

*Full Length Research Paper*

# Impact of climate change and gender roles in community adaptation: A case study of pastoralists in Samburu East District, Kenya

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Climate change continues to be of great concern both nationally and internationally, especially with regards to resource allocation and utilization for adaptation and mitigation. It is also clear that climate change is accelerating; taking almost catastrophic dimensions and the impacts are felt greater across the world than in the past thirty years. The impacts of climate change in the form of hurricanes, floods, and droughts affect the entire communities and presumably therefore, affect the lives of both women and men in a number of ways. Concern is emerging such that the negotiations on climate change do not fully involve the affected groups yet each of these groups is impacted by climate change in different ways. This paper addressed the impacts of climate change, the gender roles in adaptation process as different strategies were used in a pastoralist community. The study was carried out in Samburu East District of Kenya from February to May, 2010 using participatory methods and approaches. In the study used survey method; 180 households were randomly selected being a homogenous pastoralist community; gender and age were further used during purposive sampling to select the required household respondents. Focus group discussions, key informant interviews, life histories and observation were also used. The study findings indicated that the impacts of climate change were unequally felt along the gender lines in Samburu District. Women due to the community's culturally gender constructed roles were found to be more vulnerable to the impacts as compared to their male counterparts. The adaptation process showed that women easily adapted and they had better strategies that led them to successfully cope. The study concluded that there was need to mainstream gender in the policies and legal frameworks that anchor the adaptation and mitigation of climate change in Kenya such that there is full participation of both men and women for burden sharing and sustainable development. The study confirmed that ethos and norms are key determinants of impact levels at the community social structure.

**Key words:** Climate change, community, gender vulnerabilities, adaptation, mitigation, ethos and norms.

## INTRODUCTION

Climate change continues to cause great concern both nationally and internationally. The phenomenon is well defined by the Intergovernmental Panel on Climate

Change (IPCC) 2007 Report. IPCC further explains that human activity takes place within ecological systems, and is not bound to political frontiers and will have negative impacts on the environment and people's well being beyond geographical boundaries if not managed in a sustainable manner.

Rosenzweig (2007) estimates that by 2020 between 75 and 250 million people are likely to be exposed to

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increased water stress and that rain fed agricultural yields could be reduced by up to 50% in Africa if production practices remain unchanged. The implications of climate change have also been reported in a number of studies: Drought-prone areas inter alia particularly are deemed to suffer complex localized impacts of climate variability or change. In the Sahel, for instance, climate changes in temperature and rainfall patterns have reduced the length of the vegetative period and make it difficult to continue the cultivation of traditional varieties of long and short cycle millets. Given the social, legislative, market and weather-based sources of vulnerability already prevailing in the region, reduction in agricultural productivity and land area suitable for agriculture even with slight climate change would cause disproportionately large detrimental effects (Dietz, 2004).

Gender refers to the differences in socially constructed roles and opportunities associated with being a man or a woman and the interactions and social relations between men and women. Gender therefore determines what is expected, permitted and valued in a woman's or a man's behavior in a specific context (Giddens, 2006). Likewise when a community is faced with a disaster or external shocks like floods or drought, the manner in which men react to the situation is different from the way women will face a similar situation. This is due to the culturally constructed gender roles that may put one gender in a more vulnerable situation compared to the other. Women for instance will face more challenges caring for children and the elderly in provision of food and care than men in such situations (Ellis, 2000).

Gender elements in climate change refers to the different ways in which women and men contribute to climate change through their natural day to day livelihood activities and the differing impacts that climate change has on them. This includes different ways that men and women respond to and are able to cope with climate change and the differences in how they are able to move from short term coping mechanisms to adaptation and resilience. This might lead to livelihood diversification or total change of livelihoods or change of gender roles (Ontita, 2007).

March (1999) argues that capacities, vulnerabilities, and needs are differentiated by gender. Women and men experience crises differently according to their gender roles. They have different needs and interests. Women in developing countries by virtue of their lower economic, social, and political status, tend to be more vulnerable to crises. In the same vein, Goldsworthy (2010) argues further that women's everyday household work and care for their families will be made more difficult due to climatic changes. They may have to travel further for clean water and firewood and spend more time trying to grow and gather foodstuffs in inhospitable conditions. Furthermore, when households experience food shortages, which are an inevitable consequence of climate change, women tend to push themselves to the limits for instance by

going without food so that their children may eat albeit at great cost to their own health (Cannon, 2002).

In the climate change discourse, the gender approach is best suited to analyze the phenomenon of climate change and gender inequality, their close linkage with one another and the differential risk levels between men and women relating to climate change and vulnerability. The gender-based division of labour is considered a primary factor that creates different levels of exposure to risks (Rossi and Lambrou, 2008) it is therefore necessary to include women in climate negotiations and gendered and planning for adaptation and mitigation to achieve greater gender equality and women's voice in decision-making and problem sharing in communities.

Access to livelihood resources is controlled in African communities. This includes resources such as land, water, trees, social networks, income, credit, government social protection and safety nets, infrastructure and education, and political power. Therefore, men and women are likely to have different options and safety nets for coping with climate change (Rossi and Lambrou, 2008). Climate change usually leads to decline in food security and livelihood opportunities and this cause's considerable stress, for men and boys, given the socially ascribed expectation especially in the African society where men are supposed to provide a livelihood for the household (Ongoro, 2011). This can lead to mental illness in some cases due to stress and low self esteem. It has been recognized that men and boys are less likely to seek help for stress and mental health issues than women and girls (Masika, 2002). Stress is likely to be heightened after disasters, particularly where families are displaced and have to live in emergency structures or transitional housing. Overcrowding, lack of privacy and the collapse of regular routines and livelihood patterns can contribute to stress leading to anger, frustration and violence, with children (especially girls) and women who are the most vulnerable bearing the brunt (Bartlett, 2008). For instance, in the recent past in Kenya a number of children and spouse/partner murders related to increased resource scarcity in homes have been reported in both the print and electronic media and in Family Courts (Maingi V Republic, 2008), (Daily Nation Newspaper, 2009). This was especially after the 2007 Political unrest in Kenya that led to families being displaced and forcefully evicted from their homes leading to family dislocation and new gender roles emerging.

Rashid and Michaud (2000) point out that poverty is a key factor affecting peoples' ability to promote adequate own social protection, it is likely that in female-headed households, the ability of women to create safe conditions in cases of external shocks like floods or cyclones is reduced. The quality of housing, a location on raised ground, adequate storage for food are all crucial to social protection and are also affected by gender factors related to culture and societal attitudes, These cultural impediments place women and girls in a

more vulnerable state than their male counterparts. The issue of gender vulnerability in climate change should be addressed because gender differences in property rights and access to information play a major role in impacts of climate change, adaptation and mitigation. Both men and women have basic and distinct forms of knowledge and skills, they also have differing gender roles and responsibilities which can be utilized in production, reproduction and trade for community food security. Despite the fact that both men and women experience the impacts of climate change, the policies and frameworks that characterize the debate do not adequately contemplate the unique experiences of women. As Terry (2009) indicates, unless greater attention is given to gender dimensions, policies aimed at mitigation and adaptation will exacerbate the hardships of already disadvantaged women especially in developing countries who depend on natural resources for survival. This case study of Samburu East District was carried out to examine the impacts of climate change along gender lines and the coping and adaptation mechanisms.

## STUDY AREA

This study was carried out in Samburu East District of Northern Kenya in February 2010 to May, 2010. Samburu East District is within the Ewaso Nyiro Ecosystem Northern Kenya. The district covers an area of 21,000 km<sup>2</sup> (GoK, 2006). Samburu East District has a mean annual temperature of 23°C, and rainfall is scanty and erratic, with an annual average of 255 mm. According to the 2009 population and housing census, the population of the district is 59,094 which are mainly composed of the Samburu people (Figure 1).

## MATERIALS AND METHODS

The study used survey method: 180 households were randomly selected being a homogenous pastoralist community but since there were two locations (Wamba and Waso) the households were divided into 90 each to avoid possible bias and achieve actual representation of the community: Gender and age were further used during purposive sampling to select the required household respondents. Focus group discussions, key informant interviews, life histories and observation were conducted where a checklist of questions that enquired about their community gender roles in relation to climate change was used.

Life histories were collected from resourceful people such as *Kursa* (wise men) of the Samburu community. The aim was to locate junctures and processes of climate change in the respondents' life trajectories and explain them. Life histories were collected from four elderly people; two men and two women aged between sixty and seventy five years and drawn from each of the four locations in the district namely; Ngaruni, Soldoo, Matakwanii and Lengusaka. By involving both men and women, the research sought to balance gender responses in the study of climate change by collecting views from each category.

Focus group discussions (FGDs) were conducted in both

divisions. Five FGDs were conducted with members as follows: twelve women aged between 30 and 50 years, twelve *Ngolontoi* (girls) aged between 15 and 25 years, twelve *Morans* (boys) aged between 15 and 25 years, twelve middle-aged men of between 30 and 45 years and twelve old men between 55 and 75 years. The discussions in the groups revolved around the perceptions of climate change; trends in weather patterns; challenges of climate change to their livelihoods and how each group was adapting and coping with the effects of climate change. The emphasis on gender disaggregation was to allow full participation of all sections of the community members given that due to their gender roles, the impacts of climate change were experienced differently and therefore their responses and adaptation approaches were likely to vary accordingly.

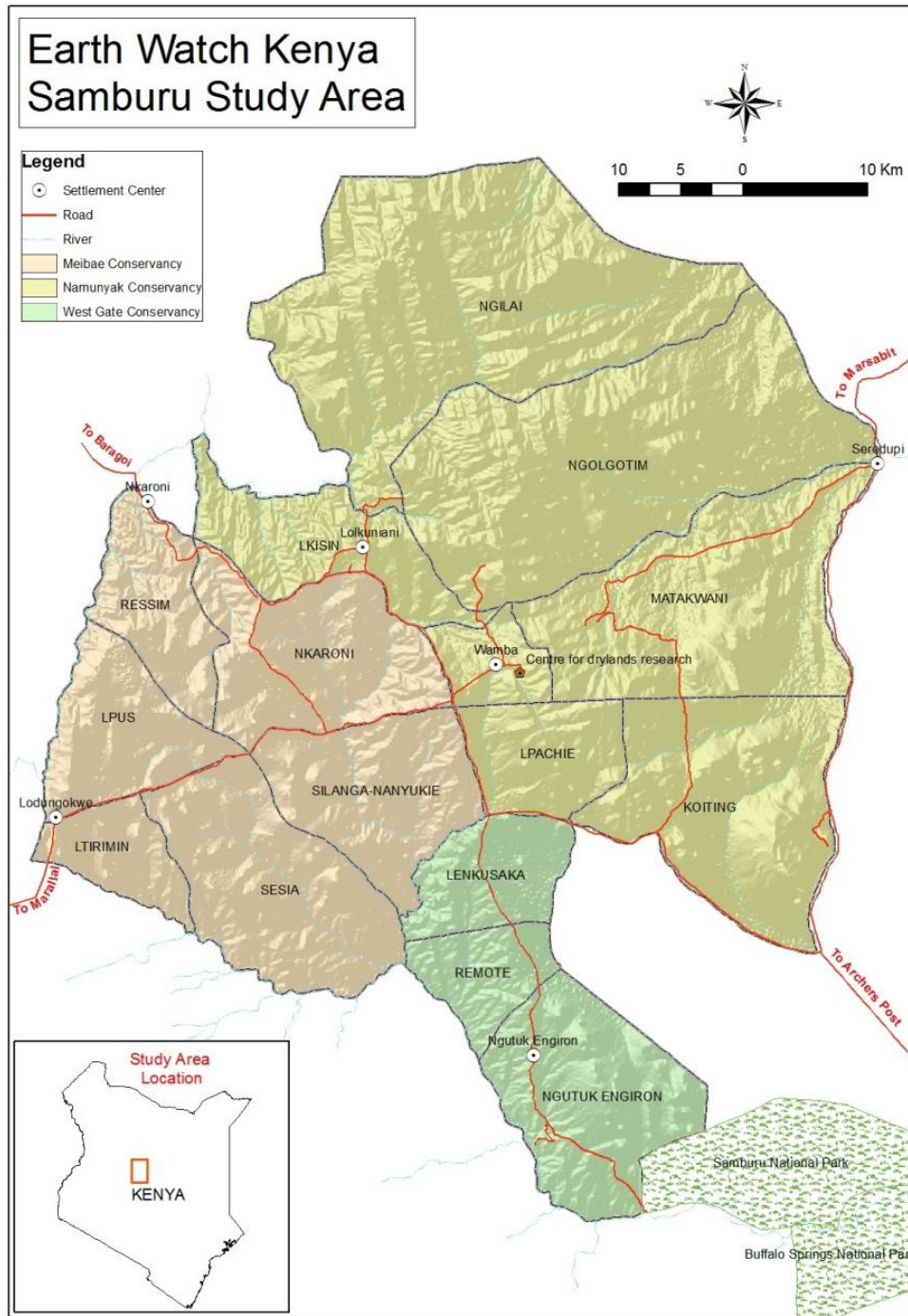
Key informant interviews were conducted with specific members of the community who were elderly and resourceful. They were regarded by the community as opinion leaders because they represented the community in cultural activities and rites and rituals. They were therefore well placed to understand community norms and culture and kinship and social systems and structures that bound the community. These included chiefs, rainmakers, midwives, circumcisers, the manager of Westgate Conservancy, a retired Catholic priest and an animal health worker. These individual interviews took an in-depth approach where by the respondents freely discussed their perception of climate change, the challenges to their livelihoods and ways in which each individual participated in adaptation process. A check-list of questions was used to guide and narrow the discussions to relevant issues around the main research questions.

## RESULTS AND DISCUSSION

The Samburu people are mainly pastoralists whose livelihoods rely on natural resources primarily on water and pasture for their livestock. They occupy the arid and semi-arid lands (ASALs) of Northern Kenya. The reality of climate change is well manifested in the community in forms of prolonged droughts and erratic rainfall which culminates in floods that have caused great challenges. These challenges are negatively felt by both men and women as they go about in their everyday activities in search of livelihoods for their families. Since their socio-economic activities are shared along gender lines as per cultural dictates, their challenges equally differ along gender lines. Their response to climate change is gendered.

Findings from the study showed that the Samburu community is patriarchal by nature where by households are headed by the males. This is seen from the study where 177 households were sampled and out of this number, 61.58% were male headed while 38.42% were female headed. Table 1

Among the Samburu people most decision-making responsibilities of the household and family at large rest squarely on the shoulders of the household head. Matters pertaining to property ownership and distribution are thus handled and managed by men. The head has all the powers to direct the rest of the family and equally make decisions affecting all its members. Women are not allowed to head households; they only do so on special



**Figure 1.** Map of Earth Watch Kenya Samburu showing the study area.

circumstances for instance if they are widowed or divorced. They therefore have less power over family finances and other assets, they can only use these resources with blessings and express permission from their husbands who are the owners and have complete control. Without the power to decide on family resources

and finances, women's ability to manage risks and external shocks for example diversifying livelihoods is limited. They are not allowed to make decisions which affect their lives directly and even to participate in most forums hence this enhances their vulnerability.

Results from the women's focus groups indicated

**Table 1.** Sex of household head.

Sex	Frequency (f)	Percentage (%)
Male	109	61.58
Female	68	38.42
Total	177	100

Source: Ongoro field survey, 2010.

**Table 2.** Mean distribution of livestock numbers by type per household over the last 30 years.

Livestock	Years			
	2010	2000	1990	1980
Cattle	10.84	44.49	83.86	130.3
Donkeys	1.941	3.776	5.953	6.964
Camels	2.673	3.737	4.79	10.47
Goats	30.82	108.5	164.1	238.7
Sheep	12.32	49.23	86.64	119.6

Source: Ongoro field survey, 2010 (n = 175).

that climate change is a reality in the community and both men and women were having challenges in sustaining their livelihoods; women indicated that their husbands had lost many livestock to the droughts and this sent them deep into poverty because they only relied on their husbands for livelihood provision since they did not own livestock. With poverty staring on their faces women were faced with a lot of challenges in household food provision, basic health care needs for themselves and the other family members. The fact that they did not have the powers to decide and plan ahead about their lives made it difficult to cope with the challenges of climate change rendering them vulnerable. Women in the focus groups further indicated that they stayed at home to take care of children and the elderly sick members of their families while their men migrated to access water and pasture for their livestock. These movements placed men at a better position to adapt to climate change and resulted into family benefits because they were at least able to provide for them. However, male migration often increased the women's workload, as they were left behind to manage the households by themselves in addition to their usual tasks. This also increased their emotional insecurity and contributed to increased infections of HIV as both men and women were separately exposed to new sexual partners. Table 2

Findings from key informants indicated that the impact of prolonged droughts had dried up natural water points like the streams and rivers. This caused a challenge to the community; where lack of water was felt across the community and rendered women and girls more vulnerable because it was the role of women and girls to

fetch water both for household use and for livestock. Men only fetched water on rear occasions if for instance a woman was unwell and there was no girl child in the household. The duty of fetching water hindered women from any activities, because they spent a good part of the day trekking far away to fetch. This equally slowed them in other household activities and child care; it also exposed them to a lot of insecurities and dangers along the way. Girls too became vulnerable to a lot of dangers when looking for water far from home.

Results from the women key informants still indicated that lack of water rendered women and children more vulnerable to water-borne diseases. This is because children were mostly in the homesteads handling foods in poor sanitation. Children exposed to contaminated water which could have been avoided if the mothers had enough of clean and quality water. Diseases mostly affected women and children increasing the burden of women psychologically, emotionally and physically, because women were care-givers in the Samburu community and in times of sickness, women had extra workloads that made them vulnerable.

Increased food shortages adversely affected the health of women. They were eating less and poorer quality food each day made from maize flour as porridge even during expectance and this resulted in poor nutrition and high mortalities. In many ways, existing inequalities created by social norms and inequitable power relations in the community were being entrenched by the impacts of climate change.

Men in the focus group discussion indicated that the impact of drought on water and pasture had forced them

to move over long distances in search of these natural resources. They indicated that they traversed to the neighboring Pokot boundaries and along the Turkana up the Sarara Mountains, all to sustain the livestock in times of droughts. But they indicated that these movements made them vulnerable to attacks from the neighboring population groups.

These encounters also resulted into conflicts which created a lot of insecurity in the Samburu community. These conflicts led to a lot of loss of human life leaving women and children vulnerable without husbands to protect them from external attacks and breadwinners to provide for them and their children.

Floods in Samburu placed the whole community in a vulnerable state. The results from the focus groups indicated that the floods were destructive to their property; men their lost livestock to drowning and the women lost their household items and children drowning in the flood waters in the homesteads. However, women were more vulnerable to the impacts because they were culturally in charge of constructing houses and moving household items to safer grounds. During the flooding they also dealt with a difficult task moving the families away from floods. Climate change tends to enhance existing gender inequalities and this further leads to women being more vulnerable.

As this phenomenon of climate change sweeps across the Samburu rangeland, the whole community tries to adapt to its impacts not only to survive but also to sustain livelihoods. The community tries to cope and adapt to the droughts and floods, each at its own time and their gender roles and responsibilities are put into practice in this adaptation processes. Community adaptation along gender lines is evident in the community because men and women face challenges in different ways; ways in which they perceive the changes and the ways in which these challenges affect their constructed gender roles in the community. The Samburu people have therefore geared themselves along their gender roles in adaptation process

### **Samburu women and girls adaptation to climate change**

Findings from the women's focus groups indicated that women in Samburu community were more vulnerable to the impacts of climate change than their men counterparts. However, these women have grouped themselves to find a solution to sustain their livelihoods and even further make them stay on top of the issues of climate change. Women identified small scale businesses, which they engaged in as a source of income to sustain their families. This was meant to supplement the diet of those physically vulnerable (such as children under five and lactating mothers) or those

who were vulnerable for social economic reasons such as single parent families or unaccompanied elderly persons. The business activities they engaged in included poultry keeping, bead making, charcoal burning and selling, fetching water for payment and selling goats. Income from these activities went along way for further use as collateral to acquire small loans from local community banks for personal development, school fees, purchasing of household items and medical expenses. Women's groups too acted as social forums where women freely discussed the impact of climate change and how their livelihoods were being affected.

Women equally sought skills and knowledge from those among them who were skilled, for instance those who had knowledge in traditional artworks like bead and ornament making taught others. This was to enable the women to be self-reliant. Women were more open to changes and some indicated that gender roles were changing in their households because they were now providing for their families more than their husbands but they did not seem to have a problem with that though they thought their men were uncomfortable with these new roles.

Women formed income generating groups and merry-go-rounds, the formation of these social groups was meant to foster social networks within the community as a form of empowerment. A few women who were involved were able to benefit economically and socially from the other group members. However, women indicated that there were obstacles from their husbands who did not allow them to organize meetings because they feared women would be empowered adequately to start questioning power imbalances. This is a cultural issue because the Samburu are a patriarchal society where men solely make decisions for women and dominate them too, so by women organizing themselves into social groups it is viewed as going against the Samburu traditions and cultural practices and this undermined the women's efforts in adaptation efforts.

As a way of trying to sustain a livelihood women were burning charcoal for sale and for household use as one of the coping strategies in the Samburu community. Charcoal burning was practiced mainly during the dry period. Women used dead wood to burn charcoal in an effort to conserve the environment. The paradox was that in as much as they use dead wood in order to conserve the environment, the gases emitted during the process of charcoal burning are considered to be greenhouse gases which contribute to climate change. At times, when the dead wood became scarce, they were forced to cut down trees to burn charcoal and this contributed to global warming. This strategy did not however work well for the women due to limited knowledge on conservation. Women also used firewood as fuel for domestic use but these activities of collecting firewood and water that were solely a woman's role were being adversely affected by the changing climate.

### **Samburu men and boys' adaptation to climate change**

The impacts of climate change on young Samburu men (Moran) were also being manifested. A typical young Samburu man was basically a livestock herder. They had a sole responsibility of watering the animals each day and also driving them to grazing areas. It was their duty to monitor the health of each animal and report to the elders for administration of herbal medicine. The general wellbeing of the animals was their basic duty. The young men provided security too for the livestock against predators and raiders from the neighboring communities. All these duties have been strained by the prolonged droughts. The young men have to drive the animals hundreds of kilometers away to look for water and pasture. These movements expose them to a lot of dangers like attacks from the enemy communities and the wild animals which may have strayed away in search of prey, pasture or water. With the prolonged and frequent droughts, the livestock numbers have reduced drastically over time. These reductions of livestock numbers directly affected the young men and their future became bleak because livestock was what they used as dowry to marry and start families. The droughts affected the young men but the young girls too became victims. The fact that the girls' roles revolved around the homestead, meant that the girls would join their mothers to do household duties. They fetched water over long distances alongside their mothers. These girls were also married off very early by their fathers to acquire livestock to restock after the droughts. In this context the girls were viewed by their fathers as a source of wealth. The girls too were preferred to accompany their husbands to far places with the cattle as the elderly women were left behind to take care of children and sick members of families. This arrangement denied the girl child the right to grow and develop normally and access to education for individual development. Adaptation strategies in this community included livelihood diversification and even total change of livelihoods. The men tried to keep poultry, goats and camels as a form of livelihood diversification. This they did to support their poorly performing cattle enterprise. Some men opted to do away with livestock keeping and migrated to towns to look for a different livelihood like employment as guards in factories and residential properties. While some ventured to other livelihoods like brick making and casual laborers even with the minimum skills they had some stayed back and formed small groups to venture into small scale business like buying and selling of livestock which they disposed off to the local market before droughts.

### **Concluding remarks**

The Samburu men and women are faced with the

challenges of climate change and as a community each group tries to survive by creating adaptation strategies crafted along their community gender roles. The community has gender roles that are socially embedded and every person is recognized through these roles. This kind of stratification makes adaptation a big challenge to the community and also increases gender vulnerabilities. The male having been traditionally understood as providers felt inadequate as the drought kills the livestock and they are not ready to adapt to other activities that might be perceived to be inferior, so they were still seen to pursue livestock-related activities for their livelihoods even though it was a futile attempt. Women on the other hand were flexible and dynamic and ready and willing to change and accept new roles so as to survive. The Samburu women appear vulnerable to the impacts of climate change but they easily adapt to small scale activities to manage the impacts. Therefore this study calls for gender inclusion in climate change mitigation. Samburu women were dynamic and resilient in adaptation and this shows that women are powerful agents for development and change in the Samburu community. This study concluded that in order to successfully adapt and mitigate the impacts of climate change policies geared towards adaptation should be gender mainstreamed. There should be a gender sensitive approach that calls for full participation of both men and women at community level in climate change sensitization, education, resource allocation and sharing in adaptation and management.

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**Photo 1.** A dry river, the effect of prolonged droughts. In the background is Acacia trees, the only species of trees that survived the dry conditions in the rangeland.



**Photo 2.** A dilapidated landscape on the foreground: the impact of long dry spells. In the background is a small backyard farm of maize that has completely dried up due to prolonged drought.(maize farming is practiced as a form of adaptation by this pastoralist but it fails due to the impact of droughts).





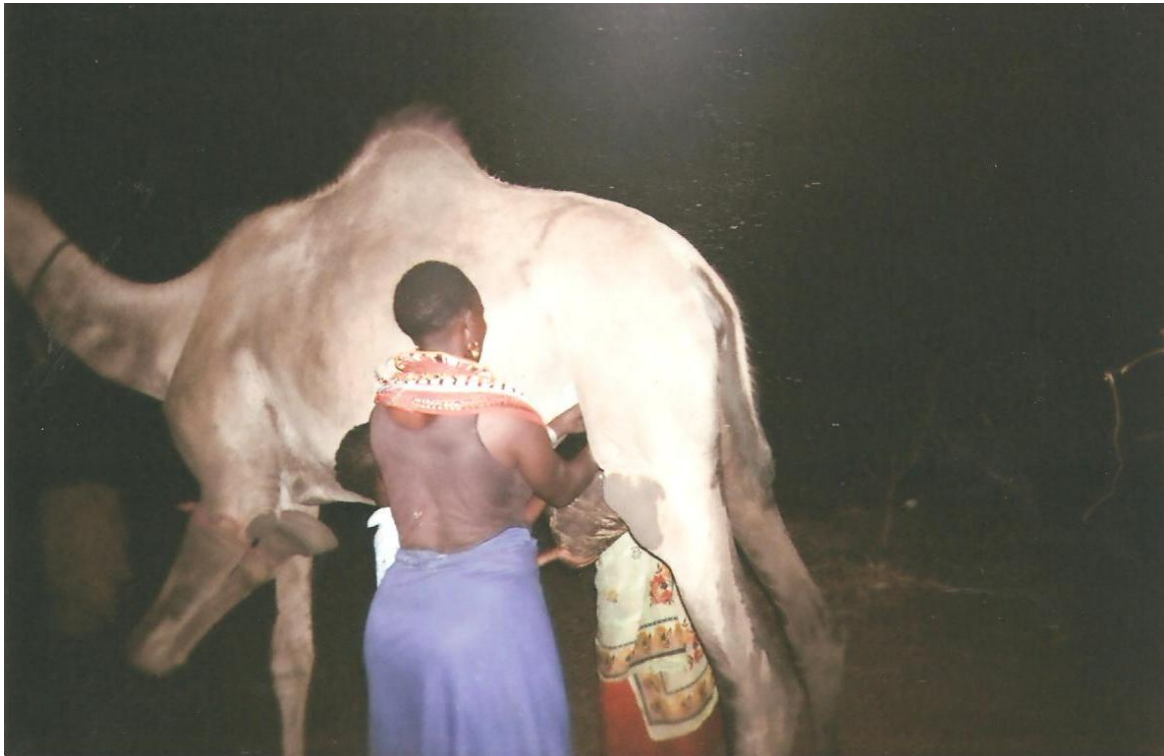
**Photo 3.** A landscape showing small gullies resulted from erosion after flash floods . In the middle is a dry riverbed and a damaged bridge that resulted from the floods.



**Photo 4.** A typical Samburu homestead. The thorn Acacia tree branches are used as a form of fence to protect the homestead and livestock from the wondering wild animals like hyenas and elephants which are common in the community.



**Photo 5.** A Samburu woman outside her house.



**Photo 6.** A Samburu woman milking a camel in the evening: Camels are resilient animals in that they survive dry conditions. The women in this community have turned into camel rearing as a form of adaptation to harsh droughts.





**Photo 7.** The researcher and Samburu women and girls during one of the focus group discussions. Hanging on the background is their ornaments and beads weaved ready for sale to tourists. This is a form of income generating venture for Samburu women. Source: Eunice Boruru Ongoro Survey Research Samburu East District 2010.