

WHO STOLE THE RAIN? THE CASE OF RECENT SEVERE DROUGHTS IN KENYA

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Abstract

Drought is one of the major scourges of humanity with its devastations manifested in form of negative economic impacts, massive malnutrition, human miserly and death to both livestock and people. Yet drought (and its impacts) is not new and has been a subject of writing from early days and from many parts of the world. This paper discusses weather and human related causes of drought in Kenya, using a case study of the 2008-2009 and the 2011 droughts in Kenya and affecting the whole Horn of Africa whose devastating impacts are still being felt. It uses information from various sources collected in the recent past on weather and declining forest cover in Kenya's key water towers as a possible link to the drought. The analysis show that the drought may have been caused by the ongoing climate change while the severity of the drought impacts were made worse and may be attributed to a series of events which are human related including post-election violence in 2007, failed government policies on food security leading to poverty in semi-arid parts of Kenya. The paper notes that those most affected by the drought were the pastoralists, children and women, while wildlife was not spared either. It proposes policies that promote an integrated creative approach in fighting drought related famines in Kenya which include initiating both a "green" and "blue" revolutions in Kenya's marginal lands as a way of climate change adaptation strategies to mitigate food insecurity.

Keywords: Droughts, Kenya, climate change, food security

Introduction

Drought is one of the major scourges of humanity with its devastations manifested in form of negative economic impacts, massive malnutrition, human miserly and death to both livestock and people, yet drought has been a subject of writing from early days and from many parts of the world. Remember the story of Joseph in the Bible and the seven drought

years in Egypt more than 2,500 years ago (Adefolalu, 1990), which, perhaps provide the only accurate long term drought prediction and mitigation to famine.

Droughts have been frequent in Africa and particularly in the Sahel region of Africa. The Sahel is a climatic zone sandwiched between the African savanna grasslands to the south and the Sahara desert to the north, across West and Central Africa. This zone, in terms of ecology, may extend in drought years to Somalia, Ethiopian and Northern Kenya and has had frequent droughts that are have been increasing in frequency and severity due to climate change from the end of the 19th century (Batterbury, 2001). The droughts have had dramatic environmental and societal effects upon the affected nations. Famines have followed these severe droughts affecting the economies, agriculture, livestock and human populations of much of Horn of Africa and Northern Kenya.

Kenya has experienced two worst droughts in recent history, the 2008/9 and 2011 droughts. Yet the focus of the political governance has been on other issues of lesser importance. The country has not taken serious mitigation measures for future impacts like those experienced in the 2008/2009 and the drought in 2011 year to avoid similar manifestations. The recent droughts 2008/2009 and 2011 droughts have caused the worst devastation in Kenya's dry lands, with indications showing almost over two thirds of Kenya's beef cattle perished, a significant number of camels and sheep also died (KFSWG, 2011). Apparently, the East African indigenous goat seems to have performed better during the 2008-2009 drought, the goat has become so adapted to all seasons that it survives on whatever is available, including the stands of *euphorbia species* now used for fencing in many Kenya's dry lands settlements, the camels were also less impacted due to their resilience to drought, though some significant losses were recorded in the 2011 drought. The drought left many pastoralists communities destitute and many others dying of hunger silently in their *bomas* (homes).

The aftermaths of drought in dry lands is almost, always manifested through increased cattle rustling because the little cattle herds still on their hooves in dry lands, have to be shared (UNEP, 2002), and good rains that often follow after severe droughts become too attractive to pastoralists not to ignore and, hence the motivation to raid their neighbours and restock causing another devastation in human life through tribal conflicts.

Objectives

The objectives of this paper are to analyse the possible causes of recent droughts in Kenya and in particular, the 2008/2009 and 2011 drought and their impacts to livelihoods in marginal areas of the country. It considers climate change, reduction in forest cover and

human factors contributions to drought and famine in Kenya. The climate change factors are global in nature and require both local and international response while human factors are localized and can be mitigated through appropriate local government policy responses that promote food security, climate change adaptations and peace in vulnerable areas and communities in semi-arid lands.

What then caused the droughts?

The obvious answer to the severity of the recent droughts is the long period of low rainfall or no rainfall at all in most parts of the Kenyan territory and in particularly the semi-arid lands of Kenya. As for the 2008/09 and 2011 droughts, the semi-arid parts of the country were the most affected because the short rains of November – December, 2008 were below average while the long rains of February-April 2009 were severely depleted with some parts in the eastern, north eastern and northern Kenya receiving no rain at all (GoK, 2010). The central parts of the country, including Nairobi also received depressed rainfall (below 8,000 mm). The Western parts of the country and the central Rift Valley regions also experienced depressed rainfall (below 800 mm).

What are the atmospheric factors that may have caused the drought? The Kenya Meteorological Department (GoK, 2009) reported in their weather forecast that the Indian ocean was abnormally cool and hence the South East and North East Trade Winds which converge around the Equator (Inter-Tropical Convergence Zone (ITCZ)) thus bringing the onset of the rainy season did not pick enough moisture from the Indian Ocean, hence the depressed rainfall in the eastern parts of the country (GoK, 2009). The western parts of the country also did not get adequate rainfall because the Atlantic and the Congo Prevailing Winds did not have the usual moisture content, hence low rainfall were received in the region.

The overall reason for these abnormal cooling of the ocean could be due to climate change and the global warming. Global warming could have caused the cooling of the oceans in two ways, namely, the melting of ice in the Polar Regions could imply cold water entering the oceans and drifting into the tropics. The result is cooling of tropical oceans and hence little moisture being picked by the prevailing winds onshore. Climate change could also slow down the global circulation of the ocean currents due to moderated contrasts in temperatures between tropical and temperate ocean waters (IPCC, 2011).

Horn of Africa

In the Horn of Africa, the 2011 drought was attributed to a consecutive two poor rainy seasons resulting in one of the driest years since 1950/51 droughts in the region. The World

Meteorological Organisation forecasted the onset of a *La Nina* phenomenon in June 2010 and the same was expected to be experienced into the first quarter of 2011 (WMO, 2010). The *La Nina* episode followed a strong *El Nino* season that started in May/June 2009 to April 2010. The result of the *El Nino* in Eastern and Horn of Africa is enhanced rainfall and subsequent flooding while the *La Nina* brings severe droughts in the mentioned regions. The *La Nina* phenomenon was anticipated to dissipate any gains made during the *El Nino* season in rain dependant agricultural countries in the region as it often manifests in extended dry spells leading to protracted droughts. The pasture that becomes plenty in *El Nino* years in dry lands also disappears in *La Nina* years.

As predicted, the country received highly depressed rainfall during the October-December 2010 ‘short rains’ season (GoK, 2010) (Fig. 1). Rainfall was poorly distributed both in space and time, except in the western highlands, parts of Rift Valley and the Nairobi area, which received near normal rainfall during the season.

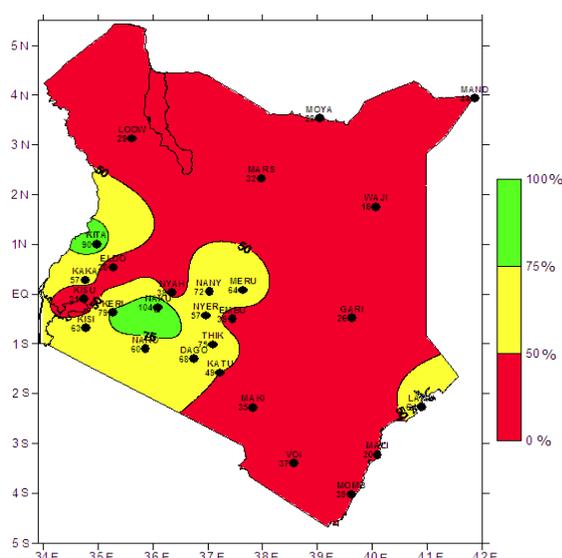


Fig.1: Rainfall outlook October-December 2010 : (Source GoK/KMD, 2010)

Overall, many parts of the country experienced erratic and below normal rainfall receiving 10-15% lower than the expected normal annual rainfall. The depressed rainfall was experienced through to the ‘long rains’ of March-April-May 2011 resulting in a third successive poor or failed season in many parts of the rangelands and lowlands. Worst hit areas include Wajir, Marsabit, Isiolo, northern Garissa, northern Tana River, and Mandera; and the southeastern marginal districts of Kitui, Makueni, Mwingi, and Tharaka. This has significantly increased vulnerability to a crisis level with approximately 3.2 million people currently classified as food insecure and in need of urgent food and non food interventions.

Could deforestation account for the severity in droughts in Kenya?

The five largest forests blocks (towers) in Kenya are: Mt. Kenya, the Aberdares Range, the Mau Complex, Mt. Elgon and the Cherangani Hills. These constitute the main “water towers” of the country forming the upper catchment of all the main rivers in Kenya. The only exception is the Tsavo River whose upper catchment is Mt. Kilimanjaro in Tanzania (GoK, 2009). These catchments provide water to all installed hydro-power plants in Kenya, producing 70% of the country’s total electricity output (ibid, 2009). Most of the water towers contain indigenous forests. The country’s forest cover has been reduced to only 1.7% of Kenya’s total land area through deforestation and settlements (GoK, 2009).

Satellite assessment on Kenya forests indicate that, between 2000 and 2007, Kenya lost 72% of its indigenous forests (GoK, 2009). Among the five water towers, most of the changes occurred in the Mau Complex with a loss of 70% of its forest cover. The most devastating period for the Kenya Forests was 2003-2005 when deforestation was most alarming (ibid, 2009). It is therefore possible that the severity of drought in Kenya in 2009 and 2011 may have been, to some extent, attributed to the effects of devastating forest losses in the 2000-2007 period when the country lost 72% of its forest cover.

In spite of these dramatic changes in Kenya’s forest cover, we may not be sure the recent droughts were caused by the devastations occurring to the country’s main indigenous forests in the Kenya’s water towers though it is known that there is a strong link between vegetation cover and drought (Gibbs, 1975).

Impacts of the drought

In terms of food impacts, the 2008-2009 drought left 3.8 million pastoralists and agro-pastoralists in dire need of food relief and 1.5 million primary school children required feeding in the schools (KFSSG, 2009). Many children and women starved in dry lands and others continued to suffer malnutrition due to lack of balanced diet, especially milk and meat which is their main diet, as men left with their herds to look for pasture and water. The urban poor were also feeling the drought impact due to the escalation of food prices, with 2.5 million requiring assistance (KFSSG, 2009). Most of survivors of the drought hit areas in dry lands were most likely, saved by relatives working in urban centres through remittance of funds to buy food.

Severe droughts have a profound impact on dry lands livelihoods, indeed, it takes many years to recover. The River Ewaso Nyiro flow at the height of the 2008-2009 drought vanished upstream at the Archer’s Post. This River, is the engine of the economy of northern Rift section of Kenya including Laikipia, Samburu and Isiolo Districts, and other regions in

the neighbourhood. The river flows on the leeward side of the Mt. Kenya, and has always a low flow due to the oversubscription upstream, especially by commercial farmers of vegetables most of them exported to international markets. In the Laikipia plateau and downstream areas, people, livestock and wildlife faced the worst resource conflict in the history of Kenya. The Samburu National Reserve was severely affected and by end of September 2009, one could not notice whether the reserve was made for wildlife or livestock. Thousands of emaciated livestock grazed over the remaining stubs of grass, herded by heavily armed men, ready for a shootout in case of any little provocation. The hotels in the region closed operation as no tourism could co-exist with livestock in the wildlife parks with the area becoming extremely unsafe for tourism.

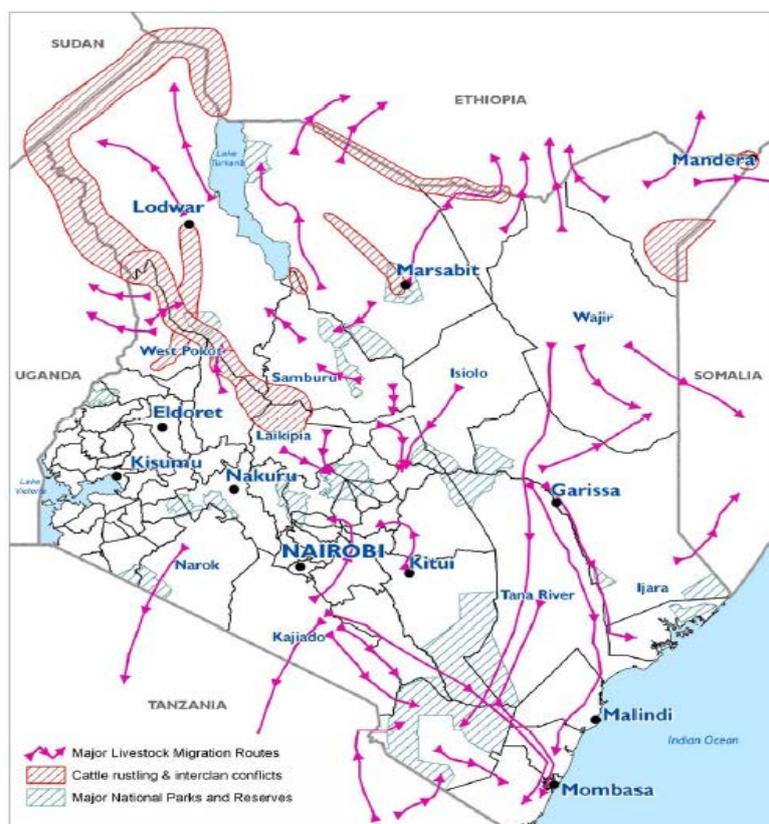
Thousands of pastoralists had also moved onto highland pastures in Mt. Kenya to feed on the green bushes. Over 38,000 cattle died of starvation, disease and cold weather on Mt. Kenya alone, mostly from Laikipia District (Western, 2009).

The government introduced mitigation measures to pastoralist including the purchase of starving livestock. This was more of an afterthought rather than a well thought of programme, because many of the purchased livestock perished in the holding yard at the Kenya Meat Commission due to thirst, starvation and disease. They government though never ventured to buy starving livestock in distance areas like North eastern and the Mwingi, Kitui areas where livestock continued to perish under the punishing drought. Moreover, few pastoralists were willing to dispose their livestock at meager price offered by the government. Pastoralists are always reluctant to dispose off their livestock *en masse* irrespective of the situation. The herds represent their wealth, the social status in the community and prestige and hence, economic and social capital. They (pastoralists) have also developed admiration of their cattle as each cow has a name, character and personality! This is the so called “cattle complex culture” (Herskovits, undated). Just like we have come to adore our pets, pastoralists adore their animals too. So the relationship goes beyond cash value.

Due to the drought, a quarter of the children in the worst hit areas were malnourished and schooling throughout the pastoral areas was disrupted (ibid, 2009). Scores of pastoralists died in clashes over pasture and water. Several security personnel were killed battling rustlers and bandits. Scores of elephants, giraffe and zebra were poached in Shaba National Reserve in Kenya and tourist lodges were closed due to insecurity. In Northern Kenya, Livestock moved across the border to Ethiopia and frequent tribal clashes were escalating between the border communities. This was the same pattern at the border of Kenya and Sudan and the border of Kenya and Uganda (ibid, 2009).

In other regions, cattle movements from Mwingi, Kitui and Tharaka poured mostly to the Tsavo National Park causing devastation to wildlife conservation and tourism as well.

Figure 2: Livestock migration routes in Kenya during the 2008/09 drought



Source: KFSSG, 2009

The 2011 drought was named as the worst drought in 60 years and sparked a severe food crisis and high malnutrition rates, with parts of Kenya and Somalia experiencing pre-famine conditions (WFP, 2011). Kenya Food Security Steering Group (KFSSG, 2011) mid season assessment conducted in May 2011 estimated that the numbers of individuals that required urgent cross - sectoral interventions as a result of the drought were 3.2 million people. On 30th of May, 2011, the Government of Kenya declared the drought a national disaster.

In the larger Horn of Africa, more than 10 million people were affected in drought-stricken areas of Djibouti, Ethiopia, Kenya, Somalia and Uganda and the situation continued to deteriorate. Food prices rose substantially in the region, pushing many moderately poor households over the edge. Food security in the eastern Horn of Africa indicated large swathes of Northern and North Easter Kenya and Somalia in the "emergency" category, one phase before what the U.N. classifies as catastrophe/famine -- the fifth and worst category (WFP, 2011, (USAID/FEWSNET).

Child malnutrition rates in the worst affected areas more than doubled the emergency threshold of 15%. High mortality rates among children were reported, though no figures for the toll were available due to unavailability of data (WFP, 2011). Drought and insecurity were driving ever greater numbers of Somalis from their homeland, with thousands arriving in Kenya on daily basis since mid May (UNHCR,2011) into the refugee camps in the Northern parts of the country.

In summary, over half a million people in affected regions had left their homes in Kenya's rangelands in search of forage and water. Over 100,000 people fled across international boundaries. Indeed, the droughts have been a tragedy for millions of subsistence farmers, herders, the environment and wildlife in the rangelands which cover three quarters of Kenya land area. The cattle movement routes were stretched to regional and international boundaries, some crossing through wildlife protected areas. The implication of this migration is competition between wildlife and livestock. When this happens, the wildlife suffers and the tourism sector which is a major foreign currency earner in Kenya performs dismally.

Can we then blame the drought for the devastations and misery experienced in drought years?

The issue is whether we should blame drought for misery and death that is experienced during such episodes as was experienced in the country? Perhaps we cannot blame drought. Nature is innocent – “nature pleads not guilty” (Roland, 1984). Weather causes drought but does not cause famine – people cause famine.

To what extent are the climate and ‘poor’ soils and hence poor pastures in Kenya’s dry lands responsible for famine? In the mid-seventies a group of meteorologists and other academics organised a project to study the effect of climate on the great Sahelian famine. After a few months an entirely different picture began to emerge. They found that the role of drought was much smaller than assumed and there was no simple cause-and-effect link between drought and famine (Jackson and Parker, 1984). Significantly, their report titled ‘*Nature Pleads Not Guilty*’ they concluded that *people* are largely to blame for famine. The spreading of the Sahara and Kalahari deserts for example can be linked directly to overgrazing and overuse of land in the fringes of such deserts. Land overuse creates little deserts *in situ* that end up being linked with the natural deserts. Even shortages of rain, foresters speculate, are caused not by natural fluctuations in climate but by the rapid clearing of rain forests. Blaming the weather, moaning over acts of God and accusing poor farmers are superficial responses to a complex problem. It is more revealing to examine the policies which starve the poor, pressure the land and make entire countries vulnerable to drought.

Growing food for local consumption, for example, receives low priority from many governments. In Kenya in the last few years farmers have bemoaned the rise of agricultural inputs, making growing of maize less profitable. Pastoralists complain of their better pasture land being invaded by settler farmers. This trend is common in most African countries. Donors such as the World Bank and the US Agency for International Development (USAID) have been pouring in millions of dollars for the wrong intervention measures in development of dry lands over the last few decades. The rhetoric is of improving food production for local consumption but the reality has proven different. By 1975 the World Bank had invested over \$21111 million in Tanzania without supporting a single project designed to produce basic foodstuffs. Things haven't changed much since then either. A recent survey by USAID of 570 projects in Africa found that only 22 were directly related to food crop production (Jackson and Parker, 1984).

The entire food distribution, transport and storage system in many African countries contribute to food insecurity. For example in Kenya, at the height of the 2011 famine in northern parts of country, farmers in some parts of the high agriculturally potential areas were complaining of losses of their produce,- cabbage and potatoes rotting in the farms with no markets to sell their produce yet starvation was rampant in many parts of the country thus showing a case of failed policy in food marketing and transportation in the country from areas of surplus to areas of deficit.

This is not an isolated case in Kenya, it occurs in many other African countries. Often, the government simply can't purchase or transport grain to National cereal depots, and private traders find a way to profit through buying grain at low prices to the farmer after harvest and sale to demand areas at competitive prices. In Mali for example, an estimated 211 per cent of the government millet stocks disappear into the hands of black marketeers who sell it across the border where prices are higher. Development workers in Niger - one of the few countries self-sufficient in food production - tell of a regular system of withholding grain until the price for food in Nigeria rises and then selling the surplus there (Roland, 1984).

For many African governments the priority is to keep prices low for urban consumers with little thought is given to such a policy effect on rural producers. An extreme case comes from Mali, where in 1980/81 it cost farmers about ten cents to produce a kilo of rice while the official price paid by the government was only 6 cents. In Kenya, after the El Nino rains, in 2010, the price of a kilo of maize was 10 Kenya Shillings in February-March 2011 while four months later, it had risen to 50 Kenya Shillings, thus costing five times. Such policies are a recipe for low production and a boost to cross-border smuggling, not an encouragement for

local food self-sufficiency. And it is man-made policies just as much as god-given forces that are keeping Kenya and many African countries hungry.

During the post-election violence in Kenya (2007/08), many farmers from the breadbasket region of the country, in the Rift Valley were displaced, not by drought but by violence. They could not therefore grow food for their household use and also for the rest of the country. Another problem that makes people be vulnerable to drought and famine is poverty; those Kenyans who starved to death did not die because there was drought. They died because they were poor, living at the edge, and vulnerable to any season variation for worse; hence drought was just a trigger, not the cause. Farmers starved in the United States droughts in the 1890's and 1910 but they do not starve these days when drought hits them (New Internationalist, 1985). Saudi Arabia has greened part of its desert to make itself self sufficient in wheat, yet Saudi Arabia is the most water short country in the world. The Country has no surface water (the only country in the world without any surface river). Libya constructed an artificial river from an underground lake reservoir that takes water to towns in the country. So, it is clear, poverty caused by failed policies and poor governance since independence is to blame for famine in Kenya and the Horn of Africa when drought strikes. Drought only, simply tips the poor over the brink.

The climate in our region is certainly changing due to global warming and extensive deforestation in Key tropical forests, but with better preparation for drought, famine early warning information systems, this can be avoided.

What can be done then to mitigate droughts?

Perhaps, a second “Green Revolution” and a “blue revolution” are required to solve the Kenyan food and water problem. The Green revolution in my view will require reliance on irrigation agriculture in marginal lands, support of farmers with farm inputs, seeds and extension services. There is also need to revive the so called forgotten crops. These are indigenous crops that used to be grown by African farmers, including cassava, sorghum, millet and a variety of root foods like sweet potatoes. Pastoralists should be supported through opening of markets and abattoirs in their regions. Security should also improved to reduce frequent cattle theft between neighbouring communities.

In terms of a “blue revolution” Kenya is the most water short country in East Africa with only 643 cubic meters/per person per year (GoK/MWI, 2009). The required rate is 1000 cubic meters/person per year as recommended by World Health Organization (WHO, 2010). A package of fighting the effects of drought should be multi-pronged. This should include construction of a series small irrigation dams, water catchment protection, planting more trees

to raise the current low forest cover of 1.7% to the global required level of 10% (UNEP, 2009) soil conservation, wetland protection and integrated pest control. The country should focus on creating a better micro-climate through prudent water and environmental management.

In the policy arena, much has to be done. There is need to strictly enforce policies to reduce population growth to replacement level growth rate (zero growth rate). Good governance to encourage participation of communities in the management of their resources with government supervision. The top down model has failed in Kenya, and decentralization of governance anticipated in the new constitution provides hope.

In most vulnerable regions, especially the Arid and Semi arid regions of the country, should be developed through introduction of better transport network to markets, zoning of land use to protect encroachment of farming in wetlands in dry lands. The land policy should provide for the uniqueness of dry lands ecology and their ecosystem. Insecurity must be reduced from these areas through participation of the combatants in peace settlements. Pastoralists should be encouraged to change gradually to ecotourism where they share benefits of wildlife with tourism investors. Destocking programmes should be encouraged with community participation and through provision of alternative livelihoods. The dry lands people in Kenya should be encouraged to be more involved in government programmes. At the moment, they are more of spectators than stakeholders. The government tends to ignore them, perhaps because they hardly pay tax, and in turn, they tend to move away from the government and coalesce within their tribe and clans.

References:

- Adefolalu, D.O. (1990): Averting Drought Situation in Sahelian and Sub-sahelian of West Africa – A new approach: In Proceedings of First Biennial National Hydrology Symposium – Maiduguri, Nigeria, 26th -28th Nov. 1990.
- Batterbury, R. (2001): Global Environment Change Vol. II, No.1,1-95
- Gibbs, W.J (1975): “Drought” WMO Tech. Publication No. 403, 1-40
- Government of Kenya (GoK/MWI, 2009):Water Master Plan, 2009; Ministry of Water and Irrigation
- Government of Kenya (GoK, 2000): Kenya Meteorological Department, Ministry of Transport, Republic of Kenya.

Government of Kenya (GoK, 2009): Changes in Forest Cover in Kenya’s Five “Water Towers” 2000-2007,

Government of Kenya (GoK, 2010): Kenya Meteorological Department, Ministry of Transport, Republic of Kenya, Weather outlook, 2010

Herskovits, J.M (undated): The Cattle Complex Culture in East Africa: Thesis submitted in partial fulfillment for the Degree of Doctor of Philosophy, Faculty of Philosophy, Columbia University.

Inter-Governmental Panel on Climate Change (IPCC, 2011): Global Warming and Climate Change, UNEP

Jackson T. and Parker, C. (1984): In Roland V. G: “Nature pleads not guilty”, *Pergamon Press, Publ; Oxford, UK, 1984*

Kenya Food Security Steering Group (KFSSG, 2009): The 2009 Long Rains Season Assessment Report, Government of Kenya.

New International (1985): Three myths about World hunger, Vol. 151, September, 1985: [www.newwint.org/issue 151/myths.htm](http://www.newwint.org/issue%20151/myths.htm)

Palmer, W.C. (1965): Meteorological Drought, US Weather Bur. Res. Paper No 45, 58 pp.

Roland V. G: “Nature pleads not guilty”, *Pergamon Press, Publ; Oxford, UK, 1984*

United Nations Environment Programme (UNEP): Africa Environmental Outlook, 2002

United Nations Environment Programme (UNEP, 2009): Global Environmental Outlook- Africa

United States Agency for International Development (USAID): Famine Early Warning Network (FEWNET) (2011):

World Food Programme (WFP, 2011): Drought and Famine in the Horn of Africa

World Health Organization,(WHO, 2010): Water requirement, Geneva, Switzerland

World Meteorological Organization (WMO, 2010): Global Weather Forecast, Geneva, Switzerland

United Nations High Commission for Refugees (UNHCR,2011), and Kenya Red Cross