources and infrastructure to climate change.
Human Settlements and Social Infrastructure	To promote the urban planning and development of human settlements that are resilient to climate change-related risks and hazards.
Disaster Risk Management	To ensure disaster mitigation and adequate preparedness for climate change-induced risks, hazards and disasters.

(Source: MWE 2012c)

Box 4: The role of key sectors in Uganda's response to climatic change: Mitigation

Sector	Role
Forestry	To enhance effective forest management.
Land Use and Land-Use Change	To promote and enforce planning of settlements in a sustainable manner to better manage GHG sources and sinks.
REDD+	To continue to actively promote joint REDD+ efforts involving the public and private sectors.
Wetlands	To promote a balance between conservation and sustainable use of wetlands to reduce GHG emissions.
Agriculture	To mainstream climate change mitigation and natural resource management and sustainable agricultural systems with reduced GHG emissions.
Energy Generation	To support and accelerate the implementation of the Renewable Energy Policy (REP) in order to reduce GHG emissions.
Energy Utilization	To promote conservation and efficient utilization of energy to reduce GHG emissions.
Transport	To promote effective implementation of low-emission transport system
Waste Management	To promote sustainable use of solid and liquid wastes for energy generation and other uses.
Industrial Sector	To promote cleaner production processes in industries to contain the increase in GHG emissions.

(Source: MWE, 2012c)

2.4 National Policy Priorities

Priorities related to climate change learning vary among sectors or ministries. Indeed, in some sectors they are non-existent, but with the Uganda Climate Change Policy coming in existence action in the affirmative should be in sight. Desk literature review showed that climate change-related learning existed in only five ministries (Education, Agriculture, Water and Environ-

ment, Forestry and Energy) (Annex 3). Fortunately, the development plan of the education sector provides room to reconfigure curricula (Annexes 3), and in this connection institutions of higher learning are reviving their curricula to integrate climate change learning (Annex 3).

Because climate change affects many, if not all sectors, climate change learning should be integrated across sectors. The education sector has a pivotal role in the delivery of climate change-related learning. From a regional perspective, climate change-related learning is enshrined in various institutional arrangements, including the East African Climate Change Policy.

In Uganda, climate change-related learning and awareness is alluded to not only in the National Climate Change Policy, but also in the development plans of various sectors including Education, Agriculture, Forestry, Energy, Environment, and Climate Change (which is recognized as an Enabling Sectors) (NPA, 2010). Furthermore, in Uganda, education is a constitutional right. While Article 30 of the Constitution of the Republic of Uganda 1995 makes education for children a human right, under Article 34 they are entitled to basic education by the state and parents.

The current education policy (1992) focuses on expanding the functional capacity of educational structures and reducing on the inequalities of access to education between sexes, geographical areas, and social classes in the country. In addition to the MDGs, Uganda is committed to meeting the "Education for All (EFA)" goals (set in Jomtien in 1990 and reaffirmed in Dakar in 2000).

Pursuant to these commitments by Uganda, various policy-level initiatives related to climate change learning continue to be made by various players in public and the private sectors, NGOs, as well as the Development Partners. In its development plan, the education sector focuses on all levels of education, i.e., Primary; Secondary; Business, Technical, Vocational Education and Training (BTVET), Teacher Education as well as the Higher Education (HE).

The Uganda education development plan aims at enhancing instructional methods to improve the quality and relevance of primary education; and strengthen the teaching force and reconfigure secondary education to not only improve quality but also effectiveness and efficiency. At the BTVET level, the strategy focuses on reconfiguring the sub-sector to improve quality and relevance. At the HE level, the strategy is multi-pronged. It aims to restructure the tertiary system and increase coherence and flexibility as well as reforming and improving curricula and instruction in priority disciplines, with a view to not only improve quality and relevance of the tertiary education but also increase equitable access to higher education. These aspirations call for review of the education curricula to link them to national socio-economic development needs, such as green development, and those of the labour market.

2.5 Relevant Initiatives: Key Actions

Efforts to fulfil the commitments under Article 6 of the Climate Change Convention are evident in the various sectors of Uganda's development. Relevant initiatives are notable not only in the public arena but also in the development partner segment.

The National Curriculum Development Centre (NCDC) of the Ministry of Education and Sports, in collaboration with the Climate Change Unit, is undertaking curriculum review to respond to Uganda's commitment under Article 6 of the Climate Change Convention. Incorporation of climate change learning in the five-tiered levels of education is in progress in a subject-specific manner, with particular thrust on the core subjects (i.e., the mandatory subjects

for every learner), namely: English, Social Studies and Science (for the primary level); Biology, Geography and English for the secondary level; and General Paper (for the advanced level).

Work is at an advanced stage of assembling and writing up the “education, information and communication” materials pertaining to the expected climate change-compliant curriculum for the primary level. At the same time, the phased incorporation of climate change learning in the curriculum for the secondary education has been largely accomplished, although the Teachers’ Guide has yet to be developed. At the tertiary level, both the public universities (Mak CAES, KU, MUST, BU) and the private ones (e.g., UCU, UMU, KABU) have embraced the need to integrate climate change learning into their curricula. These institutions are at various levels of curriculum review to streamline climate change sciences in programmes to equip graduates with knowledge, skills, attitudes as well as behaviour to deal with climate change issues, such as adaptation and mitigation (Annex 3).

Alongside the national initiatives, Development Partners (DP) are engaged in various initiatives related to climate change learning, in apparent contribution to fulfilment of national commitment. Four broad areas, namely, mitigation, adaptation, capacity building and policy are addressed in the DP initiatives, (GIZ, 2011). These initiatives by the DPs provide opportunities for possible funding of climate change-related learning across ecosystems.

The continuing impacts of climate change in the various ecosystems of Uganda call for robust response and resolve to strengthen human resources and skills. These emerging new capacity needs plus the inherent gaps compound the situation. Realizing this challenge, the government of Uganda in her “Uganda Vision 2040” proposes to “review the entire education curriculum to align it with the global and national socio-economic needs” as a way, at the foundation level, of addressing the human resources and technical capacity gap.



The capacity challenge: A university hands-on practical class in aquatic sciences to boost fisheries expertise.

3.0 THE CAPACITY CHALLENGE

Implementation of Uganda's commitments calls for fulfilment of the various Articles of the Convention, taking into account the "common but differentiated responsibility" and the specific national development priorities, objectives and circumstances. Additionally, advancement of green, low-emission and climate-resilient development in Uganda has capacity implications, which call for the need to strengthen both the institutional and technical capacities. In the development of this strategy, this was done first by undertaking an in-depth capacity needs assessment, both institutional and technical, to identify the capacity gaps existing in the different institutions and how they can be addressed (Figure 6).

3.1 New and Changing Skills Needs

Although climate change is a major threat to development, the fact that its impacts continue to be experienced avails a window for the generation of new skills in various sectors, for example: agriculture, meteorology, environment and energy (ILO, 2010).

A synthesis report on skills for green jobs by ILO (2010) based on 21 countries shows that although skills development is vital in unlocking the potential for green job employment, shortages of skills are increasingly becoming an obstacle in realizing the potential. Without suitable skills, this potential cannot be realized. Subsequently, the report advises that countries devise strategies based on well-informed policies, decisions, social dialogue and coordination among stakeholders as well as between employers and training institutions.

Today, skills gaps are recognized as a major bottleneck in a number of sectors, such as, infrastructure, energy and environmental services. Capacity gaps hinder or retard the drive to advance to green, low-emission and climate-resilient development, which calls for green job employment. Green jobs are defined by the ILO as "positions in a country's economic sectors such as in agriculture, manufacturing, construction, installation and maintenance, scientific and technical, administrative, and service-related activities that contribute substantially to promoting, preserving, protecting, and or restoring environmental quality and health."

A study by ILO (2010) on skills for green jobs in Uganda, which was designed to identify greening policy strategies, skills for both existing and new occupations, as well as major sectors with greening potential, made a number of observations pertinent to Uganda, including those in Box 4. Similar findings were made in the present study regarding the limited amount of staff time devoted to green job skills training.

Uganda is experiencing increased frequency of prolonged periods of drought and erratic rainfall pat-

Box 4: Limitations and opportunities for green jobs in Uganda

- *Low understanding or implementation of the concept of training in skills for green jobs,*
- *Support is needed in the education sector with particular focus on the youth and the rural poor,*
- *Development partners and NGOs are key exponents and advocates of green job skills training,*
- *The amount of staff time at district and local levels devoted to green job skills training is limited. Similar findings were made in the surveys in this study,*
- *Policies on the promotion of green skills in all sectors of the economy should be developed.*

terns. Subsequently, occupations in the area of adaptation of agriculture to climate change will increase. New occupations envisaged include researchers to develop drought-resistant and flood-tolerant crops, as well as animal breeders and disease experts to propel maximum agricultural productivity amidst scenarios of climate change. The energy sector will require various experts in renewable energy, including artisans and fabricators to construct biogas digesters, as well as fabricating biogas appliances and solar equipment. The increasing public demand for environment impact assessment in all development projects should call for an increase in environment impact assessors across ecosystems.

3.2 Human Resource and Technical Capacity Gaps

One of the characteristics of the LDCs, to which Uganda belongs, is low capacity in the various sectors of development, yet capacity is key in economic advancement. To find out about capacity availability for the advancement of low-emission and climate-resilient development in Uganda, a survey, during the development of this strategy, was conducted to identify the capacity gaps of individuals that are key to learning and skills improvement.

The methods adopted for the empirical field work followed a traditional mixed methods approach. The sampling frame was constructed around four ecosystems/ecological zones as outlined in the Uganda NAPA: highland ecosystem, low land ecosystem, aquatic ecosystem and semi-arid ecosystem. Once the districts of the highland ecosystem (Mbale, Manafwa, Bududa), low land ecosystem (Pallisa, Soroti, Katakwi) and the cattle corridor ecosystem (Nakasongola) were selected, the sampling strategy itself involved two-clusters, namely, 130 randomly selected learning institutions (primary, secondary and tertiary), and district local government officials.

At the same time, a qualitative assessment was conducted in order to perceive in more detail the learning and skills development needs. By using these methods the qualitative FGD session helped explain the capacity gaps that existed. Due to lack of resources, one FGD was conducted for the entire survey

Finally, key informant interviews were conducted at national and district levels with government and civil society policy makers and service providers. The aim was to understand the institutional context in which to strengthen human resource learning and skills development.

Once the data was analysed and computed, with support from UNITAR, a mid-term review workshop was organized with the objective to develop results-based priority action and suggest short-term priority action required to address priority learning and skills needs, and with the long-term aim of developing skills development strategies in selected sectors.

It is widely acknowledged that learning and skills development is a fundamental process for enhancing the capacities across institutions. Institutions that undertake these measures are bound to stimulate development. In an attempt to assess the learning and skills needs of various individuals and institutions, the survey results of this study were analyzed, and the results indicate that capacity gaps exist and are a hindrance to the effective implementation of the institutional mandates as well as delivering on the individual roles and responsibilities (table 4).

Three broad areas were considered in addressing the national learning and capacity needs assessment namely:

- Relevance of climate change issues
- Human resource capacity

- Provision of activities targeting learners outside institutions

From the results, 87% of individuals consider climate change issues (adaptation and resilient development) to be highly relevant to their institutions.

Similar results were obtained regarding relevance of mitigation and emission reduction, with 80% of the respondents affirming to mitigation and emission reduction being relevant for their institutions to fulfill their mandate.

Regarding human resource capacity, 60% of individuals had climate change skills competencies included in their job descriptions. Recent (last 10 years) attainment of training and skills development in climate change was noted in half of the respondents, but a large proportion (84%) did not apply training and skills development on the job. Although a sizeable number (72%) of institutions made budgetary provisions to address human resource development programmes the proportion of institutions that had climate issues covered in their budgets was less than a half (about 40%).

On the provision of activities targeting learners outside the institutions, 59% of the centres provide support activities targeting learning outside the institutions, while 52% of the centres provide learning on climate change issues to individuals outside the institutions. This indicates that the engagement of institutions in conducting climate change learning would not be strange to many of them. However because only a small number (25%) of the institutions have developed climate change learning materials, there is a strong justification to engage in actions that hence enhance advanced climate change learning.

The results indicate that about a half of the respondents or institutions (50.4%) do not have sufficient human resource capacity. Furthermore, among the institutions with insufficient human resource capacity, the results indicate that lack of knowledge and skills are the predominant capacity gaps (75% of respondents or institutions) (Figure 4 and Box 5).

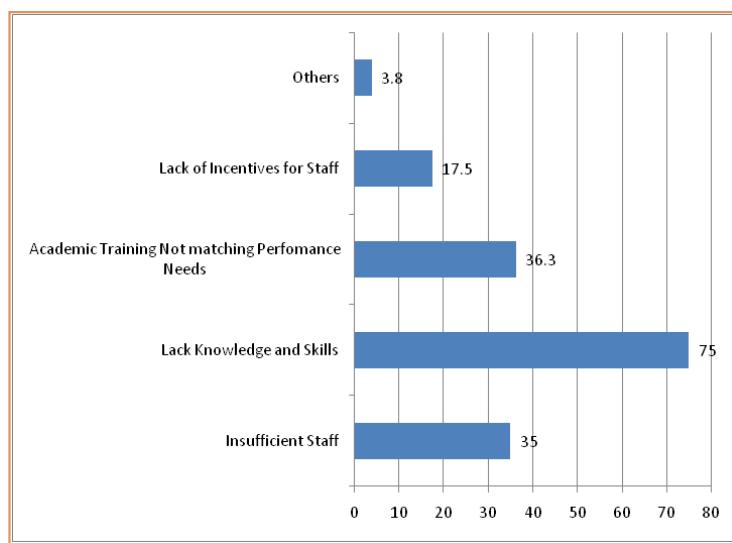


Figure 4: Summary of identified capacity gaps

Box 5: Priority topics for climate change learning identified by respondents during the survey	Low	Medium	High
Fundamentals of Climate Change Science	3.4	11.8	84.9
Predicting Climate Change Variability	7.0	23.7	69.3
Vulnerability and Adaptive Capacity Assessment	6.0	22.2	71.8
Adaptive and Climate Resilient Decision-making	6.2	21.2	72.6
Climate Change and Disaster Risk Management	7.9	15.8	76.3
Climate Change and Population Dynamics	11.6	24.1	64.3
Greenhouse Gas Inventory Development	27.5	30.3	42.2
Mitigation and Emission Reduction Strategies/ NAMAs	14.4	19.8	65.8
REDD	12.8	25.5	61.7
Green Economy, Growth and Jobs	15.2	33.3	51.4
Development of a Climate Investment Plan	12.2	26.2	61.7
International Climate Change Funding	15.2	16.2	68.6
Carbon Markets and CDM	19.2	32.7	48.1
International Climate Change Law and Negotiations	22.9	34.3	42.9
Green Technologies/ Renewable Energies	9.3	23.2	67.6
Social Dimensions of Climate Change	5.5	26.4	68.2
Communicating climate change	6.0	16.4	77.6
Gender and climate change	8.6	23.3	68.1

3.3 Institutional Capacities to Deliver Climate Change Learning

Learning and skills development is a fundamental process for enhancing the capacity for public, private and civil society institutions. Any institution that undertakes these measures is bound to effectively meet the institutional mandates.

In an attempt to assess the learning and skills needs of various institutions, the survey results show that “communicating climate risks” (74%) was the top performed climate change task, followed by “assessing vulnerability and impacts” (68.1%), and “analyzing climate change data” (58%).

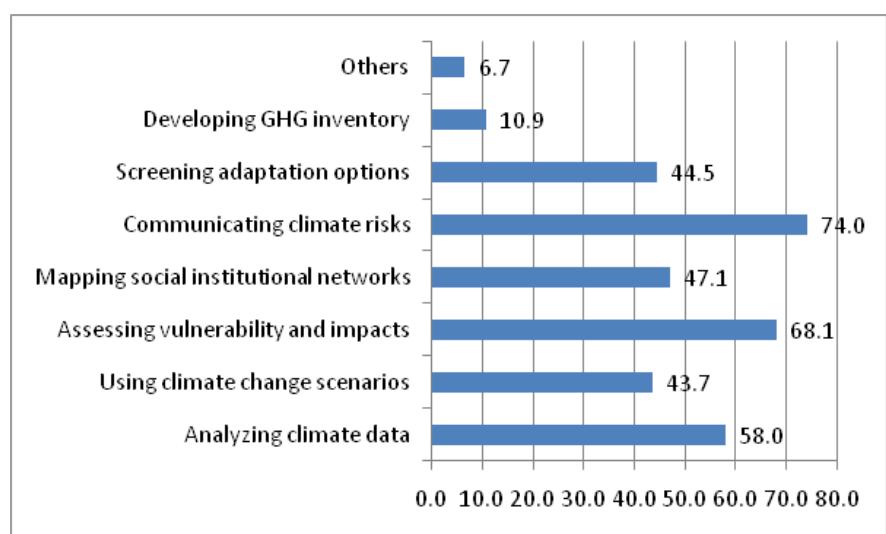


Figure 5: Climate-related tasks performed by staff in various institutions

In order to advance green,

low-emission and climate-resilient development in Uganda, there must be capacity to curb emissions of GHGs. Previous studies (MWE, 2006) on technology needs assessment for mitigation of GHG emissions identified specific barriers to the development of technologies that will enhance mitigation of GHG emissions in Uganda. A number of policies, strategies and interventions to overcome and minimize these barriers were proposed from both the international and national arenas. Figures 4 and 5 therefore show a link between the lack of skills by the individuals and different institutions, and the need to build their capacity in the different relevant climate change topics (Box 5) if the country is to attain green growth.



Educationists sorting out the building blocks of the National Climate Change Learning Strategy.

4.0 RATIONALE AND OBJECTIVES OF THE NATIONAL STRATEGY

The reality of climate change calls for understanding of how it might affect a range of natural and social systems, and to identify and evaluate options to respond to these effects. Equally significant, the transition to green, low-emission and climate-resilient development requires unprecedented levels of awareness, knowledge and skills of individuals. It also necessitates that national learning institutions and systems strengthen their capacity to deliver learning and skills development action in support of national policy objectives and priorities.

4.1 Strategy Goal and Objectives:

The overall goal of the strategy is to strengthen Human Resources and Skills to advance low-emission and climate-resilient development in Uganda.

In response to this, investigations were carried out and analysis conducted to identify capacity needs to strengthen human resource capacities through a strategic approach for climate change learning and skills development in Uganda with the following objectives:

- Take stock of policy priorities and related capacity development initiatives;
- Assess human resource capacities and skills in key sectors to achieve policy priorities;
- Identify priority action to strengthen learning and skills development;
- Strengthen national education and training system to deliver leaning action;
- Support creating a sustainable human resource base to address climate change.

4.2 Guiding Principles

In the development of this strategy, various principles of global, regional and national nature, as indicated below, guided the process.

4.2.1 The United Nations Framework Convention on Climate Change (UNFCCC)

Uganda is a signatory to the Convention and is thus obliged to fulfil her commitments under the various articles of the Convention.

4.2.2 Article 6 of the UNFCCC and its Doha Work Programme

The Convention in its Article 6 (on education, training and public awareness), calls on Parties to promote and facilitate the development and implementation of educational and public awareness programmes on climate change and its effects. The Doha work programme on Article 6 of the Convention provides a global framework for integration of climate change learning in educational systems

4.2.3 The Climate Change Policy of Uganda and the East African Community (EAC)

Climate Change Policy

Both the Uganda Climate Change Policy and the EAC Climate Change Policy prioritize support of awareness raising, capacity development through training, as well as information sharing and research, as important elements in informing future actions for climate-resilient development.

4.3 Strategy Development Process

The approach to develop a national strategy to strengthen human resource learning and skills development involved five steps:

- An inception workshop, desk review of all the relevant literature, field survey and assessment of results, data compilation and analysis, presentation of results in the mid-term technical review meeting were conducted;
- An inception workshop was conducted with support from UN CC: LEARN to bring key stakeholders together and generate ideas about the project including formation of a task team composed of 8 members to review documents;
- The national task team used guidelines provided by UN CC: LEARN to further streamline the guidelines to suit the national circumstances. Further adjustment of the survey tool was undertaken to fulfil the requirements for statistical analysis;
- The desk review included all the relevant literature on learning and skills development and the national policy documents on education, the National Development Plan (Uganda's over-arching policy framework) and the National Adaptation Programs of Action (NAPA), the Initial National Communications that provides extensive national circumstances in relation to climate change challenges in Uganda;
- The mid-term review identified concrete action to strengthen institutional capacities in the country to deliver learning, focusing on the education, agriculture, energy, water, forestry, environment, tourism, works and transport sectors. Under the theme "Designing Results-based Action to Strengthen Human Resource Capacities to Advance Green, Low-Emission and Climate-Resilient Development", the workshop brought together more than 50 participants from various government sectors, education and training institutions, Members of Parliament, private sector and civil society.



Primary level education now integrates climate change-related learning
(courtesy internet photo)

5.0 THE STRATEGY

Under national commitments, responding to various climate-related instruments of global nature, such as the Climate Change Convention; regional nature such as the East African Climate Change Policy; as well as national nature, such as the Climate Change policy of Uganda calls for adequate human resource. It, too, calls for robust preparedness in terms of skill and its replenishments. Replenishing skills calls for learning. It was for this reason that the strategy development process cautiously took into account the need to be broadly embracive in the scope of sectors consulted to generate the data for the information used in the framing of the strategy.

The key strategies to strengthen human resources and skills to advance green, low-emission and climate-resilient development in Uganda are:

5.1 Build capacity and strengthen the UNFCCC National Focal Point for Uganda (CCU MWE)

The Ministry of Water and Environment, Climate Change Unit, is the coordinating entity of the national climate change response in Uganda. The Climate Change Policy for Uganda proposes the evolution of the unit into a Climate Change Department (CCD) with the mandate as follows:

- Acting as an information clearing house on climate change concerns;
- Providing policy and strategic advice on climate change;
- Supporting communication and outreach on climate change;
- Ensuring the integration of climate change concerns into overall national planning through coordination with the relevant ministries, departments and governmental agencies;
- Providing secretarial services to the National Climate Change Policy Committee, the National Climate Change Advisory Committee and the CDM-Designated National Authority;
- Monitoring the implementation of the Climate Change Policy and its Implementation Strategy;
- Serving as the National Focal Point for the United Nations Framework Convention on Climate Change (UNFCCC).

Currently the Unit is too lean to fully attain its mandate as outlined above. To achieve the required efficiency and based on the outlined functions, there is need to build and strengthen the capacity of the CCU from the present lean head count to a reasonable staffing level. Already there' is ongoing effort to broaden the structure to address the roles and functions outlined above. Based on the above structure, the personnel head count requirements to meet the immediate priorities obligations and functions as set out in the National Climate Change Policy and the proposed structure should be implemented. To achieve maximum results, fellowships, mentorship combined with short and medium-term refresher courses to augment the principle of learning by doing should be explored in this strategy and implemented.

5.2 Strengthen the Department of Meteorology

The Department of Meteorology is the IPCC National Focal Point. The National Climate Change Policy identifies the Department of Meteorology as responsible for climate monitoring, detection and attribution in Uganda. The National IPCC Focal Institution just like the National UNFCCC Focal Institution, plays a role in the structuring of climate change learning modules and materials. However, there are many challenges the department faces in the execution of its duties, such as, difficulties in climate monitoring, lack of equipment and instruments, and the sparse station networks which negatively affect the monitoring and detection roles of the department. Equally important, the human resources are either not available or insufficient.

5.3 Other sectors

Various sectors have different mandates in the climate change arena. Some of the key strategies as outlined in the National Climate Change Policy under Adaptation and Mitigation to climate change for some selected sectors include, in particular, the following elements which could be considered in the designing of climate change learning modules and materials pertinent to ecosystems and sectors.

5.3.1 Agriculture

- Promote and encourage highly adaptive and productive crop varieties and cultivars in drought-prone and rain-fed crop farming systems;
- Promote and encourage conservation agriculture and ecologically compatible cropping systems;
- Promote sustainable management of rangelands and pastures through integrated range-land management to avoid land degradation and deforestation;
- Support community-based adaptation strategies through improved systems for conveying climate information to rural populations to enhance farmers' resilience to the impacts of climate change.

5.3.2 Water

- Promote and encourage water harvesting and provide guidelines on efficient water utilization among individuals, households, institutions and sectors;
- Invest in decentralized municipal water recycling facilities for both domestic and industrial use to reduce wastage;
- Increase coverage of water supply and water treatment facilities across all sectors and households.

5.3.3 Energy

- Promote development of energy conservation and efficiency in sectors such as building;
- Promote the use of briquettes as alternatives to charcoal;
- Introduce incentives and encourage the commercial sector to reduce reliance on bio-

mass and use LPGs with limited environmental loading.

Based on the foregoing there is need to undertake and identify the baseline situation across all sectors.

The ongoing actions on climate change learning provide a spring board for future action. So it is important that the strategy takes consideration of all the ongoing initiatives.

5.4 Support the ongoing actions in order to maintain continuity

To be able to make a successful leap into the future there should be a bridge to the past. Support to the ongoing actions to integrate climate change learning in the curricula should constitute a work area in the strategy.

5.5 Undertake sector-specific economic valuation of climate change impacts in key sectors

The impacts of climate change on society vary depending on the sector, hence the communities' response will be dissimilar among sectors. This understanding calls for undertaking of sector-specific identification of climate change-related impacts. Furthermore, attaching monetary value to the impacts reinforces precision in budgetary actions.

5.6 Continue to undertake climate change learning as a continuous process

The impacts of climate change will continue to be experienced for many years to come. This warrants the institutionalization of climate change learning to be strengthened.

5.7 Assess the impacts of climate change learning

Assess the impact of climate change learning. Review the effectiveness of the implementation of the action in this strategy in 2022 or thereabout, after all the educational levels have anchored climate change learning in their respective curricula; and take appropriate action as the prevailing condition will determine, with an intermediate review of the progress at an appropriate date.

5.8 Harmonize climate change learning among different institutions

There will be need for the parties concerned with the coordination (MOES, NCDC, CCU) to bring together the stakeholders through a series of harmonization meetings to streamline climate change learning at the various levels (PE, SE, BTBET, HE). The key output of the harmonization meeting is likely hinge on the need to decide on who imparts what knowledge at each level.

5.9 Provide fellowships, scholarships, and undergraduate / graduate assistantships and internship to support undergraduate, graduate, diploma, and post-graduate education including existing staff in the lead institutions as outlined in the strategy, to improve research in climate change adaptation and mitigation in Uganda.

5.10 Promote education, research and outreach programmes through development and implementation of an education and outreach programme.

5.11 Build the capacity of high and mid-level government officials, civil society, private sector actors and the media to understand climate change and address impacts of climate change based on the priority topics identified.

5.12 Working with training and research institutions design and deliver short-term, medium-term and long-term training programmes on climate change for IITCP members, members of civil society, PFCC, private sector and others.



Passing on climate change-related best practices to the youth.

6.0 PROPOSED ACTION

The actions to strengthen human resources and skills to advance low-emission and climate-resilient development in Uganda are outlined in the following activities. Actions that are considered to be of priority nature are outlined in Annex 2.

Activity 1: Enhance the capacity of the National UNFCCC and IPCC focal Institutions in Uganda.

Objective: To strengthen the coordination function, monitoring, detection and attribution of climate change.

Target: CCU / MWE and DoM.

Lead Institutions: GoU and Donor support.

Activity 2: Integrate climate change learning in the education curricula (primary, secondary and tertiary education).

Objective: To support the young generation better understand and address impacts of global warming, change their mindset, attitude and behaviour.

Target group: primary, secondary and tertiary institutions.

Lead Institution: Ministry of Education and Sports, UNITAR, UNICEF.

Activity 3: Support to university and research institutions as leaders of excellence in climate change education.

Objective: Assessment of institutions of learning to undertake research and provide trainings in climate change.

Target group(s): Public and private universities, NARLI / NARO.

Lead Institutions: Ministry of Education and Sports, MWE, development partners.

Activity 4: Design and deliver short-term, medium-term and long-term training programs in climate change.

Objective: To upskill the capacity of stakeholders to acquire basic climate change knowledge

Target group: High and mid level government officials, parliamentarians, climate change desk officers, media, civil society, private sector, religious and cultural institutions.

Lead Institution(s): CCU / MWE, DoM, NPA, Ministry of Agriculture Animal Industry and Fisheries, Ministry of Health, Ministry of Energy.

Activity 5: Undertake regular assessment of climate change impacts including economic and non-economic aspects in different ecosystems.

Objective: To assess the economic and non-economic impacts of climate change in different sectors for decision making.

Target group: All sectors.

Lead institutions: Ministry of water and environment; National Planning Authority; Ministry of Finance, Planning and Economic Development.

Activity 6: Provide fellowships, scholarships, and undergraduate / graduate assistantships to support undergraduate, graduate, diploma and postgraduate education including existing staff in leading institutions as outlined in the strategy, to improve in climate change adaptation and mitigation in Uganda.

Objective: To support higher education programmes specializing in research in climate change adaptation and mitigation.

Target group(s): Staff in various institutions of learning and universities.

Lead Institution(s): Ministry of Education and Sports, Ministry of Water and Environment, Institutions of higher learning, Traditional institutions, and Development partners.

Activity 7: Promote education, research and outreach programmes.

Objective(s): To advance research and dissemination of climate information to various stakeholders, from national, sub-national to community.

Target group(s): All stakeholders.

Lead institutions: CCU / MWE, and Research institutions.



High level Endorsement of the National Strategy

7.0 STRATEGY IMPLEMENTATION FRAMEWORK

The strategy will be implemented through a sector-wide approach owing to the multi-sectoral and multi-stakeholder nature of the project, and will involve public, private and civil society organizations as well as the UN Country Teams.

At the National level the strategy is envisaged to be implemented through a national coordination mechanism outlined in the national climate change policy:

- National Climate change policy committee chaired by office of the prime minister : – coordinate overall strategy implementation and ensure information flow on resource allocation for the implementation of the policy.
- National Climate Change Advisory Committee chaired by MWE: - ensure coordination and provide technical input to the National CC Policy Committee. Brings together technical representatives from government department, along with representatives from private-sector, civil society, academia and district authorities.
- The CCU MWE shall provide the secretarial services for this committee with the project coordinator as an ex-official member.

Other institutions with a role in the strategy implementation include:

The National Planning Authority

The main functions of the National Planning Authority (NPA) are:

- Ensure that the ministries, departments and agencies concerned integrate climate change through adequate provisions in their annual work plans for the implementation of the climate change policy, building on the guidance provided in the costed implementation strategy but consistent with all relevant national policies and legislations, and
- Ensure that these agreed work plans are implemented, through a review of quarterly and semi-annual reporting by the institutions concerned and appropriate follow-up actions by the NPA.

The Ministry of Local Government

The main functions of the Ministry of Local Government (MoLG) will be to:

- provide guidance to the districts to translate the proposed actions into coherent plans at the district level,
- ensure that districts make adequate provisions in their development plans, annual plans and budgets for the implementation of the proposed actions, and
- ensure that these are acted upon as planned through a review of relevant reports from the districts and appropriate follow-up actions by the MoLG, as required.

National Climate Change Policy Committee : – chaired by PM





A section of Ugandan climate change negotiators at a COP meeting sharpening their negotiating position to press for enhanced climate change financing.

8.0 RESOURCE MOBILIZATION

Swiss Government / UN CC : LEARN

For the short-term and immediate actions, the Swiss Government through UN CC : Learn provided seed funding to support the initiatives highlighted in the strategy. The main purpose was to kick start the actions while effort was made to mobilize more resources within the sources available.

While the medium to long-term actions may not have the required budget allocations, it is hoped that GoU funding and donor funds (both on- and off-budget) shall make a significant contribution to the overall funding of the medium to long-term strategy actions as it is in line with the NDP objectives.

Government of Uganda

The tapping of Uganda's National budget for funds to implement the actions and activities in this strategy is expected to follow normal procedure involving sectoral annual budgeting, supplemented where possible by donor support. It becomes apparent therefore that continuous sensitization and lobbyism by the UNFCCC National Focal Point to integrate climate change learning and climate-resilient skills development in the budgeting process and funding will have to be proactively pursued.

Continuous engagement to date between GoU and the Development Partners is active in the Climate Change sector. Capacity building actors such as DANIDA, EU, GIZ, BTC have indicated continuing commitment to the capacity building efforts, the consensus being that support to strengthen human resource learning and skills development in the country will propel green growth and help address the challenges posed by climate change.

Development Partners

Notwithstanding the above, several other development partners – including, but not limited to: DANIDA, USAID, FAO, UNDP through the UNJCC -- can be expected to continue providing off-budget support to strengthen human resource learning and skills development.

Joint Water and Environment Sector Support

More specifically, the transition of CCU/MWE into the JWESSP funds allocations with the approval of budgets by the "Sector Working Group" upon presentation of work plans and budgets is a positive step in the right direction to have such proposed actions planned for and implemented.

Equally important, the existence of the Donor Thematic Working Group on Climate Change presents an important opportunity for continued support to the implementation of the strategy so as to realize its goals and objectives.

Non Governmental Organizations

The NGOs / CSOs have increasingly become prominent players in the Climate Change sector, particularly through awareness raising and advocacy in different parts of the country. Such inputs by the CSOs are an important recourse that will ensure continuity of some of the actions proposed in the strategy.

M & R

9.0 MONITORING AND EVALUATION

A functional M&E system is essential not only for monitoring, planning and budgeting for the National Strategy (and for reporting to the SWG) but also for the Joint Assessment Framework (JAF) which involves several other key sectors.

Developing and managing the data and the information system will have at least three stages:

- (i) The collection, processing, analysis, interpretation, writing up and presentation of the data around a set of key performance indicators;
- ii) Derivation of lessons and policy messages from the data collected;
- iii) Absorption of the lessons learnt and subsequent management action to improve implementation and performance.

The mechanism in place to monitor these actions runs right from the top political leadership of the Ministry of Water and Environment, through the Permanent Secretary, the Sub-sector Working Group, the National Coordination Mechanism, and the district local governments.

10.0 RISKS AND BARRIERS

The possible hindrances and / or delays to the implementation of the proposed actions hinge on the following:

- Funding: Inadequacy of funding and /or late release of funds,
- Bureaucracy,
- Conflict of interest, and
- Mindset that could cause hesitation to changes.



The launch event of the National Climate Change Learning Strategy reaffirms Uganda's commitment to strengthen human resources and skills for climate-resilient development.

11.0 CONCLUSIONS AND RECOMMENDATIONS

- Uganda recognizes the importance of climate change, and hence continues actions to fulfil her obligations under the United Nations Framework Convention on Climate Change.
- Action must be taken to adapt to and to mitigate the impacts of climate change. Tackling climate change requires integrated approach involving many different actors. The coordinating institution must therefore be strengthened to enable it to effectively handle the expanded responsibility.
- Human resource and institutions are key assets of the country and therefore must be strengthened and availed opportunity to acquire skills to advance the shift to green, low-emission and climate-resilient development.
- The ongoing action to integrate climate change learning in curricula must be supported to foster the anchoring of climate change knowledge and associated best practices in society.
- While strengthening the human resource capacities and skills of various institutions and individuals, the strategy should aim at exploring the connectivity between the ongoing initiatives under the UNDAF Action Plan that focuses on capacity building and policy advocacy – this will catalyze the shaping of the country along a green low-emission and climate-resilient development path.
- In designing climate change learning modules to strengthen both individuals and institutions particular consideration should be given, but not limited to:
 - Flood management schemes to raise agricultural productivity of many thousands in low-lying areas like Katakwi, Serere, Soroti and the Karamoja region to protect them from severe and extremely damaging floods;
 - Flood protection and drainage schemes to protect the urban areas from the impacts of rain water and river flooding during the heavy rainy seasons;
 - Comprehensive disaster management projects involving community-based programmes and early warning systems for floods to avert incidences like the Bududa landslide from recurring;
 - Investment in agricultural research programmes to develop drought and flood resistant/adopted varieties for the primary crops to ensure food security;
 - Strengthening capacity to integrate climate change in the various levels of education, namely, PE, SE, BTVET, and HE;
 - Conducting skills needs assessment and developing learning strategies for the Agriculture, Education, and other key sectors;
 - Building basic climate change knowledge / competences of key sectors (based on a series of introductory learning modules).
 - Supporting communities and people in rural areas to strengthen their resilience and adapt to climate change should remain high on the agenda in the coming decades. However, with increasing urbanization and economic growth, the focus should be two-fold. New urban areas must be built to be climate-resilient. This will call for better planning and acquiring new skills and technology to ensure that the pattern of urbanization takes into account the likely risks from climate change.

ANNEXES

Annex 1: Selected Bibliography

- Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ) GmbH (2011). *Climate Change Actors Landscape of Uganda: Government of Uganda and Development Partners.* 146pp.
- Government of Uganda (1955). *Constitution for Uganda.* GoU.
- International Labour Organization (ILO) (2010). *Skills for green jobs in Uganda: unedited background country study*, pages 43. 57- International Labour Office, Skills and Employability Department. - Geneva. ISBN: 9789221239796.
- Least Developed Countries Environment Center (LEC) (2012). *Review of the Clean Development Mechanism (Policy paper).* LEC. Kampala.
- Ministry of Water and Environment (MWE) (2002). *Uganda Initial National Communication to the United Nations Framework Convention on Climate Change.* 63pp (MWE).
- Ministry of Water and Environment (MWE) (2006). *Consultancy services for technology needs assessment for mitigation of the GHG emissions in Uganda: Final Report.* Dept. of Meteorology. Pgs 95. MWE. Kampala.
- MWE (2007). *Climate Change: Uganda National Adaption Programmers of Action (NAPA).* Pgs 72. MWE. Kampala.
- MWE (2012a). *Gender and climate change: Assessing impacts and strategies for mitigation and adaptation to climate change in Uganda.* Pgs 58. MWE. Kampala.
- (MWE) (2012b). *Climate Change Survey assessment report for developing National Ministry of Water and Environment.*
- MWE (2012c). *Uganda National Climate Change Policy,* Final Version, Ministry of Water and Environment.
- MWE (2012). *UN CC : LEARN Mid-term technical workshop: Designing results-based action to strengthen human capacities to advance green, low-emission and climate-resilient development.* Pgs 30. National Water and Sewerage Corporation International Resource Centre, Bu-goloobi, Uganda. 19th – 20th September 2012. MWE.
- National Planning Authority (NPA) (2010). *National Development Plan (2010/11 – 2014/15).* 418 Pp. NPA. Kampala.
- Uganda Bureau of Statistics (UBOS) (2010). *Uganda National Household Survey.* 221 pp. UBOS, Kampala.
- UNFCCC (2012). *Convention on Climate Change Handbook.* UNFCCC.
- Smith P., Martino D., Cai Z., Gwary D., Janzen H., Kumar P., McCarl B., Ogle S., O'Mara F., Rice C., Scholes B., Sirotenko O., Howden M., McAllister T., Pan G., Romanenkov V., Schneider U., Towprayoon S., Wattenbach M., and Smith J. (2008). Green house gas mitigation in agriculture. *Phil. Trans. R. Soc. B* 27 Vol; 363.

Hepworth, N. and Goulden, M. (2008). *Climate Change in Uganda: Understanding the implications and upraising the response*. Pgs 47. LTS International Edinburgh.

Orindi, V.A. and Eriksen, S. (2005). *Mainstreaming adaptation to climate change in the development process in Uganda*. Africa Centre for Technology Studies (ACTS).

UN-HABITAT (2009). *Climate Change assessment for Kampala*. UN HABITAT.

Annex 2: PRIORITY ACTIONS 2013

Priority Action 1

Strengthening Climate Change Education at Upper Primary Level

1. Context and Problem Statement

Education for sustainable development aims at enabling everyone to acquire the values, competencies, skills and knowledge necessary to contribute to building a more sustainable society. For all primary, secondary, tertiary and even university levels, this concept should also promote teaching methods that enable students to acquire skills, such as interdisciplinary thinking, integrated planning, understanding complexity, cooperation with others in decision making processes and participation in local, national and global processes toward sustainable development.

Uganda has taken a bold step towards education for sustainable development by revising the teaching content to respond to global and local challenges. Over the past . years, the Ministry of Education and Sports through the National Curriculum Development Centre (NCDC) in collaboration with the Climate Change Unit, Ministry of Water and Environment and with support from the Danish Government . advanced the integration of climate change learning at the primary and the secondary levels.

Secondary Level

The secondary curriculum reform started in 2011, as a total overhaul of the entire curriculum. The reform lead to a shift from a subject-. based curriculum to Learning Areas. For example, as a result of the reform, the subjects Geography, History, Political Education, aspects of Sociology and Economics have been integrated into a Learning Area code named “Social Studies”. Other Learning Areas are: Technology and Enterprise, Mathematics, Languages, Creative Arts, Science, Life Education and Religious Education. The reformed curriculum has eight Learning Areas. All these Learning Areas are compulsory. In the reform of the lower secondary curriculum climate change education is integrated in two Learning Areas, namely, Social Studies and Science. The reformed curriculum is envisaged to begin with the roll out for senior 1.

Primary Education

Specifically by the time climate change education was introduced to NCDC, the review of the primary curriculum had been completed in 2010. The curriculum can . be reviewed again only after a minimum of 5 years of implementation. Therefore climate change education has not been integrated directly into the primary curriculum yet. Instead with the technical assistance from the Climate Change Unit, the process of integration by use of supplementary/support materials was undertaken. Draft supplementary/support materials for learners are being developed for six upper primary level subjects, namely, English, Religious Education, Science, Social Studies, Kiswahili and Creative Arts (Music, Dance and Drama) (CAPE1). Aspects of climate change learning were integrated in the Kiswahili curriculum for primary level. The supplementary materials for pupils are yet to be completed as they are still in draft form. Also, a resource book for teachers is yet to be embarked on.

2. Aim and Objectives

In support of the on-going Government of Uganda initiatives described above, the main objective of the present action is to complete the development of resource materials for climate change education at upper primary level.

Specific objectives include:

- Finalize supplementary materials on climate change for pupils at upper primary level.
- Develop resource book on climate change for primary level teachers.
- Strengthening capacities of subject specialists and panelists working on supplementary materials and resource book.
- Piloting supplementary materials and the resource book.
- Receiving approval of the materials/resource book by the Academic Steering Board.
- Printing and country wide dissemination of materials to primary schools.

3. Indicators of Success

- Climate change supplementary materials for all six subject areas finalized (English, Religious Education, Science, Social Studies, Kiswahili and Creative Arts- Music, Dance and Drama (CAPE1)).
- Climate Change integrated in the primary level Kiswahili syllabus .(This has already been done).
- Capacity of subject specialists/panelists in the area of climate change education enhanced.
- Pilots undertaken in at least 60 peri-urban and urban schools.
- Copies of teachers' resource book and supplementary materials printed and disseminated to all 20,000 primary schools in Uganda. The total number of in-service teachers is approximately 80,000 of which at least a copy of the resource book shall be required.

4. Target Group/Institution(s)

- Subject specialists and panelists working on supplementary materials and resource book
- In-service teachers
- Primary school pupils

5. Lead Organization(s) and Partners

- The Ministry of Education and Sports through the National Curriculum Development Centre will take the lead in developing materials.
- The Climate Change Unit, Ministry of Water and Environment will provide technical assistance from a substantive perspective.
- The UN Children's Fund (UNICEF) will provide technical and methodological advice through an international specialist and a national focal point.

6. Activities and Timelines

- (a) Finalization of climate change supplementary materials and development of teacher's resource book for upper primary level(Jul – Aug 2013).
- (b) Piloting ofsupplementary materials/resource book and incorporation of feedback.60 pilot schools are targeted both urban and peri urban (Sep – Oct 2013).
- (c) Meeting of Academic Steering Board for considerationand approvalof materials (Oct 2013).
- (d) Editing and fine tuning of supplementary materials/resource book (Oct 2013).
- (e) Printing and dissemination of the materials to schools (Oct 2013).

7. Linkages and Sustainability

The activities supported by UN CC:Learn/UNICEF will be an integral part of the on-going efforts of the Government of Uganda to strengthen climate change education at primary level. As a follow-up to the material development, UNICEF Uganda will explore funding opportunities to support the provision of training for upper primary level teachers on climate change in 2014. In terms of climate change education at secondary level, NCDC and CCU will further explore opportunities how development of climate change resource materials for secondary education can be supported in 2014.

8. Monitoring and Evaluation

The Ministry of Water and Environment through the Climate Change Unit shall monitor the proposed actions while the Ministry of Education and Sports through the National Curriculum Development Centre directly implements.

9. Budget

Results-based Budget

	ACTIVITY/OUTPUT	BUDGET US\$
1	Finalization of supplementary materials	20,250
2	Development of the teachers' resource book for primary level	20,000
3	Piloting of draft materials and incorporation of feedback	11,650
4	Presentation to the Academic Steering Board for approval	100
5	Edit/layout of final draft and printing of supplementary materials	10,000
6	Dissemination and popularization of materials in schools	18,000
TOTAL		80,000

Break-up of Expenditures per Budget Line

	BUDGET LINE	BUDGET US\$
1	Staff and Consultants	38,350
2	Travel	28,000
3	Equipment	1,600
4	Printing and Communication	10,000
5	Other (Stationary)	2,050
TOTAL		80,000

Priority Action 2

Building Climate Change Competencies of Newly Appointed Climate Change Desk Officers

1. Context and Problem Statement

Climate Change Desk Officers were recently appointed in all Ministries to ensure the mainstreaming of climate change across Government. Specific tasks of the Desk Officers include, *inter alia*:

- To bridge the gap between the Climate Change Unit and the respective institutions, facilitating exchange of information.
- Assist in technical activities of the Unit including climate change project development and reviews within the respective institutions.

The Desk Officers are civil servants that are already working for the Government on different thematic areas and the responsibility for mainstreaming climate change was added to their

current tasks. A large number of the newly appointed Climate Change Desk Officers, however, is not necessarily familiar with the basic concepts related to climate change and is not aware of mitigation and adaption options relevant for their respective sectors.

2. Aims and Objectives:

In this context, the aim of the present action is to strengthen basic climate change competencies of the Desk Officers to support them in performing their new tasks.

Specifically the priority action aims to enable Desk Officers to:

- understand the basics of climate change science and observed and projected impacts in Uganda
- identify mitigation and adaptation options relevant to their respective sectors, and
- effectively perform their tasks related to climate change mainstreaming

3. Indicators of Success

Training conducted for 40 Desk Officers and participants have effectively improved their knowledge and skills in the area of climate change mainstreaming (evaluation Kirkpatrick Model level 2).

4. Target Group/Institution(s)

Climate Change Desk Officers across Government.

5. Lead Organization(s) and Partners

- Climate Change Unit. Ministry of Water and Environment
- Least Developed Countries Environment Center (LEC), and
- Makerere University

6. Activities and Timelines

(a) Development of training materials by LEC and Makerere University in partnership with CCU (July-August 2013).

(b) Three-day training session (1st week of September):

- Day 1 will start with an overview of the tasks to be performed by Climate Change Desk Officers. The day will continue with a session on basic climate change science and observed and projected impacts in Uganda.
- Day 2 will start with an overview of climate change adaptation and mitigation options relevant for Uganda with practical examples from sectors represented at the training. The day will continue with a working group session to allow participants to discuss options for mainstreaming climate change in their respective sectors.
- Day 3 will allow participants to start drafting a short action plan on how they are planning to perform their new tasks as Climate Change Desk Officers, including concrete proposals to strengthen climate change adaptation and mitigation in their sectors.

- Participants will be asked to complete their action plans during the two weeks following the training.
 - Participants will receive a list of recommended readings and a background paper on climate change mainstreaming.
- (c) One-day follow-up session (3rd week of September): The session will allow reviewing final action plans and discuss possible implementation challenges.

7. Linkages and Sustainability

So far no trainings have been conducted for the Climate Change Desk Officers. Possibly materials from previous trainings on climate change could be used for preparing the training. Moreover, through UN CC:Learn a series of Introductory Learning Modules is being developed and some of the draft Modules could be pilot-tested in the training.

One of the challenges that Climate Change Desk Officers might encounter in effectively performing their tasks might be lack of internal institutional support. The 1-day follow-up session could therefore involve Permanent Secretaries to alert them to the action plans developed through the training and strengthen internal support for climate change mainstreaming.

8. Monitoring and Evaluation

The training will be evaluated using Kirkpatrick Model levels 1 and 2. Kirkpatrick Level 1 assesses training participants' reaction to a training programme. Measures at this level include assessments of trainees' affective response to the programme quality (e.g. satisfaction with the trainer) or relevance (usefulness of the acquired skills or knowledge in the workplace). At Level 2 of the Kirkpatrick Model learning measures are quantifiable indicators of the learning that has occurred during the training programme.

9. Budget

Results-based Budget

	ACTIVITY/OUTPUT	BUDGET US\$
1	Training material development	20,000
2	Implementation of 3-day training session	19000
3	Implementation of 1-day follow-up session	1,000
	TOTAL	40,000

Break-up of Expenditures per Budget Line

	BUDGET LINE	BUDGET US\$
1	Staff and Consultants	4500
2	Travel	10,000
3	Equipment	5000
4	Printing and Communication	20,000
5	Other	500
TOTAL		40,000

Priority Action 3

Support for Advancing Medium and Long-Term Implementation of the National Strategy

1. Context and Problem statement

The National Strategy to Strengthen Human Resource, Learning and Skills Development is multi-stakeholder and multi-disciplinary in nature and its implementation shall require a well coordinated and harmonized approach, as well as sustained involvement of key government ministries, civil society organizations and the private sector.

The National Coordination Mechanism that was guiding the development of the Strategy is linked to the national UN CC:Learn project which will end in November 2013. Therefore, in order to ensure effective coordination and implementation of activities in the medium- and long-term (beyond the UN CC: Learn project) it is important to link the Strategy to the institutional mechanism as outlined in the National Climate Change Policy which focuses on:

- Focal Climate Change Institution – to coordinate national climate change response.
- Other Key Coordinating Ministries and Authorities such as Ministry of Finance Planning and Economic Development; National Planning Authority all with specific roles of coordination.
- Other Ministries, Departments and Agencies all have a role play in implementation of the prescribed policy responses.
- While at the Decentralized Level NRD of the district local government shall ensure climate change issues are integrated into district development plans.

2. Aim and Objectives

The overall aim of the present action is to ensure sustained implementation of the Strategy in the

medium- and long-term.

Specific objectives include the following:

- Strengthen coordination capacities for climate change learning and skills development enhanced.
- Ensure continuous engagement of implementing partners/sectoral Ministries.
- Ensure effective monitoring and evaluation (M&E) of Strategy implementation in the short-, medium- and long-term.
- Increase publicity and visibility of the National Strategy.
- Play critical oversight role to ensure harmonized approach is realized and engage donors to support medium to long-term actions of the Strategy.

3. Indicators of Success

- Strategy effectively linked to existing governance structure in place.
- Development partners commit to supporting some of the actions of the strategy.
- Media report about the Strategy and related activities.

4. Target Group(s)

- All implementing partners and institutions of the strategy
- Development partners
- Media

5. Lead Organization(s) and Partners

- Climate Change Unit, Ministry of Water and Environment

6. Activities and Timelines

- Ensure media outreach and communications
- Coordinate implementation and M&E of priority actions
- Consult on institutional arrangements for implementation and M&E of the Strategy in the medium- and long-term
- Draft 5 “mini-proposals” for actions identified in Strategy
- Organize resource mobilization meetings

7. Linkages and Sustainability

To ensure effective coordination and implementation of activities a national coordination mechanism is in place composed of key government ministries and civil society organizations and the private sector to oversee the implementation and coordination of the strategy activities

Overall coordination of the strategy implementation will be undertaken by the MWE guided by the Climate Change Policy Committee CCPC and the task/project team and the development partners.

Medium to Long term activities shall be fast tracked in the performance measurement frameworks of government and given priority in the sector reviews for implementation and therefore provide budgets necessary to implement the proposed actions.

8. Monitoring and Evaluation

The climate change policy committee that provides overall policy guidance is at the centre of monitoring activities to ensure implementation of medium to long-term actions to operationalise the strategy. Climate Change Unit continues to give guidance and offer secretarial services.

9. Budget

Results-based Budget

	ACTIVITY/OUTPUT	BUDGET US\$
1	Media and communications	14,000
2	Coordination/M&E of priority actions	2,000
3	Consultations on institutional arrangements	2,000
4	Drafting of 10 mini-proposals	6000
5	Resource mobilization meetings	4000
TOTAL		28,000

Break-up of Expenditures per Budget Line

	BUDGET LINE	BUDGET US\$
1	Staff and Consultants	5000
2	Travel	7000
3	Equipment	4000
4	Printing and Communication	12,000
5	Other (Stationary)	2000
TOTAL		28,000

ANNEXES 3a to 3c: Ongoing climate change related-learning initiatives in Uganda

The current initiatives related to climate change learning in Uganda are summarized in tables 3a to 3c. The various players in propelling the initiatives at the time of preparation of this strategy are indicated in each table.

Annex 3a: The development plan of the education sector in Uganda provides room to reconfigure curricula (Source: NDP, 2010)

Education "level"	Objective	Strategy / intervention by MoES
PE	Improve quality and relevance of primary education (PE).	Enhance instructional quality.
SE	Improve quality of Secondary Education (SE)	Strengthen teaching force.
BTVET	Improve quality and relevance of “Business, Technical, Vocational Education and Training” (BTVET).	Reconfigure the BTVET sub-sector.
HE	Improve quality and relevance of the tertiary education.	Restructure the tertiary system to increase coherence and flexibility.
	Increase equitable access to higher education (HE).	<p>Reform and improve curricula and instruction in priority disciplines.</p> <p><i>Intervention:</i></p> <p>Review the higher education curricula to link them to national socio-economic development needs and those of the labour market.</p>
Environment	Enhance environment awareness in delivery of education and sports services	<p>Integrate environmental concerns in educational and sports programs</p> <p>(i) Mainstream environmental issues in various curricula at all levels of the education system. This is expected to enhance environmental management in schools and institutions, (ii) formulate sector-specific policies and implementation guidelines on environmental management.</p>

Annex 3b: Climate change-related learning initiatives by intitutions of higher learning in Uganda (Source : *Personnal communication with the institutions by jbkaddu*)

Broad area	Specific activities	Institution
Curriculum review / Development	Streamlining climate change sciences in programs to equip graduates with knowledge, skills, attitudes and behaviour to deal with climate change issues, adaptation and mitigation. <i>Introducing a new and practical course on Climate Change quite different from but related to Environmental Science.</i>	Mak CAES , KU
	Establishing collaboration with the Asian Institute of Technology (AIT) to develop education and research programmes including climate change studies,	BU
Fellowship	Irish Aid Fellowship Programme for MSc in Climate Change.	Mak CAES, KU, MUST, UCU, UMU
Climate change-related research	FANRPAN, various other projects involving staff and students.	Mak, GU, KABU

Annex 3c: climate change-related learning initiatives across sectors in Uganda

Objective	Strategy / Intervention
Agriculture sector	
1 Create an enabling environment for competitive investment in agriculture	Build Capacity to respond to climate change <i>Interventions:</i> <i>(i) Identify climate effects, vulnerabilities, and coping measures as they relate to the various agricultural production strategies pertaining across Uganda.</i> <i>(ii) Improve climate forecasting along with procedures for use in agricultural management</i> <i>(iii) Integrate climate risk management in agricultural business strategies</i> <i>(iv) Strengthen local government capacity to integrate CC into planning.</i>
Energy sector	
1 Promote renewable energy	Promote and facilitate the use of renewable energy technologies (biomass, solar, gasification technologies and stoves). <i>Intervention: Train artisans to install quality biogas systems</i>
2 Build capacity in the energy sector	Strengthen the institutional and human capacity. <i>Intervention: Recruit and train human resource.</i>

Forestry sector

1	Reduce pressure on forest cover as a source of wood fuel and construction material	Promote the use of efficient energy-saving sources. <i>Intervention: Expand training in construction and use of energy-efficient stoves at household and institutional level.</i>
2	Promote forest-based industries and trade	Strengthen networks for participation of local private sector in the global carbon credit market. <i>Intervention: Sensitize the public about carbon markets and development skills.</i>

Climate Change as an enabling sector:

1	Ensure climate-proof development plans	Re-define climate change as a development issue. <i>Intervention:</i> <i>(i) Increase climate change awareness training, and education at all levels.</i> <i>(ii) Conduct CC research (adaptation and mitigation) and technology development.</i>
2	Promote low-carbon economic development path	Provide and promote incentives for clean development. <i>Intervention:</i> <i>(i) intensify public education on the role of emissions in global warming.</i> <i>(ii) Build capacity of private sector to effectively participate in clean energy development initiatives.</i>

**Ministry of Water and Environment
Climate Change Unit
P. O. Box 28119 Kampala Uganda
Website: www.ccu.go.ug
Tel: +256 414 237 690
Fax: +256 414 236 690**