

Effects of Climate Change on Pastoralist Women in the Horn of Africa

By: Berita M. Musau¹

Abstract

The Horn of Africa is one of the most volatile regions in Africa that has to grapple with challenges such as civil wars, famines, droughts and even weak governance. Environmental degradation and consequently climate change have exacerbated these already extant problems in the region. Pastoralist communities in the Horn living mainly in the peripheries and borderlands whose way of live entails a direct interaction with and reliance on the environment have been adversely affected by climate change. Pastoralist women have borne the brunt of climate change more than their male counterparts owing to their nature and their gendered roles within the pastoralist system. This paper seeks to examine the effects that climate change has had on pastoralist women in the Horn of Africa. It begins by looking at climate change in International Relations and then discusses pastoralism at the Horn of Africa, linking it with climate change and pastoralist conflicts in order to put the research into perspective. Taking an ecofeminist viewpoint, the paper further establishes the nexus between women, the environment and climate change and then examines the impact of climate change on women in the research area (the Horn of Africa). The paper concludes by advocating empowerment of the pastoralist women which would in turn help the entire pastoralist communities in the Horn of Africa.

Introduction

The Horn of Africa has historically suffered fluctuating climatic conditions that have worsened over time aggravating the already existing social and political conflicts that characterize the region (Cechvala, 2014). Adverse climatic conditions have resulted to forced migrations, massive displacement of people and disruption of livelihoods among the population especially the pastoralists. The Intergovernmental Panel on Climate Change (IPCC) predicts

¹ *Doctoral Fellow, School of Humanities and Social Sciences, Strathmore University & PhD Student in International Relations, United States International University-Africa, Nairobi, Kenya.*

that by 2050, rainfall will decline by ten percent in the Horn of Africa (Cechvala, 2014) which is likely to lead to conflicts over competition for resources, migrations, violence, and loss of livestock among others effects. Prolonged droughts in Kenya, Ethiopia, Djibouti and Somalia have led to severe food crises affecting millions of farmers and pastoralists (Abebe, 2014:111). Different places, gender, age and classes are impacted differently by climate change.

This paper seeks to establish a nexus between climate change and gender in the Horn of Africa. It explores the impact of climate change on the pastoralist women in the Horn of Africa. It argues that although climate change has adversely impacted pastoralist communities at the Horn of Africa, the social division of labor and the structure of the pastoralist communities have increased the vulnerability of pastoralist women such that the impacts of climate change are more adverse on women than on men. This has been exacerbated by the erosion of traditional way of life coupled with impacts of globalization that have led to commercialization of cattle rustling and the consequent increase lethality of the raids in which women have been targeted for rape and murder. As such the human security of women remains at risk.

Climate Change in International Relations

Global climate change is one of the main challenges that the international community faces (Salehyan, 2008). Climate change and its consequences have thus received a lot of attention in public debates. Since the 1980s, climate change has been a major topic among scholars and policy makers and has dominated international politics. It is regarded as a major threat to human existence on earth. Climate change is considered one of the major political and institutional as well as ecological challenges facing the world (Keohane, 2015). It has attracted multilateral cooperation in form of forums and institutions such as Rio Earth Summit, United Nations Framework Convention on Climate Change (UNFCCC), Kyoto Protocol, the Intergovernmental Panel on Climate Change (IPCC), the Conference of Parties (COP) and many others.

It is predicted that climate change will lead to melting of ice at Antarctica, warming and expansion of oceans, rising of sea levels, stronger storms, droughts, floods and other forms of extreme weather, poor agricultural production, tropical diseases and many other alarming effects (Keohane,

2015). Developing countries are said to be the ones likely to suffer more. In 2007, the Intergovernmental Panel on Climate Change (IPCC, 2007) predicted that in some of the developing countries; agricultural production could decline by as much as 50 percent by 2020.

The Horn of Africa has been a key focus with regard to effects of climate change since it is one of the hardest hit. Indeed research attributed the famous 1984 famine in Ethiopia that attracted widespread international awareness to effects of climate change (Sil, et al. 2014). In fact drought, desertification and famine were the main reason behind the creation of the Intergovernmental Authority on Drought and Development (IGADD). The organization was established in 1986 with the mandate of addressing ecological issues such as desertification in order to avert drought and famine that had perennially affected the Horn of Africa (Adar, 2000:39). In 1996 IGADD changed to Intergovernmental Authority on Development (IGAD) and its mandate expanded from that of dealing with ecological and humanitarian issues to also include conflict resolution, prevention and management (Adar, 2000: 43).

Climate change is the biggest long term threat against efforts and prospects of ending various challenges to humanity such as poverty, hunger and malnutrition. Therefore, while working hard to avert climate change, it is important to enhance adaptation mechanisms to climate change in agriculture including livestock and other efforts.

Pastoralism at the Horn of Africa

Kandagor (2005:3) defines pastoralism as a subsistence form of agricultural livelihood in which people make a living by raising domesticated herds of large herbivores such as cattle, goats, donkeys, camels, and sheep. It is considered a traditional form of land management and production that mimics wildlife in its basic principles (Hartman, Sugulle & Awale, 2010:19). Thus, pastoralism entails people's direct interaction with the natural environment.

The Horn of Africa (or Somali Peninsular) is a peninsular of Eastern Africa that extends into the Arabian Sea and lies along the southern side of the Gulf of Aden (Abshir, 2020:7). It is the easternmost projection of the African continent whose name is derived from its resemblance with a rhinoceros' horn. The term is also used to refer to the greater Horn region containing the republics of Djibouti, Ethiopia, Eritrea, Somalia, Sudan, South Sudan, Kenya

and Uganda all of which are member states of the Intergovernmental Authority on Development (IGAD). The latter use of the term is the one that this paper adopts. It covers approximately 2, 000, 000 km² and it is inhabited by about 80 million people (Mkutu, 2003). There are about forty million pastoralists in the world. Of these, more than thirty percent live in Africa. The Horn of Africa hosts the largest groupings of pastoralists, in the world (Burgess, 2009:86). Sudan hosts the largest percentage globally, with Somalia and Ethiopia following after while pastoralists form one third of the population in Djibouti (Furusa & Furusa 2014, Kandagor, 2005:7).

Some of the pastoralist communities in the Horn of Africa include the Karamojong, a group of pastoralist communities that inhabit the border areas between Kenya, Ethiopia, South Sudan and Uganda, a region referred to as the Karamoja Cluster (Kandagor, 2005:5). They include communities such as the Turkana and Pokot in Kenya, the Dodoth, Pian and Upe in Uganda, the Toposa in South Sudan and the Merile in Ethiopia. Others include the Samburu, Somali and Rendile at the Kenya - Somali border and the Maasai living in Kenya and Tanzania.

Pastoralists in the Horn of Africa inhabit the arid and semi arid areas. Thus they live in some of the harshest environments in the world. Their environmental conditions are characterized by an extreme variability of rainfall, recurrent droughts and resource scarcity. Their lifelong routine entails movement from place to place in search for pastures and water for their livestock. The time and movement of the pastoralists is therefore determined by wet and dry seasons and the availability of pastures (Furusa & Furusa, 2014).

Pastoralist communities at the Horn of Africa have highly gendered structures that involve clearly defined roles for men and women. Kandagor (2005) points out that most of the pastoralist communities have a patriarchal tradition and are mainly dominated by men. It is the men who make the most important decisions and they are also the sole owners of the stocks while the women are principally tasked with the responsibility of taking care of children and performing domestic chores. The contribution of pastoralism to the economies of the Horn of African countries cannot be underestimated. The arid and semi-arid areas of the Horn of Africa contribute 20 to 30 percent of the countries'

GDP. In Kenya for instance, pastoralism generates 70 percent of cash income and half of the country's livestock (Mkutu, 2003). The livestock sector in Kenya provides employment to about 50 percent of the agricultural labour force and it is the main source of income for over 10 million Kenyans living in the Arid and Semi-Arid Areas (Omolo & Mafongoya, 2019:745). In Ethiopia and Somalia, livestock forms part of the top export commodities thus making a significant contribution to the countries' GDP (Sundblad, 2013). The Kenya-Somalia-Ethiopia borderlands form a key trading zone that has flourished in spite of conflicts and insecurity that characterize these peripheral regions (Sundblad, 2013).

Pastoralists at the Horn of Africa are among the most marginalized and disadvantaged minority groups. This is due to their wide dispersal, harsh climatic and ecological conditions, state neglect, exclusion from development plans, seizure of their land, land tenure laws, national borders that restrict pastoralists' movement, internal strife and national conflicts (Kandagor, 2005:2). Indeed, Mkutu (2003) observes that, pastoralism as a way of live and a mode of economy is under threat (Catley, Lind & Scoones, 2016: 390; Mkutu, 2003). He reveals that pastoralism is threatened by the combination of weak governance, inadequate land and resource management policies. Political and economic marginalization and increasing insecurity, resulting from small arms and cattle raiding is taking its toll.

Pastoralism and Climate Change at the Horn of Africa: Two Sides of the Same Coin

Pastoralism enables the pastoralists to interact directly with the environment. The environment is therefore a key determinant of their way of life. Through their interaction with the environment, pastoralists have socially constructed pastoralism as their way of life in which they attach a lot of value to their livestock. In fact, even during severe droughts, many pastoralists are usually adamant to sell their livestock and some of them end up dying.

The relationship between pastoralism and climate change has received contrasting views like two sides of the same coin. One the one hand, pastoralism has been viewed as the most suitable form of livelihood for the harsh climatic conditions that are experienced in arid and semi-arid areas which are exacerbated by climate change. Pastoralism in this view is also

applauded for creating favourable environments for biodiversity in Savannah ecosystems around the globe (Klemenwork, 2015:272). It is considered to be highly resilient and able to exploit land and conditions that normally cannot support other economic activities (Amsalu & Wana, 2013). Due to its dynamic, complex and flexible structures, pastoralism is considered to be the one mostly adapted to erratic climate and changing natural conditions of dry lands and also essential for sustainable management and ecological health of the dry lands (Buckingham & Le Masson 2017, Hartmann, Sugulle & Awale, 2010). Pastoralism has been hailed as a rational use of the dry lands vibrant and productive livelihood system whereby pastoralists respond to, use and even choose to profit from climate variability allowing for a vibrant and productive livelihood system in some of the harshest landscapes of the world (HPG, 2009). Pastoralists achieve this by using mobility to respond to fluctuations in resource availability dictated by dry land's scarce and unpredictable rainfall. Through pastoralism, Horn of Africa's dry lands are said to contribute significantly to national economies and to food security.

On the other hand, pastoralism is considered by others as a way of life that is unsuitable and outdated for the modern world. Those that subscribe to this view are informed by Garrett Hardin's theory of "*Tragedy of Commons*" which portrays pastoralism as economically unreasonable and a major cause of ecological problems (Harding, 1968; Klemenwork, 2015:272). Harding viewed pastoralism as a major source of environmental degradation and subsequent climate change. Indeed, most national governments in the Horn of Africa tend to subscribe to this view and have tried to force pastoralists to abandon their migrations and reduce the size of their herds in order to prevent overgrazing (Kandagor, 2005:5). Flintan (2006:224) for instance points out that the pastoralists in Ethiopia have been marginalized from investments and support and are under constant pressure to change their way of life, with much of the land that they use especially along the major rivers being considered by development planners as vacant.

It is however important to note that in spite of pastoralist's adaptability to harsh environments and climatic conditions, it is also very sensitive to climate change. While droughts and poor rains characterize the arid and semi arid areas of the Horn of Africa, climate change has worsened the situation. In fact, World Bank's (2007b) prediction that global climate change would result in

more frequent and severe extreme weather events, such as drought and floods, increasing risk to natural resource dependent livelihoods and have disproportionate negative impact on developing countries in Africa, South Asia and parts of Latin America is being witnessed. The Horn of Africa has experienced a great amount of ecological turbulence which has greatly affected pastoralist communities.

Climate Change and Pastoralist Conflicts at the Horn of Africa

The supposition that climate change would exacerbate resource scarcity, create mass population dislocations and ultimately fuel conflicts has become a reality at the Horn of Africa. Dwindling pasture and water resources at the Horn have led to competition among pastoralist communities and have on many occasions resulted in violent confrontations. The dominant form of violent conflicts among pastoralists is cattle raiding. It involves a group invasion or attack by an outside group with the main objective of stealing cattle (Raleigh & Kniveton, 2012). This is done mainly as a means of expanding rangelands, restocking herds and improving social status. Communities carry out mass cattle rusting to replenish stocks that are depleted by drought and famines. Climate change and the resultant environmental pressures and scarcity of water and land has been argued to be the cause of violent conflicts in Darfur (Banki Moon, 2007, cited in Salehyan, 2008:316). Salehyan (2008:316) correctly argues that the link between climate change and conflicts centers on resource scarcity and competition for the means to sustain livelihoods.

However, some studies have yielded contradictory results regarding the relationship between climate change and violent conflict. Studies done on climate change variability and conflict risk among pastoralist communities in East Africa from 1990-2009, indicated that there were less raids during the dry periods and more during rainy seasons when there was a lot of vegetation cover (Theisen, 2012; Raleigh & Kniveton, 2012, Butler & Gates, 2012); . This led the authors to question the assumption that climate change led to violent conflicts among pastoralist communities.

Nevertheless, this study still holds that there is a positive correlation between climate change and pastoralist conflicts. I argue that the timing of the raids in which they mainly occur during the rainy season is a restocking strategy. There

would be less motivation to raid during the dry season because a large stock at that time would pose challenges to pastoralists owing to scarcity of water and pastures.

Pastoralists at the Horn of Africa have however established mechanisms to cope with climate change related disasters. Some of the survival strategies include: mobility (predominantly), herd diversification, slaughtering some livestock for food, selling of animals, selling firewood, urban migration and charcoal production among others (Mushi, 2013, Furusa & Furusa, 2013, Kandagor, 2005). It should however be noted that some of the coping mechanisms adopted such as charcoal burning are still seriously detrimental to the environment and would in turn enhance global warming and further climate change in the long run.

The impact of climate change on pastoralist women is grossly different from that which is experienced by pastoralist men. This study seeks to establish the link between women and the environment.

The Nexus Between Women, the Environment and Climate Change: An Ecofeminist Perspective

The relationship between women and the environment can be explained through the ecofeminist prism. Coined by Francoise D'Eaubonne, a French feminist scholar, ecofeminism which came into international limelight in the 1970s and gained momentum in the 1980s is concerned about human activities on the non-human world (Gares, 1996:7). Ecofeminism views humanity as gendered in such ways that it subordinates, exploits and oppresses women (Mellor, 1997:, cited in Ali, 2011: 4).

Ecofeminism considers women as naturally closer to the environment than men. Women's role as life givers grants them some semblance with the environment that supports life. This link between women and the environment makes them more environments conscious and caring. Thus ecofeminism also holds that women have potential to carry out an ecological revolution that can guarantee the survival of humanity in planet earth because they have always been the first ones to protest against the destruction of the environment.

The roles ascribed to women in most societies from time immemorial enhance their close relationship with the environment. According to Ali (2011) Women are primary users of natural resources such as land, forests, and water because they are the ones responsible for gathering food, fetching firewood and water. Thus women interact more with nature compared to men. They have first hand contact with nature as they struggle to nurture their families. As such, women are the ones who encounter unique firsthand experiences with environmental problems (Norgaard & York, 2005: 507). Fang & Luo (2009) maintain that the social division of labor subjects women to greater harm whenever there are ecological crises. Another argument of ecofeminism is that the destruction of the environment is a source of oppression for women because it becomes difficult for women to easily access natural resources required for survival (Ali, 2011).

Climate change is considered to be a result of human destructive activities to the environment. Effects of climate change in turn have adversely impacted human beings. This affirms the famous statement by the late Prof. Wangari Maathai “*if you destroy nature, nature will destroy you*”. The World Bank (2007b) estimated that global climate would have negative impact on developing countries. Climate change was predicted to lead to events such as droughts and floods with increasing risk to natural dependant livelihoods. It has brought about changes in the traditional workload for women and generally affected their socioeconomic position. Pastoralist communities of the Horn of Africa have borne the brunt of climate change. True to the assertions of ecofeminism, pastoralist women have been more adversely affected by the effects of climate change in their arid and semi-arid habitats.

Effects of Climate Change on Pastoralist Women at the Horn of Africa: Vulnerability and Adaptation

Pastoralist Women’s Vulnerability to Climate Change

Climate change affects all societies. However, different groups are affected differently including pastoralists. Since the livelihoods of pastoralists highly depend on natural resources, they are impacted hard by climate change. Within the pastoralist societies, different groups are also affected differently by climate change based on factors such as age, sex, wealth, economic status and rank in the society, ownership of different livestock species, economic

engagement, as well as geographical location (Mushi, 2013). Research points out to the fact that women and men are impacted differently by climate change. Amsalu & Wana (2013) argue that climate change has a gendered dimension whereby women tend to be more vulnerable to climate change related disasters and food insecurities especially among pastoralists at the Horn of Africa.

Buckingham & Virgine (2017) further maintain that the risks of climate change vary for women and men due to their different social and economic conditions. According to them, women are at a greater risk, are more vulnerable and more likely to become victims of climate change because they do not have the same access to resources, have different living conditions and have more restricted capabilities than men. Vulnerability of pastoralist women to climate change at the Horn of Africa is therefore exacerbated by the following factors: gender roles among pastoralist communities; access to and control of vital resources and information; status of pastoralist women regarding decision making; other factors which include globalization and changing structure of the society. These factors are discussed below.

Gender Roles among the Pastoralist Communities

Gender roles are socially constructed, and therefore embodied in the social norms of the society. Women have the predominant role as care givers and nurturers. As such they are entrusted with the responsibility of taking care of children, the old and the sick. Studies by Amsalu & Wana (2013) on pastoral women in Ethiopia, Mushi (2013) on women in Tanzania, Omolo (2012) and Omolo & Mafongoya (2013) on pastoral women in Kenya reveal that the role of pastoralist women extends to also include taking care of young calves, as well as sick and weak livestock. This role proves very overburdening and difficult to accomplish especially during periods of scarcity. In events of climate change related disasters such as floods, many women and those under their care lose their lives since their mobility is restricted.

It is also the role of women to procure food, fetch water and firewood for their families. The UNFCCC (2007) predicted that increased frequencies of drought and associated unreliable rainfall would undermine the availability of food for families which would lead to a heavy burden for women. This was also echoed by the United Nations Convention to Combat Desertification, UNCCD's (2007) revelation that everyone experiences increased stress and hardship in

the wake of scarcity of natural resources. Although this affects both men and women, the burden is more on women since they have to work extra hard in order to compensate for the resource scarcity resulting from climate change (Mushi, 2013). For instance during water scarcity women have to walk longer distances in search of water for family consumption (Amsalu & Wana, 2013, Denton, 2002:12). Sometimes this puts pastoralist women at a risk of attacks, rape and other violent encounters.

Lack of Access to and Control of Vital Resources and Information

In most cases, the women provide labor for the various tasks related to livestock production, but have no control in the decision making process, particularly decisions relating to disposal of the animals and animal products. They are involved in production but may not own the means of production, including livestock, land and water. In fact, ownership of land by women is strictly forbidden (Furusa & Furusa, 2014). This leads to poverty and marginalization of pastoralist women. Women are the majority of the world's poor, and the most vulnerable to climate change. Lack of information worsens the situation. For instance, when natural disasters strike such as floods or drought, more women die than men because of lack of prior or early warning information. This leads to loss of life and livelihood. When poor women lose their livelihoods, they are likely to slip to more poverty and destitution owing to increase in inequality and marginalization.

Status of Pastoralist Women Regarding Decision Making

Pastoralist communities are predominantly male-dominated. Pastoralist women have a subordinate status to men. It is men who make vital decisions in the society. Women are supposed to obey the decisions made and to follow rules and instructions. They therefore lack decision-making power within the household and thus cannot make decisions such as slaughtering animals for food or income during periods of prolonged drought and hunger (Sundblad, 2013). This makes pastoralist women over dependent on men and reduces the climate change coping strategies available to them.

Other Factors that Increase Pastoralist Women's Vulnerability

Climate change also leads to upsurge of conflicts as communities seek to replenish their stocks through cattle raiding especially after drought. This leads to attacks and revenge attacks among various communities. Gender roles

ascribe the responsibility of raiding to men. As men die during the raids, women suffer the loss of their husbands and sons. Moreover, globalization and politics have changed raiding from a traditional exercise into a commercial and political one. Commercialized cattle raiding/rustling is being carried out for profit using sophisticated weapons. This increases the lethality of pastoralist conflicts. Another worrying trend is the fact that women and girls are being increasingly targeted for rape and murder during the cattle raids. This is unlike the past when raiding was a traditional exercise that was guided by elders and respect for life, and women was adhered to. Ecofeminists such as Shiva and Mies (2014) equate this intensification of violence against women with the intensification of human induced environmental problems some of which have led to climate change.

Due to harsh climatic conditions occasioned by climate change, some men are abandoning pastoralism and moving to urban centers leaving women in the village. This leads to breakdown of marriages and families. Moreover, prolonged droughts and other harsh climatic conditions have led to reduced stocks and in turn caused a decrease in marriages.

Coping and Adaptation of Pastoralist Women at the Horn of Africa to Climate Change

In order to survive the impacts of climate change, women in the pastoralist communities in the Horn of Africa have had to establish coping and adaptation strategies. Some of the coping and adaptive strategies adopted include the following: sale of assets other than livestock, herd diversification and slaughtering of livestock to provide food for families. Other measures include change to agro-pastoralism as well as carrying out irrigation where there are rivers. People are also keen to harvest and store water especially during rainy season. Women have also tried to access relief food mainly from non-governmental organizations including religious organizations.

Pastoralist women also struggle for economic efforts to sustain their livelihoods in times of hardship. They engage in small businesses such as selling firewood (*selling charcoal is the preserve of men*), weaving baskets and also beadwork. In Ethiopia, for instance, it was discovered that during droughts, pastoralist communities, particularly women indicate some shifts in economic activities by dealing in petty trade and cross-border trade

(GebreMichael & Kifle, 2009, cited in Mushi, 2013:2). Education has also been resorted to as a long term process that would eventually redeem the communities from perennial poverty. In an effort to cope with the absence of men in households, and the need to provide security, pastoralist women in the Horn of Africa are increasingly acquiring guns and mastering the art of shooting.

Even in their efforts to cope with effects of climate change, women pastoralist women still encounter bottlenecks. Mushi (2013) revealed that pastoralists have different positions and face different challenges compared to men in coping and adapting to climate change. The challenges that women face include for instance poor access to markets, services and technical information, competing resource uses, policies that favor large-scale producers or external markets and weak institutions.

Conclusion

Climate change is real and its impacts on human beings are clearly visible. This paper has discussed the impacts of climate change on pastoralist women at the Horn of Africa. Through the theory of ecofeminism, the study has visualized and underscored women's relationship with the environment which consequently increases their interest and concern for the environment while increasing their vulnerability. The research has then applied this visualization to highlight the way climate change has impacted on pastoralist women in the Horn of Africa. It has highlighted the social and structural factors within the pastoralist communities that enhance the vulnerability of pastoralist women in the Horn to the effects of climate change as well as the coping and adaptive mechanisms and strategies that the women have adopted in order to survive and nurture their families. Since climate change has become reality that has to be reckoned with, it is laudable then that pastoralist women have been making an effort to adapt and cope with it. Addressing the challenges that they face in their efforts to adapt and cope would go a long way not only in helping the pastoralist women but also the entire communities. Pastoralist women also ought to be empowered in all aspects: socially, economically, politically, and culturally.

References

- Abebe, M. A. (2014). Climate Change, Gender Inequality and Migration in East Africa. *Washington Journal of Environmental Law and Policy*, 4 (1), 104-140.
- Abshir, S. (2020). Climate Change and Security in the Horn of Africa: Can Europe Help to Reduce the Risks? *European Institute of Peace- Climate Security Expert Network*.
- Adar G. K. (2000). Conflict Resolution in a Turbulent Region: The case of the Intergovernmental Authority on Development (IGAD) in Sudan. *African Journal of Conflict Resolution*, 1(2), 39-66.
- Ali, F.A., (2011). The Role of Women on Environment, Peace and Conflict: an Ecofeminist Approach. *Paper presented in a Workshop on Climate Change, Environment and Conflicts in Africa organised by United Nations Development Programme (UNDP-Kenya) and the Kenya Partnership for Peace and Security (KPfPS) (4th - 7th December, 2011), Mombasa, Kenya.*
- Amsalu, A. & Wana, D. (2013). Climate Change Impacts on Pastoral Women in Ethiopia: Some Evidences from the Southern Lowlands. Addis Ababa: PHE publishers.
- Barnett, J & Adger, W. N. (2007). Climate Change, Human Security and Violent Conflict. *Political Geography*, 26 (2007), 639-655.
- Buckingham, S & Le Masson, V. (2017). Understanding Climate Change through Gender Relations. London: Routledge.
- Burgess, F.S. (2009). Stabilization, Peace building and Sustainability at the Horn of Africa. *Strategic Studies Quarterly*, 3 (1), 81-118.
- Butler, C.K., & Gates, Scott. (2012). African Range Wars: Climate, Conflict and Property Rights. *Journal of Peace Research*, 49 (1), 23-34.

Catley, A., Lind, J & Scoones, I. (2016). The Futures of Pastoralism in the Horn of Africa: Pathways of Growth and Change. *Rev. Sci. Off. Int. Epiz*, 35 (2), 389-403.

Cechvala, S. (January 10, 2014). *Rainfall & Migration: Somali-Kenyan Conflict* <http://www1.american.edu/ted/ICE/somalia-rainfall.html>. (accessed 3/4/2021)

Denton, F. (2002). Climate Change Vulnerability, Impacts and Adaptation: Why Does Gender Matter? *Gender and Development*, 10 (2), 10-20.

Fang, G., & Luo, W. (2009). Social gender and ecological research. Beijing: Central Compilation and Translation Press.

Flintan, F. (2006). Combating Marginalization of Pastoralist Women: SOS Sahel's Experience in Ethiopia. *Gender and Development*, 14 (2), 223-233.

Furusa, Z. & Furusa, M. (2014). Women's Coping and Adaptation Capacities in Pastoralist Communities in Africa: Dealing with Climate Variability and Change. *Agenda*, 28 (3), 65-72.

Fre, Zeremariam. (2018). The Horn of Africa: The Ecological Setting and the Position of the Pastoralists. In, Fre, Zeremariam "Knowledge Sovereignty among African Cattle Herders. UCL Press. www.jstor.org (accessed 11/04/2021).

Gates, B. T. (1996). A Root of Ecofeminism: Ecofeminism. *Interdisciplinary Studies in Literature and Environment*, 3(1), 7-16.

Gibremichael, Y & Kifle, M. (2009). Local Innovation in Climate Change Adaptation by Ethiopian Pastoralists.

http://www.prolinnova.net/sites/default/files/documents/thematic_pages/climate_change_pid/2009/Ethiopia%20pastoral%20climate-change%20adaptation%20FINAL%20_2_.pdf (accessed, 5/04/2021)

Harding, G. (1968). The Tragedy of Commons. *Science New Series*, 162 (3859), 1243-1248.

Hartmann, I., Sugulle, A.J & Awale, A.I. (2010). *The Impact of Climate Change on Pastoralism in Salahley and Bali-Gubadle Districts, Somaliland*. Berlin: Heinrich Böll Stiftung.

HPG Humanitarian Group. (2009). *Pastoralism and Climate Change: Enabling Adaptive Capacity*. London. Overseas Development institute.

Intergovernmental Panel on Climate Change (IPCC). (2007). *Working Group Contributions to the fourth assessment report. Fourth Assessment Report. Climate Change 2007. Synthesis Report for Policy Makers*.

Kandagor, D.R. (2005). *Rethinking Pastoralism and African Development: A Case Study of the Horn of Africa*.

Keohane, O.R (2015). *The Global Politics of Climate Change: Challenge for Political Science: American Political Science Association*.

Klemenwork, T.R. (2015). *Natural Resource Degradation and Conflict in the East African Drylands. African Security Review, 24 (3), 270-278*.

Mkutu, Kennedy A. 2003. *Pastoral and Conflict in the Horn of Africa*. London: Saferworld. November.

Mushi, A. V. (2013). *Women Pastoralists and Climate Impacts in Kilosa District Tanzania*. In M. M. Mulinge & M. Getu “Impacts of Climate Change and Variability on Pastoralist Women in Sub-saharan Africa.

OSSREA & Fountain Publishers, pp 155-185.

Norgaard, K. & York, R. (2005). *Gender Equality and State Environmentalism. Gender & Society, 19 (14), 506 – 522*.

Omolo, N. A. (2010). *Gender and Climate Change Induced Conflict in Pastoral Communities: A Case Study of Turkana in North Western Kenya. African Journal of Conflict Resolution, 10 (2), 81-102*.

Omolo, N. A & Mafongoya, P.L. (2019). Gender, Social Capital and Adaptive Capacity to Climate Variability: A Case of Pastoralists in Arid and Semi Arid Regions of Kenya. *International Journal of Climate Change Strategies and Management*, 1(5), 744-758.

Raleih, C & Kniveton, D. (2012). Come Rain or Shine: An Analysis of Conflict and Climate Variability in East Africa. *Journal of Peace Research*, 49 (1), 51-64.

Salehyan, Idean. (2008). From Climate Change to Conflict? No Consensus Yet*. *Journal of Peace Research*, 45 (3), 315-326.

Shiva, V. & Mies, M. (2014). *Ecofeminism*. Zed Books Ltd.

Sil, L., Amoury, F., Enyew, A., Piet, T. & Jan, N. (2014). Drought Related Quasi-global Oscillations: A Diagnostic Teleconnection analysis in North Ethiopia. *International Journal of Climatology*.

Sundblad, L. (2013). Climate Change, Conflict and Gender Inequality. *Horn of Africa Journal*, vol. 2. <https://afrikansarvi.fi/issue6/62-artikkeli/177-climate-change-conflict-and-gender-inequality>

Theisen, O.M. (2012). Climate Clashes? Weather Variability, Land Pressure and Organized Violence in Kenya, 1989-2004. *Journal of Peace Research*, 49 (1), 81-96.

United Nations framework Convention on Climate Change (UNFCCC). (2007). *Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries*. Bonn:UNFCCC.

United Nations Convention to Combat Desertification (UNCCD). (2007). *Women Pastoralists: Preserving Traditional Knowledge: Facing Modern Challenged*. Bonn: United Nations.

World Bank. 2007b. *World Development Report 2008. Agriculture for Development*. Washington, DC: The World Bank. Fffff