

Research Application Summary

Pastoral adaptation strategies to climate change in selected areas of the cattle corridor of Uganda

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Abstract

Pastoralists' communities have been able to cope in various ways to climate change stresses. However, little is known of these coping practices. This study examined the major climatic stresses in the past three decades amongst agro-pastoralists, their drivers, and community and institutional responses to the changes in the cattle corridor of Uganda. The research was purely qualitative and methods used were focused group discussions and structured questionnaires. The major climatic shocks identified were prolonged and increased frequency of droughts, disease out breaks such as foot and mouth disease, and bovine contagious disease. These out breaks occurred in the periods of 1980 to 1983, 1990 to 1992, 1996 to 2000, and 2006 to 2007. Coping strategies documented were migration to relatively safe areas, quarantine, vaccinations and treatment of animals. It is recommended that more detailed studies be done on the epidemiology of cattle diseases in the cattle corridor and on climate change and external factors that hinder the expression of adaptive capacity of pastoralist.

Key words: Bovine contagious disease, climatic stresses, food and mouth disease, Uganda

Résumé

Les communautés d'éleveurs ont pu faire face dans diverses manières aux efforts de changement climatique. Cependant, peu d'informations sont connues sur ces pratiques de faire face. Cette étude a examiné les efforts climatiques principaux dans les trois dernières décennies au sein des agro-éleveurs, leurs causes majeures et les réponses communautaires ainsi qu'institutionnelles aux changements dans le couloir de bétail de l'Ouganda. La recherche était purement qualitative et les méthodes employées étaient focalisées dans des discussions en groupe et des questionnaires structurés. Les chocs climatiques principaux identifiés ont été prolongés et ont

augmenté la fréquence des sécheresses, les déclenchements de maladie telles que la fièvre aphteuse et la maladie contagieuse de bovin. Ces déclenchements se sont produits dans les périodes de 1980 à 1983, 1990 à 1992, 1996 à 2000 et 2006 à 2007. Les stratégies de faire face enregistrées étaient la migration vers les zones relativement sûres, la quarantaine, les vaccinations et le traitement des animaux. Il a été recommandé que des études plus détaillées soient faites sur l'épidémiologie des maladies de bétail dans le couloir de bétail et sur le changement de climat et les facteurs externes qui gênent l'expression de la capacité adaptative de l'éleveur.

Mots clés: La maladie contagieuse du Bovin, les efforts climatiques, la fièvre aphteuse, Ouganda

Background

Climate change is the major challenge to world human development and ecological well being (UNDP, 2008). Recent climate change studies point to Uganda as one of the vulnerable countries. A number of studies report that many ecosystems in Uganda essentially face man-induced threats which are compounded by climate change resulting in a wide range of effects. The effects contribute to the increased entropy of the open cycle poor management-degradation-poverty (Parry *et al.*, 2007; Kotschi, 2007; Morton, 2007; Brown and Funk, 2008; Lobell *et al.*, 2008). In Uganda, livestock rearing is largely rain-fed and heavily dependent on water availability. Therefore, negative climate change and variability impacts are likely to influence the productivity of livestock in the country. Survival instincts have pushed farming communities in Uganda to adopt coping strategies to the changes which have occurred overtime but it is not ascertained whether these strategies can enable them cope with the climatic changes. The resilience of a system is determined by its adaptive capacity (Allison and Hobbs, 2004).

Literature Summary

Climate change is the defining human development issue of our generation (UNDP, 2008). Africa is already a continent under pressure from climate stresses and is highly vulnerable to the impacts of climate change. Many areas in Africa are recognized as having climates that are among the most variable in the world on seasonal and decadal time scales (UNFCCC, 2007). With rampant poverty, weak institutional capacity, lack of skills on climate change adaptability and inadequate skills in disaster management, lack of equipment for disaster management, limited financial resources and, above all, an economy which depends entirely on exploitation of its natural resources, Uganda is highly

	<p>vulnerable to adverse effects of climate change (Twinomugisha, 2005; Thornton <i>et al.</i>, 2006). The cattle corridor holds the largest number of cattle and according to an on-going related UNDP project in Luwero and Nakasongola (2009), the corridor accounts for about 90% of the national cattle herd.</p>
Study Description	<p>This study was conducted in three districts of Uganda which included Rakai, Kiriatura, and Luwero all located in the cattle corridor of Uganda. The corridor runs from the Southwest to the Northeast direction, from the Rwanda border to the Sudan/Somalia/Kenya borders, and covers an estimated area of 84,000 square kilometers with a population of 6.6 millions. In Uganda, the area covers mainly semi-arid agro-ecological zone. The study area traversed an ecologically, ethnically and institutionally heterogeneous zone. It was selected to capture variation in ecological potential, market access, livestock mobility, and ethnic diversity. The pastoralists keep cattle, sheep, goats and camels upon which they are greatly dependent on for food security. The animals are used for milking, slaughtered for meat, sold for cash or bartered for other commodities. The study was carried out in high risk climate change hotspots in the cattle corridor.</p>
Results	<p>Preliminary results on the major climatic shocks, their causes, people coping strategies and their sustainability are presented in Table 1. Two major events categories were observed in the study area, that is drought and diseases. The perceived drivers were climate change and human interference with the environment for drought, and animal movement and communal grazing for diseases.</p>
Research Application	<p>This study is relevant to Policy makers and other stakeholders seeking to support pastoralist's communities to enhance and improve their adaptability and coping capacity to climate change.</p>
Recommendation	<p>This is an on-going study. However, there is a need to map the current pastoral routes and epidemiology and potential pastoral routes due to climate change and variability. Secondly, the climate adaptive capacity of pastoralism and of different pastoralist groups needs to be better understood and recognized. Thirdly, the external factors that hinder the expression of adaptive capacity need to be identified and removed.</p>
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Table 1. Major climate change stresses and the coping practices.

Event	Possible causes	Coping practices	Sustainability of measure	Effects of the event
Drought	Natural processes/ causes (23.7%), climate change (18.4%), Interference with the environment (9.2%), Unreliable rainfall (2.6%), Lack of sufficient permanent water sources (1.3%), Cause of the drought is unknown (44.7%)	Migration, construction of communal wells and dams, movement from one place to another, raising local breeds	This is still applicable but with little ease; due to the land tenure system, most pastoralists with farms have fenced them off limiting accessibility.	Death of cattle, reduced production, Lack of market for the products, poverty, Spread of disease
Diseases	Contagious Bovine Pleuropneumonia (CBPP) (1992)	<ul style="list-style-type: none"> • Quarantine coupled with closure of markets • Vaccination of vulnerable animals • Treatment of infected animals 	Not sure whether these measures can still be used today as there have not been any new infections since 1992	Death of cattle, Reduced production, Lack of market for the products, Poverty
	Foot and mouth disease (1980-1983, 1990-1992, 2006-2007, 1999-2000, 2006)	Long distance movement (57.1%), Wild animals (33.3%)	These measures were rated very effective and are still being used to-date	

References

- Allison and Hobbs, R.J. 2004. Resilience, adaptive capacity, and the “Lock in” of the Western Australian agricultural region. *Ecology and society* (Online) URL: <http://www.ecologyandsociety.org/vol9/iss1/art3/>
- Brown, M.E. and Funk, C.C. 2008. Food security under climate change. *Science* 319:580-581.
- Morton, J.F. 2007. Climate change and food security special feature: the impact of climate change on smallholder and subsistence agriculture. *Proceedings of the National Academy of Sciences* 104:19680-19685.
- Thornton, P.K., Jones, P.G., Owiyo, T.M., Kruska, R.L., Herero, M., Kristjanson, P., Notenbaert, A., Bekele, N. 2006. Mapping climate vulnerability and poverty in Africa. Report to the Department for International Development, ILRI, Nairobi, Kenya. Available at: URL: <http://www.ilri.org/ILRIPubAware/ShowDetail.asp?CategoryID=TS&ProductReferenceNo=TS%5F060906%5F002>.
- Twinomugisha, B. 2005. A content analysis reports on climate change impacts, vulnerability and adaptation in Uganda. International Institute for Environment and Development. Available at: URL: <http://www.iied.org/pubs/pdfs/1001IIED.pdf>.
- UNFCCC. 2007. Climate change: Impacts, vulnerabilities and adaptation in developing countries. Available at: URL: http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/txt/pub_07_impacts.pdf
- UNDP. 2008. Human development report 2007/2008. Fighting climate change, human solidarity in a divided world. Palgrave Macmillan, New York. ISBN 978-0-230-54704-9. Available at: URL: http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf.
- Parry, M.L., Canziani, O.F., Palutikof, J.P., van der Linden, P.J. and Hanson, C.E.(Eds.). 2007. Summary for policymakers. In: *Climate change 2007: Impacts, adaptation and vulnerability*. Contribution of working group II to the fourth assessment report of the intergovernmental panel on climate change. Cambridge University Press, Cambridge, UK, 7-22. Check the referencing below on IPCC.