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Effects of 2005-2006 Drought: A Systematic Review of the Evidence in Morulem and Lokichar Pastoral Villages, Kenya

Juma Richard Otieno

Senior Lecturer, Department of Liberal studies, School of Business and Economics, Murang'a University of Technology, Kenya

Abstract: ***This paper presents the effects of the 2005-2006 drought and famine in the two pastoral villages in Turkana, Morulem and Lokichar, which were rural and urban respectively. Analyses is based on both qualitative and quantitative data. It's done to determine if there existed any differences in the impact of the 2005-2006 droughts and famine on the sample population at Morulem and Lokichar villages taken separately. The impact of drought is measured in terms of 'livestock losses' and changes in post drought wealth statuses of households in the two localities, while the impact of famine is measured in terms of 'human losses. The paper shows that, in case of drought and famine, those pastoralists who inhabit hostile environments suffer, while those who live in better resource endowed environments generally survive. The fact that those pastoralists who have ready access to non-pastoral economic opportunities seem to manage drought and famine better than those who remain isolated in the countryside means that there is also an urgent need to encourage pastoralists to diversify their pastoral economy. This should help them to have viable alternatives to pastoral products when their livestock die from drought and famine.***

Keywords: Drought, famine, wealth distribution and adaptability

1. Introduction

This paper argues that responses to drought and famine do not take place in a vacuum. Turkana people respond to such situations in complex and creative ways based on the resources accessible to them. For instance, issues relating to the ability of households with different resource endowment to undertake the activities, and the types of resources required are quite important in understanding a community's livelihood response. Swift (1989), Chambers (1989), Moser (1998), Siegel and Alwang (1999) and Ellis (2000) have presented arguments that closely link vulnerability to asset ownership and generally suggest that, if a person's livelihood platform is weak, his or her livelihood strategies are limited, and the outcome may be poverty. On the other hand, a person with a strong livelihood platform has many strings to play, and may be able to secure his or her livelihood, even in crisis. Therefore, a critical analysis of some of the socio-economic resources in the two villages that impede Turkana people's adaptability would help to deepen our understanding of their situation and enlighten us on what can be done to strengthen their adaptability.

2. Impact of 2005-2006 droughts on Morulem and Lokichar residents

2.1 Livestock losses at Morulem and Lokichar Villages.

To find out if there were any differences in the two study villages in terms of livestock losses, the size of each family's herds prior and after drought was calculated. Then, the difference between each family's herds prior to, and after drought was also calculated to enable us get the percentage death rate. This is shown in table 1 below.

Table 1: Livestock losses per household for Merule and Lokichar residents

	Cattle				Sheep and Goats				Camels				Donkey			
Herds	D1	D2	D3	D4 %	D1	D2	D3	D4 %	D1	D2	D3	D4 %	D1	D2	D3	D4 %
Morulem	9.4	3.9	5.5	58.5	10.4	3.9	6.5	62.5	1.5	1.5	0	0	1.9	0.5	1.4	73.7
Lokichar	9.2	4.8	4.4	47.8	11.4	5.7	5.7	50	2.4	2.4	0	0	2.1	0.9	1.2	57

Source: Field data, 2007

According to Table 1, the two studied villages experienced no significant loss in camels during the 2005-2006 droughts. But Morulem village appears to have been hit by drought harder than Lokichar village. This is demonstrated by the fact that in Morulem, livestock losses per household were 58, 62.5, and 73.7 percent for cattle, sheep and goats, and donkeys respectively, while each household in Lokichar experienced 47.8, 50, and 57 percentage loss for cattle, sheep and goats, and donkeys respectively.

Therefore, it could be summarized that the impact of the 2005-2006 drought was different in the two studied villages with Morulem households suffering more in terms of livestock loss than Lokichar households.

To help improve the precision of our conclusion concerning the impact of the 2005-2006 droughts on the people of Morulem and Lokichar, a further comparison was done of the wealth status of the respondents prior to and following drought conditions. It is believed that the 2005-2006 droughts brought about changes in the distribution of wealth and access to income among those affected in the Turkana District. This analysis follows Nikola's (2006) findings that droughts tend to have a stratifying effect within

communities, the weaker members becoming further impoverished while the rich are able to minimize their losses and may even increase assets in time of crisis. In this study, it is pointed out that since the two study villages, Morulem and Lokichar, were rural and urban respectively, there is a possibility of differing capacities of households to protect themselves and their assets in times of crises.

3. Changes in the distribution of wealth

The need to analyze the wealth statuses of the respondents stems from a common consensus in risks, poverty and rural development literature (Chambers 1989; Ellis 2000), which suggests that poor households are more susceptible to risks and less resilient than are non-poor households because they have fewer resources at their disposal. Davies (1993) also points out that wealthier households can benefit when poorer members of the community are faced with a crisis and have to sell their assets at depressed prices.

Therefore, in this study, it was also necessary to categorize the respondents according to their wealth status so as to identify which village had a large number of respondents who were able or not able to cope with the 2005-2006 droughts. Since the questions concerning people's perceptions of wealth are of a highly subjective nature, Ellis (2000) suggests participatory methods as the best way to capture the multiple aspects of poverty by facilitating the poor themselves to identify the factors that militate against the improvement in their circumstances. Economists, on the other hand, have traditionally based their work on objective approaches. The lack of adequate income to command basic necessities is the most widely known aspect of poverty. For instance, in many developing countries such as Kenya, the most commonly adopted poverty line is the one prescribed by the World Bank, which has been estimating global income poverty figures based on sample surveys of households since 1990 (Ellis 2000; Shanmugaratnam 2002). Poverty goes beyond the lack of income, and in a situation like the one in rural Turkana where the banking system has collapsed and only a few people if any have salaries, objective measurements of income are not particularly helpful. According to Turkana people, the number of livestock owned is the main determinant of wealth.

For example, when respondents in Morulem and Lokichar were individually asked how they defined their situation in terms of wealth. One key informant from Morulem village, a woman, described the wealth status in terms of access to food. More interesting however, was the community leaders, perception of wealth and poverty. For example, the local chief and some clan elders informally mentioned the number of wives a person has as a key determinant of wealth. A fundamental question that arises here is, does this imply that women cannot become wealthy in Turkana society?

The majority of respondents mentioned the number of livestock owned as the main criteria for describing an individual or family's social position and wealth. It is possible to analyze this further: when Turkana people answered that livestock is the variable which determines if an actor is wealthy or poor, they may not only mean the number of livestock, but also what this implies. A family who has a large number of livestock may invest some in social capital. Wives will provide children, and daughters will again lead to more cattle because they are married to other families and will bring bride-wealth to their relatives. An investment in social networking is a strategy which makes the family safer in view of crises, and it is a way to scatter the cattle in order to spread risk when there is drought in particular places, diseases occur or cattle camps are raided. A large number of livestock then implies a large family and social network, which again implies a high social position in the community. The family will also stand strong in opposition to others, and can build up political capital and power. Therefore, this study adopted the majority of responses, and categorizes the respondents in various wealth groups according to the number of livestock owned.

Respondents reported that drought affects Turkana herd-owners differently depending on their level of livestock wealth. The number of cattle, goats and sheep, and camels were mentioned as a good indicator of the wealth status in the Turkana community. Donkeys were not considered to constitute the wealth status of households. It was to the interest of this study to document why camels were considered as a determinant of wealth, but not donkeys. It was observed that due to the changing ecology and feed availability, camels are capable of lasting a longer period without water during the dry season. Respondents also believe that camel's milk is slightly more nutritious than cow's milk, as they lactate for a long period of time (estimated to be between 13-18 months), are milked twice a day, and because the milk is easily digestible and can be used to feed babies.

Therefore, while in the field, it became necessary to initially get data on what constitutes wealth under normal circumstances when there is no drought and famine crisis. This was meant to be used as control data for comparison purposes when analyzing the situation in the two study villages during the 2005-2006 droughts. On the basis of the data collected, it was clear that respondents were in agreement that, under normal circumstances when there is no crisis, they use four categories to rank households on the basis of the number of herds owned. As shown in table 15, these are; the better off, middle, poor, and the very poor. According to respondents, the better off are those owning 50-100 cattle, 80-150 sheep and goats, and 10-20 camels; the middle class own ≥7<50 cattle, ≥50<80 sheep and goats, and ≥5<10 camels; the poor own ≥1<7 cattle, ≥15<50 sheep and goats, and ≥1<5 camels; while the very poor own 0 cattle, 0-14 sheep and goats, and no camels. These different wealth categories observed are quite close to what Levine and Crosskey (2006) found in three locations (Lokitoung, Kaaling and Lapur) in the northern division of the Turkana District.

Table 2: Wealth categories under normal circumstances in the Turkana

	Better off	Middle	Poor	Very Poor
Cattle	50-100	≥ 7 < 50	≥ 1 < 7	0
Sheep and Goats	80-150	≥ 50 < 80	≥ 15 < 50	0 -14
Camels	10-20	≥ 5 < 10	≥ 1 < 5	0

Source: Field data, 2007

Having obtained the control data in Table 2, I then documented the number of livestock owned by each respondent both prior to and after the 2005-2006 droughts. Since the numbers of livestock owned by each household varied from one village to another, it was assumed that the number of households in each wealth category could also vary.

Therefore, by analyzing the herd size of each respondent prior to and after the drought and then comparing it with the control data, it was possible to categorize each and every respondent into various wealth groups. This also made it possible to compare the change in wealth statuses of Morulem and Lokichar respondents prior to and after the 2005-2006 droughts (see Table 3).

Table 3: Pre - and post-drought wealth statuses of Morulem and Lokichar residents

	cattle		Sheep and goats		camels	
Better off	Pre - drought	Post-drought	Pre- drought	Post- drought	Pre- drought	Post- drought
Number Of Households:						
Morulem	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Lokichar	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (6%)	2 (6%)
Middle		**≥ 7 < 50**		**≥ 50 < 80**		**≥ 5 < 10**
Number Of Households:						
Morulem	28 (62%)	11(24%)	1 (2%)	0 (0%)	7 (2%)	7 (16%)
Lokichar	20 (57%)	11 (31%)	2 (6%)	0 (0%)	5 (14%)	5 (14%)
Poor		**≥ 1 < 7**		**≥ 15 < 50**		**≥ 1 < 5**
Number Of Households:						
Morulem	17(38%0)	25 (56%)	11(24%)	4 (9%)	1 7(38%)	17(38%)
Lokichar	11 (31%)	15 (43%)	7 (20%)	6 (17%)	1 8(51%)	18(51%)
Very Poor		**0**		**0-14**		**0**
Number Of Households:						
Morulem	0 (%0)	9 (20%)	33(73%)	41(91%)	21 (47%)	21 (47%)
Lokichar	4 (11%)	9 (26%)	26(74%)	29(83%)	10(29%)	10(29%)

Source: Field data, 2007

On closer inspection of Table 3, one would argue that the herd size of each household in the studied villages, prior to and after the drought was still far below what is regarded by them as necessary for a sustainable livelihood. This implies that the respondents were actually not able to
derive a sustainable living.

Further analysis of the economic strata or 'wealth groups' in the two studied villages shows that both prior to, and following the 2005-2006 drought, about only 6 percent of the households in Lokichar village had the required number of camels for the 'better off' category, and a very negligible proportion of households owned the required cattle and camels for the middle category. A critical look at Table 3 also shows that the households owning cattle in the middle category reduced from 62 and 57 percent prior to drought, to 24 and 31 percent after drought for Morulem and Lokichar respectively. After the drought, decreases were also seen in the number of households owning sheep and goats in the 'middle' category.

Most notable in Table 3 is the increase in the number of the 'poor' and 'very poor' in the two villages after the 2005-2006 drought. For example, the households owning cattle in the 'poor' category increased from 38 and 31 percent prior to drought, to 56 and 43 percent after drought for Morulem and Lokichar respectively. Those owning sheep and goats in the'poor' category though reduced from 24 and 20 percent prior to drought, to 4 and 6 percent after drought, for Morulem and Lokichar respectively, the decrease led to an increase in the number of households in the 'very poor' category. This means that those households who were in the 'poor' category before drought, moved to the very poor category after drought.

Therefore, it could be pointed out that these results indicate that the impact of the 2005-2006 droughts was associated with locality, and that Morulem might have suffered more than Lokichar. This is shown by the fact that, firstly, after the 2005-2006 drought, there were still few (approximately 6 percent) Lokichar households owning the acceptable quantity of camels for the 'better off' category, while Morulem had none. Secondly, a large number of households in the 'very poor' category was from Morulem village after the drought conditions. It is the destitute which formed the largest proportion in Morulem village after the 2005-2006 drought condition.

4. Impact of 2005-2006 famine on Morulem and Lokichar residents

4.1 Human deaths in the households of Morulem and Lokichar villages

Having shown the impact of the 2005-2006 drought on the households from the two study villages, the next step is to find out the impact of famine at the two localities. The analysis is done by understanding the death rates in the two study villages. Table 4 shows the distribution of deaths per household for the two sites.

Table 4: Human losses in the household at Morulem and Lokichar

Death Per Household	Lokichar Village Households Recording Death	Morulem Village Households Recording Death	Total Number Of Households
0.	28	15	43
1.	4	5	9
2.	2	10	12
3.	1	5	6

4.	0	6	6
5.	0	4	4

Source: Field data, 2017

Computation of the distribution of the deaths in Table 4 indicates that there were a total of 95 deaths at both Morulem and Lokichar. 84 of them (88.4 percent) occurred at Morulem as compared to 11 (11.6 percent) for Lokichar. In addition, most of the households at Morulem who recorded deaths lost between 1-5 members each as compared to 1-3 for the corresponding Lokichar households. Therefore, it could be pointed out here that the deaths at Lokichar village were comparatively few. Morulem village had 30 (approximately 67 percent) of households suffering death as compared to 7 (approximately 20 percent) of households for Lokichar village. And on average, Morulem lost 1.87 persons per household while the average for Lokichar was as low as 0.31 persons per family. Therefore, it could be summarised that Morulem village was struck much more severely by famine than Lokichar village.

5. Impediments to adaptability during 2005-2006 droughts

The findings shows that while the impact of the 2005-2006 droughts had a greater effect in terms of 'livestock losses' at Morulem than Lokichar, famine was also more severe at Morulem than Lokichar. It now remains for us to discuss the causal variables. There was a probe question which all the respondents had been asked and whose answer was meant to show the factors that impinge on adaptability in Turkana. Each and every respondent interviewed was asked to explain why he or she thinks they suffered more severely than his or her neighbour. The respondents provided the answer in an attempt to explain the differences: Firstly, in an attempt to answer this question, respondents were asked to voluntarily list their sources of food prior to and during the 2005-2006 drought and famine. Differences between the Ngibelai and Ngisonyoka were indeed remarkable. While both the Ngibelai and Ngisonyoka relied on social networks and relief food, the impact of the environment became quite marked. Apart from relying on social networks, the Ngibelai heavily depended on wild fruits, nuts and berries, as major sources of food during the 2005-2006 drought and famine periods, while the Ngisonyoka included rice and fish in their list as well many other openings.

The assortment of wild fruits, nuts and berries, named by all the 45 Ngibelai interviewees included Dobera glabra (edapal), and Balanites species (ebei). Edapal was the most dominant in the diet and was still part of the diet at the time of the study. Edapal is a semi-poisonous wild fruit which is gathered in bags, brought home and processed by women for consumption. It is boiled and pounded several times to remove the poison. The recovered and processed beans are then cooked and eaten. I learnt that the edapal beans were mixed with maize and cooked together. Collection of wild fruits became more important to the Ngibelai too when there was no other alternative. Therefore, it is possible to argue that the Ngibelai heavily dependent on poisonous wild fruits, nuts, and berries as a result of severe drought of the 2005-2006, may have contributed to the high death rates recorded. It is true, however, that a conclusive statement on this cannot be made without a laboratory test of their food value. But, even in the absence of such tests, the food value of poisonous wild fruits, nuts and berries, cannot match that of livestock products such as milk, blood, and meat to which Turkana pastoralists are accustomed and which was in low supply during the period studied.

Morulem is isolated and far removed from any major population concentration centre such as towns or markets. In other words, it is remote, with a poorly developed social and economic infrastructure. The pastoralists, who live around Lokichar are, on the other hand, blessed in having a more favourable environment. They live near Lokichar market and are accessible to Lodwar town.166 These are areas of diversified economies as opposed to almost pure pastoral economy of the Morulem ecosystem. Therefore, the Ngisonyoka were more exposed to the modern sector of the economy than the Ngibelai, and were better placed to pursue many ends to top up their domestic food reserves. For instance, one respondent at Lokichar village narrated how his family survived, and from a content analysis of his story, one may see a people responding to a much more socially and economically dynamic environment. One key informant from Lokichar village, an old man aged 68 years, captured the views of many respondents interviewed at Lokichar village. The key informant stated as follows:

> I engaged in small scale business at Lokichar market. I survived on (posho) maize meal bought from oria (Somali) traders in exchange for skins. My wife also bought grain using skins and some of her ornaments. At the end of 2006, Catholic priests at Lokichar parish were giving rice and cooking fat to those ready to do manual labour at their church. I then took up the job at the Catholic Church. I had five children and they all survived (Key Informant Interview 13th ebruary 2007, Lokichar Village).

The argument advanced here is that this wide range of opportunities at Lokichar locality saved the people. Therefore, diversification acted as a safety valve in this case. It signaled efforts by the Ngisonyoka to actively manage vulnerability to the 2005-2006 drought and famine. This finding is supported by studies suggesting that it is the maintenance and continuous adaptation of a highly diverse portfolio of activities that is a distinguishing feature of rural survival strategies in contemporary poor countries (Haggblade, Hazell, and Brown 1989; Reardon 1997; Von Braun and Pandya-Lorch 1991). However, the nature of diversification for livelihood depends on the context in which it takes place. For instance, in the case of Turkana pastoralists, it is worth noting that the Ngisonyoka involvement in so many survival strategies may also have been a sign of distress, for there is risk of misinterpretation of diversification for a thriving economy and robust community and household livelihoods.

The respondents explained that the inter-tribal feuds between the Ngibelai territorial section and their neighbours the Pokot tribe precluded symbiotic interaction. Consequently, the only symbiotic interaction during the

2005-2006 drought and famine under study was between the Turkana and the Merille of Ethiopia through the Namuruputh gateway. Yet, ironically, the Turkana share a much closer border with the Pokot than they do with the Merille. Thus, on account of their living close to the Pokot, the Ngibelai became greater victims of the forays from across the Pokot border than the Ngisonyoka. In this regard, we can argue that the Ngibelai environment is hostile and militates against adaptability.

6. Conclusion

The major focus of this study was to find any differences between the two study villages in terms of their resources, and any reasons for these differences during drought periods. The study found differences in many aspects of livelihoods and raised a number of other issues that are common to most households in the study villages. In a general sense, two important facts came out concerning our understanding of adaptability in the Turkana District. First, drought per se does not cause famine (human deaths from starvation); other social and economic factors must come into play to determine the ultimate outcome. In this case, these factors include friendly neighbours and well developed infrastructure. Secondly, in those circumstances where drought leads to famine, those in rural areas in the Turkana District are less resistant to the devastations of drought and famine than those living near the urban centres. Those living near urban centres are found to depend on a diverse portfolio of activities and income sources among which trade and casual employment, alongside other opportunities, contributes to family wellbeing. This is why the pastoralists, who lived near Lokichar market engaged in manual jobs to earn an income and traded with the Somali people in exchange for food, hence surviving the devastating effects of the 2005-2006 drought and famine. Turkana pastoralists who lived at Morulem village, a distant rural area in the pasturelands, suffered most severely since they could not diversify their activities. This implies that when pastoralists are left at the mercy of the vagaries of nature operating precarious subsistence economies like pastoralism, they become easy victims of climatic changes.

Therefore, what is going on in the two villages under study is an indication of what might become a wider process in the whole of the Turkana District. Therefore, changes in development policies relevant to this area could lead to a sustainable adaptive strategy.

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