

Research Application Summary

**The link between seasonal climatic variability and poverty: A case study of pastoral and agro-pastoral communities in Baringo District, Kenya**

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**Abstract**

Poverty remains rampant in the dry districts of Kenya so that it has now become an important item on Kenya's development agenda. The dry districts of Kenya receive low amounts of rainfall, which is also erratic. These regions are predominantly occupied by pastoralists and agro-pastoralist communities. Seasonal climatic variability effects these groups differently and therefore impacts on their livelihoods differently. We report in this study the relationship between seasonal climatic variability and poverty in pastoralist and agro-pastoralist communities of Baringo district, Kenya. There was more poverty in the dry than wet seasons. In addition, the number of livelihood sources, distance to market, ownership of livestock enclosure were positively related to per capita daily income. Cultivators were better off than non-cultivators, while education level and access to extension sources positively influenced household income. We recommend a diversification of household livelihoods sources, increase in school enrolment, encourage practising family planning and birth control as measures to alleviate poverty in the semi-arid areas of Kenya.

Key words: Drylands, food security, nutrition security, off-farm activities, livestock

**Résumé**

La pauvreté demeure galopante dans les régions sèches du Kenya de sorte qu'elle soit maintenant devenue une question importante dans l'agenda de développement du Kenya. Les régions sèches du Kenya reçoivent de basses quantités de précipitations, qui sont également erratiques. Ces régions sont principalement occupées par des communautés d'éleveurs et d'agro-éleveurs. La variabilité climatique saisonnière affecte ces groupes différemment et ainsi produit des impacts sur leurs vies différemment. Nous rapportons dans cette étude la relation existant entre la variabilité climatique saisonnière et la pauvreté dans les communautés d'éleveurs et d'agro-éleveurs du district de Baringo, au Kenya. Il y avait plus de pauvreté pendant les

saisons sèches que celles des pluies. En outre, le nombre de sources de revenu, la distance pour se rendre au marché, la propriété de clôture de bétail ont été positivement associés au revenu quotidien par habitant. Les cultivateurs étaient de loin meilleurs que des non-cultivateurs, alors que le niveau d'étude et l'accès aux sources d'extension influençaient positivement le revenu de ménage. Nous recommandons une diversification des sources de revenus de ménage, promouvons l'inscription scolaire, encourageons la planification familiale et le contrôle des naissances comme mesures pour alléger la pauvreté dans les régions semi-arides du Kenya.

Mots clés: Terres sèches, sécurité alimentaire, sécurité de nutrition, activités en dehors de la ferme, bétail

## **Background**

The concerns about poverty are at the top of the development agenda in many developing countries, and more so in arid and semi-arid areas of Africa, where environmental resource base is constantly under pressure from ecological, economic and socio-political factors. An emerging issue in the poverty debate is how to explain the notably close link between poverty and seasonal climatic variability among other factors that cause low crop and livestock productivity, leading to declining capital productivity followed by less marketable output and consequently poverty.

The most recent drought in East Africa has once again exposed the layers of poverty, underdevelopment, and political marginalization in the region's arid and semi-arid lands (ASALs). Images of malnourished and thirsty children, lunar-like landscapes, and pained herders with their emaciated animals permeate the popular media, while governments, international agencies and non-governmental organizations (NGOs) launch their normal appeals for food and external assistance. Like any natural disaster, the poor and vulnerable bear the brunt of such events, and tragically remind us that their short-term suffering is symptomatic of longer-term structural problems of chronic poverty, food insecurity and inequality. Yet, in contrast to most disasters, droughts in East Africa frequently call for renewed efforts to transform – or even abandon – the area's prime livelihood system, pastoral and agro-pastoral.

Therefore the study aimed at evaluating the link between seasonal climatic variability and poverty in pastoralist and agro-pastoralist communities in the semi-arid rangelands of Baringo District in Kenya.

## Literature Summary

**Poverty is not a static concept.** People often move in and out of poverty from year to year. This is unsurprising in Sub-Saharan Africa, given that these economies mainly depend on land based production systems and are dominated by seasonality and highly variable climate conditions. Changes in poverty status can be due to economic cycles and shocks, such as poor weather, loss of employment, or loss of a major income earner through death, injury, or long illness. Adding to this, institutions for income and consumption smoothing in these economies are either inadequate or are absent altogether (Kristjanson *et al.*, 2009). Some households do manage to escape poverty, while others remain in poverty for extended periods of time. Understanding what factors drive household movements in and out of poverty is extremely important for the design of poverty reduction strategies, and is still an open area for research (Suri *et al.*, 2008).

Recent developments in climate predictions suggest that seasonal rainfall forecasts have the potential to alleviate the vulnerability of livelihoods to climate variability in the Sahel-Sudan of Africa, where most rural households depend on rainfed agriculture for food and income (Hammer *et al.*, 2001). Washington and Downing (1999) postulated that “climate forecasts may indeed revolutionize resource management in Africa.” Still, much remains to be learned about whether and how African farmers will understand and respond to scientifically derived forecasts and what will be the social, economic and environmental impacts of farmers’ decisions that are based on climate forecasts.

The incidence of poverty tends to be worse in the dry areas of Kenya than in the higher potential areas. However, in the drylands poverty is associated with livelihood based on extensive crop farming and herding. Finding ways to improve the food and nutrition security of household and alleviate poverty in the dry lands has thus become a key policy issue (Nyariki *et al.*, 2002). The current livelihood and resource use patterns in the dry lands are insecure and cannot maintain, let alone improve, the living standard of the inhabitants (Ngugi and Nyariki, 2005). Therefore strategies to reduce the number of people directly dependent upon the primary resources of the ASALs and to improve the productivity of those resources must be sought urgently.

## Study Description

A socioeconomic research was conducted in the Njemps Flats the semi-arid area of Baringo District. The district covers 10,949

km<sup>2</sup> in Rift Valley province of Kenya. The Njemps Flats receive an annual rainfall of about 500 mm and experience a hot and dry climate with an annual mean temperature above 30°C. The main land-use practice in the study area is livestock production. Sedentary agro-pastoralism is the main land-use on the west, south and eastern part of Njemps Flats, while semi-nomadic pastoralism dominates on the northwestern and northern parts of the study area.

This study was conducted between the months of January and February, 2010. A baseline survey was carried out in January, 2010 to identify the target sample size namely, sedentary agro-pastoralists and semi-nomadic pastoralists. The final sample size of 200 households (HH) was systematically selected, 125 from sedentary agro-pastoralists and 75 from semi-nomadic pastoralists.

### **Research Application**

The analysis of poverty incidence, gap and severity using P-alpha equation indicated high poverty levels in the study area during both the wet and the dry seasons. However, poverty was found to be higher during the dry than the wet season. The Lorenz curves demonstrated a big gap between the rich and poor in the same community on one hand and between the semi-nomadic pastoralists and sedentary agro-pastoralists on the other hand.

The OLS parametric estimates of the determinants of poverty indicated that the number of livelihood sources, distance to the nearest market, ownership of enclosure, and household herd size are the most important determinants of poverty in the study area. The number of livelihood sources and ownership of enclosure were found to be positively related to per capita daily income. The households that practiced crop cultivation were better off than those which did not. Access to extension services and education level of household heads were found to be positively related to per capita daily income in sedentary agro-pastoral system. Distance to pasture and herd size were positively related to per capita daily income in semi-nomadic pastoral system. In contrast, to the *á priori* expectation, a negative relationship was observed between per capita daily income and household size in both sedentary agro-pastoral households and semi-nomadic ones.

### **Recommendation**

Diversification of household livelihoods through off farms activities can therefore be recommended as a way of reducing

poverty in semi-arid rangelands. There is need to increase the rate of school enrolment and put more efforts to support education in pastoral areas, to increase the pastoralist capacity and strengthening their capability to participate in programs that concern their livelihood. Furthermore, the study recommends the family plan and birth control to reduce the number of people dependent on pastoral livelihood.

The current trends in seasonal fluctuations in poverty status of pastoral households in the study area can therefore be achieved through provision of sustainable alternative livelihood sources. This will reduce over-reliance on livestock and land as primary sources of livelihood.

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