

Research Application Summary

**Evaluating accessibility and usability of dissemination pathways for delivering climate information and services to vulnerable groups in semi-arid Kenya**

Kirui, V. <sup>1</sup>, Saidu Oseni<sup>2</sup> & Omedo Bebe<sup>1</sup>

<sup>1</sup>Egerton University, P. O. Box 536, Egerton, Kenya

<sup>2</sup>Obafemi Awolowo University, Nigeria

Corresponding author: cherokiruiv@yahoo.com

**Abstract**

Access and use of climate information and services are essential for building adaptation to impacts of climate change. These include early warning systems, weather forecasts, and research outputs relating to climate change adaptation in relation to food, health and conservation of natural resources. Climate information and services would help vulnerable groups (e.g. women, children, the elderly) to increase awareness and build capacity for disaster preparedness and community resilience to a changing climate. Despite concerted efforts by research institutions and climate scientists to generate and disseminate climate-related information and services, millions of vulnerable people in arid lands continue to experience food, income and health insecurities. Media sources (e.g. mass, print and electronic) and communication via community channels have been used to disseminate vital climate information and services, but their efficiency in reaching vulnerable groups is not well-established. A major research need was to characterize dissemination pathways for climate information and services to which vulnerable groups access climate information, and perceive as appropriate. A major goal was the determination of preferences and user-friendly attributes to the flow of climate-related information and services to these groups.

Key words: Capacity building, climate information, dissemination pathways, Resilience, vulnerable groups

**Résumé**

L'accès et l'utilisation des informations climatiques et des services sont essentiels pour la construction de l'adaptation aux impacts du changement climatique. Il s'agit notamment de systèmes d'alerte précoce, des prévisions météorologiques, et des résultats des recherches relatives à l'adaptation au changement climatique dans le domaine alimentaire, la santé et la conservation des ressources naturelles. L'information climatique et des services seraient d'aider les groupes vulnérables (femmes, enfants, personnes âgées) à les sensibiliser et renforcer les capacités de préparation aux catastrophes et à

l'esprit des communautés aux changements climatiques. Malgré les efforts concertés des institutions de recherche et les scientifiques du climat pour produire et diffuser des informations liées au climat et aux services, des millions de personnes vulnérables dans les zones arides continuent d'éprouver de l'insécurité alimentaire, manque de revenus et de problèmes santé. Les sources médiatiques (par exemple les medias imprimés et électroniques) et de la communication via les canaux communautaires ont été utilisées pour diffuser des informations climatiques et des services essentiels, mais leur efficacité pour atteindre les groupes vulnérables ne sont pas bien établies. Un besoin de recherche important était de caractériser les voies de diffusion de l'information climatique et des services d'information à laquelle les groupes vulnérables ont accès, et de percevoir le cas échéant. Un objectif majeur a été la détermination des préférences et des attributs conviviaux pour le flux d'informations liés au climat et des services à ces groupes.

Mots clés: Renforcement des capacités, les données climatiques, les voies de diffusion, la résilience, les groupes vulnérables

## Background

Populations in semi-arid environments of Kenya are vulnerable to the impacts of climate change because their adaptation capabilities to climate change are low (Kates, 2000; Thornton *et al.*, 2006). More than 70% of these populations are highly dependent on natural resources and agriculture for their livelihoods (Pippa, 2008; Siri *et al.*, 2008). The vulnerable groups in semi-arid environments have not been aided to access and use climate change information and services to enable them build adaptive capacity to changing climate. Development of appropriate adaptation options depends on the availability of appropriate information on climate change impacts, and accessible communication strategies to empower poor communities (The Stern Review, 2006). Some of the effects that have been experienced by the vulnerable groups in a semi arid Marigat District of Kenya due to climate change impacts include; heat stress, droughts, forage scarcity and poor quality, water scarcity and poor quality, flooding, wind storm events and outbreaks of disease epidemics.

## Literature Summary

Developing countries, Kenya included, are generally considered to have high levels of vulnerability and low adaptive capacity to climate change. This has been mainly attributed to the high reliance on natural resources, weak institutional and financial

capacity, low per capital income, poverty and lack of safety nets (Thornton *et al.*, 2006). Some of the impacts of climate change and variability are increased weather events such as floods, drought, and wind storms, reduction on water surface resource and accelerated desertification in arid and semi-arid areas (80% of Kenya land mass is arid and semi-arid). The health of both human and livestock is also at a greater risk due to climate related diseases such as malaria, Rift valley fever (RVF), Caprine Bovine Pleuro-Pneumonia (CBPP), and *peste de petits Ruminants* (PPR) (KFSSG, 2007).

## Study Description

The study was conducted in a semi arid zone of Kenya, within the Rift valley. The area is a semi-arid environment classified a hotspot of climate change and frequently experiences extreme climatic changes particularly drought, floods, outbreaks of climate-related diseases and heat stress (Thornton *et al.*, 2006). The area is marginalized and is conflict-prone linked to competition for scarce natural resources.

The area lies in the lower agro-ecological zone classified as a semi-arid area. Rainfall variability is very high and is about 50 percent unreliable ranging from 600 mm in the lowlands and 1000-150 mm in the highlands. The annual mean minimum temperature is between 16-18<sup>o</sup> and 25<sup>o</sup>-30 <sup>o</sup>C respectively. About 62 percent of the population in the area have been estimated to be food insecure and is one of the worst hit districts faced with starvation. The area was chosen for having a large population of people who are vulnerable to impacts of climate change. Methodologies involved the selection of representative samples from vulnerable communities and the employment of cross-sectional surveys via structured questionnaires.

## Results

**Perception about climate change.** Expectedly, women and the elderly have a greater perception of climate change effects being severe to very severe compared to the children.

**Dissemination pathways most commonly accessed and used by vulnerable groups in receiving climate information and services.** Radio, neighbours/relatives /friends and indigenous knowledge informers' communication channels were rated as the most commonly used by the groups in receiving climate information and services. This indicates that community channels rates higher than the modern ICTs such as the TV, internet, mobile phones and the print media (posters, brochures and newspapers). Extension agents and farmer field's schools

also were rated as the least used communication channels by the groups. The children particularly receive climate information and services through the radio as compared to the women and the elderly who receive the same mostly through neighbours, friends, local administration and indigenous knowledge informers.

**Most preferred dissemination pathways by vulnerable groups.** Radio, neighbours and local administration was preferred by all the groups. The elderly and the women prefer indigenous knowledge with the elderly preferring this channel the most. Posters are only preferred by the children. This could have been due to the low literacy level of both the women and the elderly. The internet was rated as the least preferred while Extension Agents were sometimes preferred by the elderly and women.

**User-friendly attributes of the most preferred dissemination pathways by the vulnerable groups.** Radio was rated as the most preferred by all the groups attributing it to its low cost, reliability, language and availability of infrastructure for use. Community channels such as the neighbours, friends and relatives, local administration and indigenous knowledge informers was also preferred because the users do not incur any cost in receiving the information while at the same time it's timely, reliable and detailed. The women and the elderly preferred indigenous knowledge because it was more detailed and also presented in a language they understand. Television, print media and the internet were rated very poor due to poor infrastructure and high cost incurred in receiving information through these channels.

### **Research Application**

The results can be used by research community, policy makers and the media in designing appropriate dissemination pathways for delivering climate change information and services to benefit vulnerable groups in mitigation and adaptation capacities to climate change. There is clear indication that the groups still remain deprived of information and services on climate change mitigation and adaptation. The elderly and the women still relied solely on indigenous knowledge for their climate information needs.

### **Recommendation**

Although organizations such as Arid lands Information Networks provide information on climate change using ICT's, further institutional and infrastructural upgrading to improve information accessibility is required. Empowerment of the groups through

enhancement of skills, education and training on use of ICT's is also needed. Capacity building on the availability and importance of climate information and services in mitigation and adaptation to climate change is also needed among the groups.

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### **References**

- Kates, R.W. 2000. Cautionary tales: Adaptation and global poor. *Climatic Change* 45(1):5-7.
- Kenya Food Security, 2007. KFSSG Food Security Assessment Report: 2007 Short Rains Assessment Baringo District. <http://www.kenyafoodsecurity.org> (Accessed on October 9, 2009) pp. 5-8.
- Siri, E., Karen, O. and Lynn, R. 2008. Climate Change in Eastern and Southern Africa: Impacts, Vulnerability and adaptation. Department of sociology and human geography. University of Oslo.
- Pippa, S. 2008. CTA responds to the winds of change: Climate change and agriculture. The Technical Centre for Agriculture and Rural Corporation (CTA) Annual Report, 2008. Ouagadougou, Burkina Faso.
- Thornton, P.K., Jones, P.G., Owiyo, T.M., Kruska, R.L., Herrero, M., Kristjanson, P., Notenbaert, A., Bekele, N. and Omolo, A. 2006. Mapping Climate vulnerability and poverty in Africa. Report to the Department for International Development. ILRI, Nairobi, Kenya. pp. 20.