

**The Response Of Uganda And Other State Towards Addressing Climate Change As A Global Crisis In
Karamoja Sub Region Of North Eastern Uganda**

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Abstract

The study focused on the risks and effects climate change posed in Karamoja Sub region in North Eastern Uganda with attention on adaptation and mitigation strategies used in combating the effects and risks of climate change. Climate change policies, innovations aimed at decreasing the consequences and risks of climate change, climate risk assessment, and the effects of Uganda's climate change responses were all presented as study questions. A qualitative research design was used in the study, which included assessment of documentary sources as well as interviews. It was revealed that Uganda has implemented many policies related to climate change, according to a thorough analysis and presentation; however, a closer examination pointed that a number of policies were ineffective and did not directly address the issues of climate change. Several innovations for mitigating the consequences and hazards of climate change were also used though were insufficient. The report acknowledged that climate risk assessments were being conducted with little success and the responses had achieved some level of success in mitigating climate change's effects. Uganda government, as well as other non-governmental working groups on climate change, should step up the efforts in terms of tangible responses in the fight against global warming if the struggle against climate change is to be won.

Keywords: Climate, global warming, floods and landslides

Background of the study

According to the Ministry of Water and Environment (2015), Uganda has signed and ratified both the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP), committing to adopt and implement climate mitigation policies and measures. change and adapt to its impacts (Nicholas et al., 2023). However, without adaptation measures, the costs of the impacts of climate variability and change in Uganda would range between US\$270 billion and US\$332 billion over the 40-year period 2010-2050, for the agriculture, water, infrastructure and energy sectors. . Annual costs could be in the range of 3.2 billion to 5.6 billion US dollars over ten years in these four sectors alone (Allan et al., 2023).

Flooding is the excessive runoff of water resulting from heavy rains that raises the water table in an area, causing displacement of human settlements and making the area uninhabitable for both livestock and crop production (Lucky et al., 2023). Flooding can be measured by calculating rainfall hyetographs and river hydrographs, which is done by extracting the record of maximum above-threshold rainfall from a rain gauge to determine flood levels. An extreme flood level of 1 m above sea level is catastrophic (Willies et al., 2022). Floods can be so damaging that they cause death to both humans and animals, they can destroy crops, buildings and industries that are washed away due to the high flow of heavy water associated with extremely

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high rainfall that is uncontrollable (Christopher, 2022).

Landslides are phenomena that are very common in mountainous areas that involve the movement of soil mass from the top of slopes down, it can be between 0.01 mm~10 mm of solid mass movement per day over a wide area. The use of an extensometer, inclinometer or GPS has been helpful in measuring the magnitude of landslides in real time (Nicholas et al., 2023). This soil movement caused by heavy rains is very destructive as it affects human settlements, destroys social structures such as barns, animal enclosures, infrastructures such as schools, health facilities and community facilities. Landslides are common and occur in Eastern Uganda as many families have been displaced by landslides (Ntirandekura and Friday, 2022).

High temperatures are the continuous increase in the prevalence of heat around the world due to global warming. A temperature of 1.50 C rather than 20 C or higher is acceptable as favorable, as continued temperature increases are considered harmful to the environment and its surroundings (Davids et al., 2023). Many countries around the world have experienced a continuous increase in temperature levels originating from greenhouse gases, which are identified as responsible for preventing heat from evaporating and escaping into the entire atmosphere (Kazaara & Kazaara, 2023). This results in overheating and increased temperature affecting the ecosystem and biodiversity (Intergovernmental Panel on Climate Change, 2021). A drought is a condition where a part of a country or the whole country experiences a period of drought caused by a lack of rainfall or rainfall for a long period of time, causing a hydrological disproportion.

Problem statement

Per year, with the first season running from February to June and the second season from July to November (World Bank, 2021). Although the government has implemented a number of interventions such as providing alternative water sources such as valley dams, shallow and deep boreholes for the survival and use of people, livestock and crops, climate challenges still exist (Nicholas et al., 2023). Climate change is at the center of global politics, and governments around the world are taking both conventional and unconventional measures to address its impacts (Zowena et al., 2023). Consequently, this study evaluated Uganda's various responses to climate change as a global disaster with evidence from the Karamoja region.

Specific objectives:

1. To examine the policies of climate change in karamoja.
2. To examine the solutions and innovations and climate change in karamoja.
3. To identify risks assessment of climate change in karamoja
4. To identify mitigation measures of climate change in Karamoja.

Methodology

The study employed a cross-sectional research design. Cross-sectional design allowed for the study of the population at one specific time and the difference between the individual groups within the population to be

compared. It also provided for the examination of the co- relationship between the responses to towards climate change in karamoja. The choice of this design was dependent on the nature of the study. For the case of primary data, the study considered interviewing respondents from local government and non-governmental groups. These respondents were drawn from the districts which constitute Karamoja Sub region. The study was conducted in Karamoja. A sample of 50 respondents was targeted with the guide of a Table for sample selection from Sekaran (2013) Tables of sample. Because the study population was big, sampling was used to come up with a small size which was representative of the study population. The study employed stratified, purposeful and convenient sampling strategies. Stratified sampling was used to identify the stratum in the population. The researcher identified communities, households and administrators as the relevant stratum and their actual representation in the population. Sufficient number of subjects from each stratum was then selected. Stratified sampling ensured equal representation in an event where one or more strata in the population had a low incidence relative to the other strata. The households represented the widest variety of perspective on the response of climate change in karamoja region. Convenient sampling was used to identify the communities and administrators that formed part of the study. Questionnaires were designed (Appendices) such that each question was related to a given research question and the topic. Both closed and open-ended questions were used. Open ended questions were to help supplement the information given in the closed ended questions and helped in obtaining more complete data. The questionnaires are preferred because it gives clear and specific responses and enable the respondent to express themselves freely especially those who may not have enough time to attend to personal interview. Data collected was mainly presented by use of quantitative methods. Data from the open-ended questions and interviews were analyzed by indicating the magnitude of responses. Expressions like the bigger number, the least number, to a large extent, to a small extent, most respondents' comments and the majority of respondents were applied. In some cases, respondents' comments were directly quoted. The responses from the structured questions were computed into frequency counts and percentages, charts. It was summarized and tabulated for easy presentation, assessment, analysis and interpretation. Data from the open-ended questions enriched output from the closed ended questions and information from the documentary sources and interviews helped to bring out concrete evidence in the data analyzed. Hypotheses were then tested with the use of Pearson Correlation techniques using SPSS (Nelson et al., 2022).

Results

The first research question sought to find out whether Uganda's climate-change policies are compliant with the UN Framework Convention on Climate Change (UNFCCC).

Study findings revealed that Uganda as a country has got a number of commitments, policies, laws, regulations and by laws which have been passed and approved by Cabinet, Parliament and local government councils respectively. These are meant to provide safe guards to the environment for purposes of minimizing and reducing human activities considered harmful to the environment which propagate climate change. The

policies are designed in such a way that others support adaptation strategy while others are pro mitigation. This is significant in Uganda's efforts in reducing and controlling the effects of climate change as this legal framework has been adopted by almost all countries in the world and these frameworks emphasizes both adaptation and mitigation strategies in dealing with Secondly, the study also revealed that at the regional level, the East African Community climate change policy urges member States to develop consistent national policies to ensure harmonized action. The global consensus under UNFCCC is implemented according to each country's Green House Gas (GHG) emissions and ability to address the problems (UNFCCC, 2020). It has also been revealed that these policies are urged to consider both mitigation and adaptation as best ways of reducing and controlling the effects of climate change.

Climate change innovations in Uganda

The second research question sought to answer whether Uganda government is in agreement with globally accepted climate change solutions and innovations. Uganda as a country faced with the issue and question of climate change just like any country around the world and aware of the fact that it resonates well with the resolutions of a number of strategies adopted at international conventions and conferences at United nations level and the African Union had to adopt and use coordinated approaches in combating the effects and risks of climate change with a focus on Karamoja Sub Region in North Eastern part of the country. Findings indicate that NPA encourages all state and non-state actors to mainstream the endorsed green growth interventions into their planning and budgeting frameworks. The UGGS has thus been established to operationalize the broad green growth tenets highlighted in Agenda 2030, the Uganda Vision 2040 and the NDP to support the country's accelerated changeover to middle-income status.

Climate change risk assessment in Uganda

From the review of the preceding report, it was found out that, to a lower extent, the country has done climate change risks assessment in Karamoja for the reason that, the risks are compounding, and if there is no instantaneous action, the impacts will indeed continue to be devastating. Daniel et al., (2021) argue that, the purpose of climate change risk assessment is to identify risks and come up with mitigation measures to reduce devastating effects. However, it appears that with the case of Karamoja, there are high levels of variability in the climate cycle, which has existed for long, including unpredictable rainfall patterns and these are already having an effect on food security, health and sharp poverty with 82% of inhabitants living below the poverty line. Had there been proper risk assessment in the country, these devastating effects would be controlled to some considerable extent. However, the findings from the review of the preceding report contradict with the findings from the Ugandan Government which indicate that, the Government has established a department responsible for climate risk assessment, based at the ministry of water and environment with the mandate of conducting climate change risk screening, risk vulnerability and mapping, compiling the list of people who are victims of climate change effects and providing early warning to communities who live in areas prone to adverse effects of climate change. It was also revealed that the

districts in Karamoja under the department of Natural resources were doing climate risk assessment with the objective of reducing the effects and the risks of climate change. The Ministry of water and environment with support from United Nations Development Programme (UNDP) developed a training manual entitled “A training manual in Climate Management and Risks” with the purpose of assisting local governments in Uganda and other organisations to adapt to climate change and manage risks.

Performance Indicators	2015/16	2016/17	2017/18	2018/19	2019/20
Water supply					
Water for production functionality: % of water for production facilities that are functional at time of spot-check					
Water for production management: % of water for production facilities with actively functioning Water					
Cumulative Water for Production Storage Capacity (Million m ³)	37.2	38.9	39.3	41.124	42.025
Environment and Natural Resources					
% Uganda's land surface area covered by forest	10-11%	9%	9%	9%	12.40%
% forest area under management plans	35%	36%	34%	34.4%	34.4%
% Uganda's land surface area covered by wetlands	10.90%	10.90%	10.90%	8.90%	8.90%
% wetland area with approved management plans	11.30%	11.30%	18.40%	18.40%	20.30%

Source: Ministry of Water and Environment, (2020)

Results portrayed in the table above revealed that, water for production functionality and management has registered improvement over the period and has thus brought about positive effects on the environment. However, the challenge is still on water for Production Storage Capacity which is limiting irrigation in difficult times. For the case of environment and natural resources, there is still limited tree planting and a high probability of deforestation due to low percentage of forest area under management plans. Similarly wetlands are being encroached and shrinking in terms of approved management plans. These were observed to have devastating effects in future not only in Uganda but to the neighboring countries.

The findings of the study revealed that the responses from both the state and non-state actors had influenced

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climate change in Uganda to a greater extent, although much has to be done to achieve the call of the United Nations in protecting and conserving the environment so the effects and risks of climate change can be reduced. It was revealed that both local and central government have improved on planning and budgeting to cater for climate change matter something which was not considered in the previous years. This has provided resource envelopes to tackle issues of climate change.

It was also revealed that the responses has provided and helped communities to prepare adequately for the likely impacts of climate change. For instance the communities have embarked on constructions of permanent buildings with strong foundations which can withstand the strong force of floods which has always washed away settlement in Karamoja. The communities have also been storing food as a way of ensuring food security especially in dry season. As a matter of fact as a result of Karamoja sub region has been experiencing

deaths of people resulting from famine caused by long dry spelt, this is getting reduced as result of food security practices.

The findings also revealed that the level of conflict with other communities is getting reduced as the dams constructed by some Non-Governmental organisations and the district local governments in Karamoja sub region have provided water for both domestic use and animal consumption. It should be recalled that during prolonged drought the Karamojongs wander about in search for water and greener pasture for their animals this bring them into conflict with their neighbours especially the Lango community in the south and the Itesots in the east.

The findings revealed that that the communities had fully adapted to the use and planting of quick maturing crops and drought resistant varieties which are not easily affected by the effects of climate change. The use of small irrigation system by the farmers as part of the responses has also fully helped in mitigating the effects of climate change.

Summary

Climate change has been seen in Uganda's Karamoja sub region, and the implementation of sound environmental and climate change policies is critical in managing the risks and effects of climate change. According to the study's findings, Uganda has a number of environmental laws and policies in place, and efforts are being made to execute them; yet, the policies appear to be weak, negating their positive impact in the fight against climate change.

Adaptation strategies are critical in dealing with the effects and hazards of climate change, in addition to decreasing the effects and risks. As a result, it was established that communities in Karamoja are coping with the effects and hazards of climate change by implementing various solutions. Planting trees, growing drought-resistant crops with a short gestation period and short maturity period, small irrigation schemes, dam construction, use of permanent materials in settlement construction, rainwater harvesting and storage for both

domestic and animal consumption, mulching, and fertilizer use are all examples. All of them are advancements that have substantially aided the industry. All of these innovations have aided the sub region in its efforts to reduce the effects and risks of climate change.

The only issue identified was that the scale of these innovations does not appear to be commensurate with the level of climate change being experienced in the area, necessitating more actions from government, non-governmental organizations, and local communities if a tangible benefit in the fight against climate change is to be realized.

Climate change has an unpredictable impact on ecosystems and biodiversity, thus assessing climate change risks is critical. Uganda has clearly demonstrated its commitment to climate change risk assessment and screening by rolling these tasks from the central government to the local governments. The assessment served as an early warning system, alerting communities to the impending climatic changes in the sub region and allowing them to effectively prepare for mitigation and adaptation measures.

Finally, this study revealed that with environmental policies and laws in place and being implemented in Uganda, with a focus on Karamoja, many interventions in terms of innovations to reduce the effects and risks of climate change, as well as climate change risk

assessments, some milestones have been achieved in the fight against climate change, though not nearly enough.

Conclusion

The Ugandan government, as well as other non-state entities concerned with climate change issues, must step up their efforts in the fight against global warming. If the fight against climate change in Karamoja and Uganda in general is to be won, policies that directly address climate change must be introduced and implemented, constant climate risk assessment and climate screening must be conducted, and improved technology and innovations must be used.

Recommendation

The findings of this study show that, while Uganda has some climate change policies in place, they do not appear to be robust enough. As a result, it is advised that Uganda's government establish stronger policies and better implementation mechanisms to help address the effects of climate change. It is also recommended that the country borrow and adopt innovations from countries such as France, Nicaragua, and Chile, which have achieved greater success in the fight against climate change.

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