

**The impact of climate variability and extreme weather events on gender:
Gender vulnerabilities and adaptation strategies for improved household food
security in Malawi**

Tasokwa Kakota, V.M.*¹, Nyariki, D.¹, Mkwambisi, D.² & Kogi-Makau, W.¹

*¹Drylands Resource Management, University of Nairobi, P. O. Box 30198, Nairobi, Kenya

²Bunda College, University of Malawi, P. O. Box 219, Malawi

Corresponding author: tasokwakakota@yahoo.co.uk

Abstract

The challenge to achieving household food security is a combination of biological, physical, and social factors. However, social factors, gender in particular, have received a cursory attention in adaptation studies. This study argues that proper assessment of gender factors that can render household food insecure in times of climate variability, can lead to development of effective and appropriate adaptation strategies. The study outlines the gender vulnerability to climate variability and its implication on the household food security in Malawi. The key recommendation is therefore to consider gender capabilities and challenges in developing effective and appropriate adaptation strategies for ensuring household food security.

Key words: Adaptation, climate variability, food security, gender, Malawi

Résumé

Le défi d'atteindre la sécurité alimentaire des ménages est une combinaison de facteurs biologiques, physiques et sociaux. Cependant, les facteurs sociaux, le genre en particulier, ont reçu une attention superficielle dans les études d'adaptation. Cette étude fait valoir que l'évaluation correcte des facteurs liés au genre qui peuvent rendre l'insécurité alimentaire des ménages en temps de la variabilité du climat, peuvent conduire au développement de stratégies d'adaptation efficaces et appropriées. L'étude met en évidence la vulnérabilité des genres à la variabilité climatique et ses implications sur la sécurité alimentaire des ménages au Malawi. La principale recommandation est donc de considérer les capacités des genres et les défis dans le développement de stratégies d'adaptation efficaces et appropriées pour assurer la sécurité alimentaire des ménages.

Mots clés: Adaptation, la variabilité du climat, la sécurité alimentaire, le genre, le Malawi

Background

There are many interlinked factors; biological, physical, natural and social which pose challenges to achieving long-term household food security. However, most studies on adaptation to climate variability and change impacts have overly focused on biophysical aspects, thereby creating a gap of knowledge. Despite their importance, gender issues in particular have received a cursory attention. Yet climate variability and extreme weather events pose different challenges for rural men, women, youth and the elderly, especially in ensuring household food security. Consequently, women and men need different capabilities to be able to implement adaptation strategies that ensure sustainable household food security. Besides, often females are the most affected by the impacts of climate change, because their workload and time spent on household activities increases as the resources become scarce. Clearly, there is a need to investigate gender vulnerabilities to food security at a household level and explore opportunities and challenges to effective implementation of adaptation strategies.

Literature Summary

The literature on the impacts of climate change and variability is huge, largely covering issues such as agriculture (Mendelsohn *et al.* (2000), human health (WHO, 2003; Röhr *et al.*, 2004; Pirard *et al.*, 2005), water sources, ecosystems and biodiversity (Thomas, 2004). These studies have reported a significant negative impact of climate change and variability. For instance, climate variability is threatening to reduce agricultural productivity and yield, exacerbating the risk of hunger and food insecurity. Besides, other studies have shown that more women than men are expected to die during climate related disasters (Pirard *et al.*, 2005; Neumayer *et al.*, 2007), although in another study it was argued that more men than women die during disaster situations because they are exposed to risks (Bradshaw, 2004). Hence, the issue of who is more impacted by climate variability and extreme weather events is still a debate.

Studies on gender recognises the important role which women play in ensuring food security (FAO,1997; WEDO, 2008; Arguilar, 2009). Women are responsible for producing 60 to 80% of food in Africa, even though they constitute the largest proportion of the poorest people in the world (cited in Brody *et al.*, 2008; Magrath *et al.*, 2009) and have less access to physical, social and financial resources (Mbote,2005; Sibly, 2008). Moreover, it is already known that climate variability will intensely affect the most vulnerable and marginalised groups (IPCC, 2007; Klein *et al.*, 2007) because of their low adaptive

Study Description

capacity. But gender capabilities and challenges in ensuring food security in times of climate variability and extreme weather events are not fully elucidated (Brody *et al.*, 2008; CSW, 2008; Hemmati and Röhr, 2009) especially for vulnerable communities in Africa, such as in Malawi.

A survey was conducted in two extension planning areas of Malawi in Chikwawa and Ntcheu districts. Chikwawa generally experiences variable rainfall ranging from 967.6 mm to 170 mm, and with mean temperatures of above 20 degrees Celsius. On the other hand, Ntcheu has annual rainfall within the ranges of 600mm to 1200mm which varies depending on the altitude and the mean temperature range from 15 to 20 degrees Celsius due to varying topography. The two districts have varied cultures with Ntcheu practising matrilineal system and Chikwawa practising patrilineal system in terms of marriages and settlements patterns.

A number of data collection methods were employed in the study. Firstly, focus group discussions were conducted with groups of men and women separately in 16 villages. A total of 16 focus group discussions for each group were conducted. Secondly, individual interviews were conducted in 200 female- and male- headed households to solicit demographic information, access and availability of resources and livelihoods; and, capabilities, challenges and opportunities to implement adaptation strategies. Data from secondary sources, observations and key informants interviews will also support the findings of this study.

A simultaneous Equation Model is being used to analyse the factors that influence households vulnerabilities to food security. The assumption is that vulnerabilities and capabilities of the household influence household food security. There are observable factors which will be used to measure vulnerabilities and capabilities. Some of the vulnerability factors influence the food security of the household and the vulnerability of the household is in turn influenced by the food security of the household. Hence there will be a two-way flow of influence among the variables and this will result in more than one regression equations, one for each interdependent variable. The ordinary least squares will be inappropriate and inconsistent to estimate the model because of the interdependency among endogenous variables and the disturbance term (Gujarat, 2003). As such, two stage least squares will be used to estimate the model.

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References

- Bradshaw, 2004. Socio-economic Impacts of Natural Disasters: A gender analysis. Santiago de Chile, United Nations.
- Brody, A., Demetriades, J. and Esplen, E. 2008. Gender and climate change: mapping the linkages. A scoping study on knowledge and gaps, BRIDGE, Institute of Development Studies (IDS), UK.
- Gujarat, D.N. 2003. Basic Econometrics, Fourth Edition. McGraw Hill, New York.
- Hemmati, M. and Röhr, U. 2009. Engendering the climate-change negotiations: Experiences, challenges, and steps forward. *Gender & Development*, Volume 17, Issue 1 March 2009. pp. 19 - 32.
- Magrath, J. and Sukali, E. 2009. *The winds of Change: Climate Change, Poverty and the Environment in Malawi*. Oxfarm International, Malawi.
- Mendelsohn, R., Dinar, A. and Dalfelt, A. 2000. Climate change impacts on African agriculture. Preliminary analysis prepared for the World Bank, Washington, District of Columbia. 25 pp.
- Mbote, P. 2005. Achieving the Millennium Development Goals in the Drylands: Gender considerations. International Environmental Law Research Centre, IELRC Working.
- Neumayer, E. and Plümper, T. 2007. The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life expectancy, 1981-2002. *Annals of Association of American Geographers* 97(3):551-566.
- Pirard, P. et al., 2005. Summary of Mortality Impact Assessment of the 2003 Heat wave in France. *Euro surveill.* 2005. 10(7):153-156
- Sibyl, N. 2008. *People centred Climate Change Adaptation: Integrating Gender Issues*. Gender Equity and Rural Employment Division. FAO. Rome, Italy.
- UNFPA State of World Population, 2009. *Facing a changing world: Women, Population and Climate*.