Austin Environmental Sciences

Open Access

Austin Publishing Group

Research Article

Climate Change and Variability-Induced Resource Based Conflicts: The Case of The Issa, Ittu and Afar (Agro) Pastoralists of Eastern Ethiopia

Mengistu, Bamlaku Tadesse*
Associate Professor in Peace and Conflict Resolution, Institute for Peace and Security Studies, and Water and Land Resource Center, Addis Ababa University, Ethiopia

***Corresponding author: Mengistu Bamlaku Tadesse**
Associate Professor in Peace and Conflict Resolution, Institute for Peace and Security Studies, and Water and Land Resource Center, Addis Ababa University, Addis Ababa, Ethiopia.
Tel: (+251) 0911824062
Email: bamlaku.t@ipss-addis.org; bamlaku.t@wlrc-eth.org; bamlakutadesse@gmail.com

Received: June 27, 2024
Accepted: July 19, 2024
Published: July 26, 2024

Abstract

This article explores the link between climate change/variability and its adaptation/coping strategies with resource based ethnic conflicts among the Afar, Issa-Somali and Ittu-Oromo ethnic groups. The qualitative data were collected from community leaders, ordinary members of the communities, and administrative and political bodies at various levels through one-on-one interviews, focus group discussions and field observations. The quantitative data were also collected through household survey from the randomly selected 128 households drawn from the three districts of Mieso-Mullu, Mieso and Amibara districts. The study shows that there is a causal relationship between resource scarcity impacted by climate change/variability and ethnic conflicts. The study reveals that the increasing nature of resource scarcity and environmental problems, and also the changing nature of ethnic diversity will aggravate the resource based inter-ethnic conflicts.

Keywords: Eastern Ethiopia; Ethnic conflict; Climate change; Afar; Issa; Ittu

Background

This research hypothesized that climate change/variability can intensify the already existing environmental/resource problems, exacerbating ethnic grievances and conflicts among (agro) pastoralists, and overwhelming their adaptation strategies and coping mechanisms. This paper tries to address the perceptions of the (agro) pastoralists towards the relationships between climate change/variability and resource based inter-ethnic conflicts among the Afar, Issa-Somali and Ittu-Oromo rival groups in eastern Ethiopia. Though there is hot debate on whether climate change/variability can lead to conflicts, there are two basic circumstances for climate change/variability as a cause to conflict, with the first more likely [10]. First, climate change/variability could intensify environmental problems and/or resource scarcities that (agro) pastoral communities are already facing, exacerbating grievances, disturbing coping capacities, and at times stimulating forced migration. In this scenario, climate change/variability places additional stress on pre-existing situations and/or exacerbating their vulnerabilities, worsening the quantity, condition, and distribution of already scarce natural resources. Second, climate change/variability could create new environmental problems that lead to instability. If coping strategies are unsuccessful or adaptation measures are not taken or maladjusted, the likelihood of conflict may increase as human security is eroded and grievances intensified [10].

The changing nature of climate change/variability is closely related to political and social instability and a higher risk of conflict. Conflict arises from the competing demands on scarce natural resources by different claimants impacted by climate change/variability. This implies that climate change/variability and conflict have an indirect causal relationship. It can reduce access to water by causing a reduction in rainfall and lead to lower agricultural production as crops are less productive. In more ethnically diversified resource users, conflict may arise since the impacts of climate change/variability altered the incompatibility of resource demands and its supplies. There are four well-known paradigms regarding the current debate on the link between climate change/variability, each providing a different answer to the question whether climate change/variability is a source of conflict which is developed by reviewing main theoretical arguments and latest empirical evidences. First, the climate conflict paradigm claims climate change/variability increases the risk for conflict onset. Second, the social conflict paradigm states climate change/variability is mostly unrelated to the outbreak of conflicts. Third, the resource abundance paradigm sees natural resource wealth as a source of conflict, implying that climate change/variability can prevent violence via an increasing shortage of resources. Finally, the environmental peacebuilding paradigm suggests that environmental

Citation: Mengistu, Bamlaku Tadesse, Climate Change and Variability-Induced Resource Based Conflicts: The Case of The Issa, Ittu and Afar (Agro) Pastoralists of Eastern Ethiopia. Austin Environ Sci. 2024; 9(2): 1109.

Table 1: Adaptation strategies instigating conflict by district.

Adaptation strategies inducing conflict	Mieso-Mullu		Mieso		Amibara		Both (three)		Chi-square test
	Index	Rank	Index	Rank	Index	Rank	Index	Rank	
Area enclosures	2.89	2	3.83	3	4.98	2	11.24	2	12.2**
Production of hays and crop residues	2.40	5	2.58	6	4.99	1	9.23	6	23.0***
Crop farming	2.48	4	3.84	2	4.44	6	10.30	3	14.1**
Sedentarism & its related activities	2.50	3	3.04	5	4.52	5	9.47	5	16.4**
Diversifying livestock production	2.30	6	3.62	4	4.62	4	9.70	4	22.6***
Mobility	3.58	1	4.18	1	4.84	3	12.19	1	24.8***

***Significant at 1%, ** Significant at 5%[2]

problems and natural disasters, which can be exacerbated by climate change/variability, may provide opportunities for initiating peaceful cooperation. There are empirical evidences supporting each of these paradigms. The four paradigms discussed here which are overlapping and not mutually exclusive were all developed in the debate about the environment-conflict nexus, but can be extended to the field of climate change-induced conflict [20].

Various scholars tried to analyze the resource based ethnic conflicts with the lens of grievances (challenges) or greed (opportunities) to show how both can maintain the institutions of violence along with other factors such as ideology and pride sentiments [3-5,13,15]. To illustrate with empirical evidences, the Issa are believed to be "the agents of the ideology of the then Said Barre's regime of creating Greater Somalia" by incorporating the Somali inhabited areas of Ethiopia. The Issa tried to maximize the possible opportunities (greed) when there were government changes in Ethiopia and with the presence of various insurgents against the central government. On the other hand, the grievance hypothesis postulates that the rival groups (the Afar and the Oromo) reacts violently and develops a continued struggle faced from the challenges of the Issa's repetitive territorial expansion and expulsion against their interests.

Resource scarcity may lead to conflicts [17] while conflicts themselves exacerbate environmental problems (UNEP 2009), leading to a vicious cycle [20]. The impacts of climate change have observed in the study area that challenges the (agro) pastoralist communities of the Afar, Issa, and Ittu ethnics/clan groups in which they have a longstanding conflictive relationship. The most important feature of climate change impacts is increasing frequency of severe droughts and the chronic failure (late arrival, early cessation, or non-appearance) of the long rains in the period from March through May [11].

Inter-ethnic conflicts in Ethiopia are now common and recurrent across the different regions where there are competing and divergent ethnic groups following the establishment of the federal system by creating largely ethnic based territorial units [1]. The causes of ethnic conflicts among the Issa-Somali, Ittu-Oromo and Afar pastoralists in eastern Ethiopia are diverse, complex, and dynamic and are intertwined in nature. Moreover, these conflicts in eastern Ethiopia have intensified and changed in its nature and magnitude over the last three decades due to a range of factors including changes in the federal structure of Ethiopia, demographic pressure and the impacts of climate/environmental pressure. The Afar, Issa and Ittu pastoralists share common pastoral resources in the arid and semi-arid areas of eastern Ethiopia and also in the republic of Djibouti (the Afar and Issa-Somali).

Methodology

The Study Area

This research was carried out in Eastern Ethiopia where the three distinct ethnic groups namely the Afar, Issa and Ittu predominantly live together but violently. The Afar, Issa and Ittu belong to the Afar, Somali and Oromia Regional States of Ethiopia respectively. This research was carried out in Mieso Mullu district of Shinlle zone, Somali Regional State; Amibara district of Zone 3, Afar Regional State; and Mieso district of West Hararaghe Zone, Oromia Regional state in eastern Ethiopia where there is the prevalence of drought and recurrent conflicts. The area is one of the most affected by the impacts of recurrent conflict and drought conditions in Ethiopia which hampered to sustain the traditional modes of (agro) pastoral livelihoods. The area is largely arid and semi-arid with high temperatures and low precipitation. The Issa inhabited Shinille zone of Somali region and borders with Djibouti and Somaliland in the north and east respectively; Jijiga zone in the southeast, and Oromia and Afar regions in the south and west respectively. The dominant clan group in the zone is the nomadic Issa. Gurgura, Gedabursi and Hawiya clan groups are also the agro-pastoral residents in the zone. The Ittu, Alla and Nolle clans of Oromo ethnic inhabited Mieso district, west Hararghe zone of Oromia Regional state. They are pastoralist and agro-pastoralist communities. The Afar ethnics particularly the Weima and Debnie clans inhabit the Afar Regional state bordering both Somali and Oromia regions. They are predominantly pastoralists. All these ethnic groups who are bordering and competing to each other on scarce resources are the major contenders in the study area. There is a competition on their indigenous ways of adaptation/coping strategies to climate change that aggravates the already existing conflicts.

Sources of Data and Method of Data Collection

This study has employed both quantitative and qualitative approaches in order to generate primary data sources. The quantitative data were generated through household survey from 128 randomly selected households of the Mieso-Mullu, Mieso and Amibara districts. A total of six kebeles[1] (two kebeles from each district) were selected purposively based on

Table 2: Climate change –induced mobility that can instigate conflicts by district.

Climate change-induced mobility instigating conflict	Mieso-Mullu		Mieso		Amibara		Both (three)		Chi-square test
	Index	Rank	Index	Rank	Index	Rank	Index	Rank	
Competition and fighting over resources	6.91	1	7.71	1	8.20	1	22.51	1	12.7**
Creating ethnic tensions if they belong to different groups	3.82	3	3.55	3	6.40	2	13.35	3	22.3***
Creating distrust among them and fear of ethnic imbalance	6.03	2	5.56	2	6.01	3	17.39	2	21.1***

*** Significant at 1%, ** significant at 5%

Table 3: Coping strategies instigating conflicts by district.

Coping strategies instigating conflicts	Mieso-Mullu		Mieso		Amibara		Both (three)		Chi-square test
	Index	Rank	Index	Rank	Index	Rank	Index	Rank	
Migration	1.39	9	1.63	10	3.49	4	5.69	**7**	35.4***
Searching for daily labor in nearby towns	1.45	7	1.81	7	2.91	9	5.64	8	7.6
Charcoal making	2.05	3	1.66	9	3.42	5	6.58	5	27.8***
Fire wood collection	2.21	1	2.26	3	4.15	1	8.09	1	10.1**
Contraband trade	1.45	7	1.81	7	2.91	9	5.64	8	45.1***
Theft of properties	1.13	10	1.85	5	2.97	8	5.31	10	23.0***
Cattle raiding	1.79	6	2.88	1	3.66	3	7.71	2	27.3***
Brokering on livestock	2.03	4	1.97	4	3.79	2	7.26	4	18.9**
Petty trading	1.93	5	1.84	6	3.15	6	6.54	6	11.1**
Safety net programme	2.07	2	2.52	2	3.13	7	7.32	3	17.2**

*** Significant at 1%, ** Significant at 5%

the severity of drought and conflict situations. The qualitative data were generated using semi-structured key informant interviews, focus group discussions, personal observations and informal discussions. In-depth interviews with key informants were conducted and data generated in order to have thick description of the events. Based on the qualitative information gathered from the key informant interviews, focus group discussions and author's personal observations, respondents were asked to rank on the survey determined with a five-point Likert scale for the different alternatives given about how (agro) pastoralists' adaptation/coping strategies instigate conflicts. Respondents were also given an opportunity to suggest additional adaptation/coping strategies instigating conflict not listed in the survey. The field work was conducted between February 2013 and November 2014. The qualitative data was used to substantiate and cross-triangulate the quantitative data. Key informants and focus group discussion participants were selected based on their age and level of awareness about their culture, society and environment and heads of households and members holding positions in customary institutions preferred. A total of 16 Issa, 18 Ittu and 14 Afar for individual interviews; and 6 focus group discussions for each group (Issa, Ittu and Afar) were conducted and the participants were selected from the (agro) pastoralists, clan leaders, community elders and representatives, zonal and district level officials of the three districts. Secondary sources of both published and unpublished documents such as reports, letters, cases, annual plans were also reviewed and analyzed thematically.

In the analysis of the questionnaire, respondents were asked to rate the factors that instigate conflicts due to adaptations/coping strategies employed by (agro) pastoral communities with the presence of other factors as very important, important, not sure, less important and not important. Then index values were calculated to rank the perceptions by weighting the perception (within and between the study groups) and then by multiplying it with arbitrary values to each alternative. Accordingly, the factors that are expected to instigate conflict among the rival groups due to the (agro) pastoralists' adaptations/coping strategies to climate change/ variability were ordered according to their importance. When we say adaptation/coping strategies are instigating pastoral conflicts mainly due to the scarcity of natural resources, they are not isolated from other factors such as socio-cultural, economic and political. But the focus of this research is to deal with how (agro) pastoralists perceived and experienced that climate change/variability and its adaptation/coping strategies are instigating conflicts.

It is believed that in relation to the existing climate change and variability, resource competition among the (agro) pastoralist groups of resource users significantly increase the risk of violent conflicts. The risk is greatest during times of tensions/stress (for example, during sever and prolonged drought periods), when available resources are getting scarce and even more restricted to be accessed. The risk of violent conflicts is also high when there are diverse ethnic resource users. However, according to Barnett and Adger [2], environmental change in isolation from a broader range of social/political factors has not undermined human security.

[1]Kebele (Amharic word) is the lowest administrative unite below a district

The Concept of Climate Change/Variability and its Adaptation/Coping Strategies

Climate is generally described in terms of the mean and variability of temperature, precipitation and wind over a period of time, ranging from months to millions of years-the classical period being 30 years [7]. According to Hegerl et al. [7], climate change refers to a shift in the mean state of climate or its variability persisting for an extended period of time (decades or longer), which might be due to natural changes or persistent anthropogenic changes in the composition of the atmosphere or in land use. Climate variability on the other hand refers to variation in the mean state of climate on a temporal and spatial scale beyond that of individual weather events [21]. Some of the examples of climate variability include but not all are extended droughts, floods and conditions that result from periodic events of changes in weather conditions [21].

Climate change/variability is expected to bring unpredictable cycles of rain and drought (more on the arid and semi-arid ecological zones where pastoralists are living), rising temperatures and more extreme climate variations across the world. This leads to repercussion for the rangelands in most pastoral areas where resources are becoming more scarce, utilized and fragmented. One of the observable phenomena due to such changes in the study area is the occurrence of recurrent droughts especially in the (agro) pastoral areas of Ethiopia. In these regions, droughts are becoming more regular in the last three to four decades; pastoralists have less time to recover from its impacts before the arrival of the next crisis.

The pastoral livelihood systems in the Horn have been severely affected by droughts, which led to widespread famine, followed by ill-conceived socio-economic policies. The Horn having the world's largest population of pastoralists reveals a high level of human insecurity, witnessed numerous civil wars

and several interstate wars. The cases in point are the wars between Ethiopia and Somalia (1977/78, 1982) and Ethiopia and Eritrea (1998–2002). Climate change and its impact is clearly feasible in the pastoralist areas of the Horn especially on the continuing shifts of the rainfall patterns. It is, therefore, important to carry out 'reality checks' and review adaptation strategies/plans on regular basis. The link between climate change and conflict similarly needs to be approached with serious concern and attention. While climatic shifts will strain development efforts and human security in the Horn, the manner in which these effects relate to conflict risks needs to be investigated further.

The adaptive capacities of (agro) pastoralists to respond to changing climatic and ecological conditions throughout their long years of real experiences have been quite impressive. (Agro) pastoralists have been able to survive the impacts of climate change by their mobile nature and by adapting alternative livelihood strategies. However, state and regional borders that restrict their movement during drought, population increase and global climate change are posing new challenges to their indigenous adaptation mechanisms. This is because the restriction of pastoral mobility, concentration of huge population in a certain area due to its increase at alarming rate and the impact of global climate change on pastoralists aggravate the scarcity of natural resources and hence its stiff competition on the limited resources that in turn leads to ethnic based pastoral conflicts in the region. It is, therefore, important to understand how and to what extent the impacts of climate change/variability can be addressed, and under what circumstances they are likely to lead to conflicts.

Furthermore, increased temperatures and altered patterns of precipitation will further complicate food security and social stability in the poorest part of the region. Climate change/variability also proposes an opportunity to rethink the different development policies and land use system of the region where there is no record and recognition of land tenure and property rights ownership particularly in the most vulnerable pastoral communities of the region [16]. The lack of recognition of customary land tenure and property rights ownership in the most vulnerable (agro) pastoral communities exacerbates the ethnic based resource competition and hence the occurrence of recurrent and perpetual inter-ethnic conflicts in the region. Pastoralists' customary land tenure and property rights are violated by various factors such as government, private investors, farmers and the like as if their vast range lands are assumed to be vacant and no man's land. As pastoralists' range land is continuously encroached by these actors, they are facing the scarcity of grazing lands to roam a room and maximize their productivity as they are also restricted their mobility due to the introduction of state and regional borders. The increasing nature of the scarce resources is also coupled with the pressure of climate change/environmental problems and the mismanagement and utilizations of scarce natural resources as there is the lack of recognition and deteriorations of customary institutions.

Adaptation/Coping Strategies to Climate Change/Variability Inducing Conflicts

Adaptation Strategies to Climate Change/Variability Inducing Conflicts

(Agro) pastoralists are currently facing an acute shortage of grazing lands and also the quantity and quality of pasture and water for variety of reasons. Some of the most important factors that contribute for the declining nature of pastoral traditional grazing commons are the encroachment of farmers in to pastoralist' range lands, population pressure, and the appropriation of (agro) pastoralists' range lands for investments, national parks, sanctuaries and game reserves. This in turn impacted the competition on scarce natural resources and also on the (agro) pastoralists' adaptation/coping strategies that instigate ethnic based (agro) pastoral conflicts. Respondents were asked to respond to the question how the different adaptation strategies to climate change/variability are inducing/aggravating pastoral conflicts?

The Afar lost a total area of 47,141 hectors of land for the purposes of investments (privately and government owned), national parks, sanctuaries and game reserves [6]. The encroachment of (agro) pastoralists' traditional grazing lands by various actors coupled with the impacts of climate change/variability seriously endangers on the quality and quantity of their livestock production since they face an acute shortage of pasture lands and water points.

As a result, the (agro) pastoralist communities are forced to adapt to the existing conditions so as to sustain their livelihood strategies in the form of area enclosures as well as production of hays and crop residues which in turn leads them to conflict. The survey result shows that area enclosures as an adaptation strategy is the second for Mieso-Mullu and Amibara and the third most important factor in inducing inter-ethnic/clan conflicts for Mieso district respondents respectively. The survey result also shows that the production of hays and crop residues as an alternative strategy to feed their animals to adapt to such changes is the fifth, sixth and first most important factor in inducing conflicts for the Mieso-Mullu, Mieso and Amibara district respondents respectively. The production of hays and crop residues as a factor to instigate conflicts is more among the Amibara district respondents than the Mieso-Mullu and Mieso district respondents. This is because the practice is more common in Amibara district specially the production of hays from the national parks, game reserves and sanctuaries found in zone three of Amibara district (the majority of national parks, game reserves and sanctuaries found in the Middle Awash Valley is found in zone 3 than the Shinlle and West Hararghe zones). (Agro) pastoral grazing lands are communally owned, managed and protected through their customary institutions for centuries and conflicts arising from competitions of such resources are effectively managed through these institutions. Customary institutions are also responsible for the access and ownership rights of such communal resources. However, with the introduction of preparing hays and crop residues in the form of forage to feed their animals and that of area enclosures as a reserve pasture for drought periods on individual basis, it is now common to observe ethnic and clan-based conflicts among these (agro) pastoral communities and also conflicts between (agro) pastoralists with the security guards of the national parks/game reserves as well as investors.

The survey result shows that sedentarizations and its associated activities of pastoral communities as an adaptation strategy is reported to be the fifth for Amibara and Mieso and the third important factor that instigates conflicts among the rival groups for Mieso-Mullu district respondents respectively. The impact of global climate change/variability is more visible on the arid and semi-arid ecological areas of the Horn where pastoralists are making a living that altered their production system. As a result, there have been a lot of changes that have

necessitated a change in the adaptive strategies to better cope with the changing pastoral production systems. One way of adaptation is sedentarization of pastoralists which is also accelerated by the influence of the government that provided social amenities such as health centers and veterinary services and improved infrastructures and permanent watering sources at specific points in the extensive grazing lands. It is also reported that sedentarization has occurred due to change in land tenure resulting from the expansion of large-scale investments on the pastoralists' grazing areas, sub-division and individualization of ranches, among others. The mobility of pastoral herds allowed for maximum and equitable exploitation of patchily distributed water and pasture in the rangelands. However, increased sedentarization has reduced/blocked pastoral mobility and concentrated the people and their livestock around water points, resulting in increased land degradation. This in turn has also increased their vulnerability to drought and in the long run may jeopardize the viability of the livestock enterprise upon which pastoral livelihoods depends.

In addition, the high potentialities of (agro) pastoral rangelands have been converted into other land uses [9] by grabbing their lands, such as investments, parks/sanctuaries and game reserves, which have greatly reduced both the dry and wet season grazing areas. As a result of diminishing forage resource base, the pastoralists who could no longer maintain subsistence livestock production have adapted other sources of livelihood including farming and wage employment. The expansion of farming practices blocks the pastoralists' mobility which in turn aggravates the escalations of tensions and farmer-herder conflicts. The shrinking resource base coupled with shifts to cultivated agriculture has led to increased resource-based conflicts [12].

Sample respondents also reported that diversifying livestock production as an adaptation strategy is the sixth for Mieso-Mullu and the fourth factor for the Mieso and Amibara district respondents respectively that induces ethnic/clan conflicts among the rival groups with the response pattern being significantly different at 1%. The more the livestock species and their numbers, the more the likelihood of the pastoralists to went in to ethnic/clan-based conflicts. This is because as the number and species of the pastoralists' livestock increases, there will be dramatically a decline in the quality and quantity of communal resources as there is overgrazing and its subsequent degradation of the natural resource base. When this factor coupled with the impacts of climate change/variability, the pressure on the pastoralists' diversified and outnumbered livestock species will be increased that jeopardizes their old aged livelihood strategies.

Mobility as an Adaptation Strategy and its relation with pastoral conflicts: The question how climate change-induced mobility can instigate conflicts in areas receiving migrants were asked to the respondents of the three districts. The survey result shows that mobility as an adaptation strategy is the first most important factor instigating violent conflicts for all respondents of Mieso-Mullu, Mieso and Amibara districts with the response pattern being significantly different at 1%. There is a strong link between mobility and climate change-induced conflict among the pastoral communities. Mobility is the art of rangelands management, and adaptation to temporal and spatial resource dynamics in the system. By moving across time and space, pastoralists effectively utilize resources and maximize their productivity. It is also a way of coping with the risk and variability in resource bases due to weather variations in space. Therefore, it is a carefully managed process by pastoralists that relies on large social networks and the rapid gathering of information on the concentrations of high-quality pasture and water [8]. Livestock mobility enables pastoralists to take advantage of the ever-changing diversity of dry land ecology. They track the random concentrations of nutrients in space and time. IIED and SOS Sahel UK (2010) argue that pastoralists who are mobile are in a better position to quickly and successfully adapt to a changing climate than those tied to sedentary land uses.

Manmade restrictions on pastoral mobility due to climate change-induced conflict can have very negative implications for the viability of pastoral herds. Restrictions on mobility leads to the immediate problem of overgrazing which in the longer term, can lead to serious soil degradation and the depletions of the natural resource base. Sample respondents reported that the competition and fighting over such scarce resources due to climate change induced-mobility of pastoral groups can instigate and aggravate inter-ethnic conflicts, the 1st most important factor among all the respondents of Mieso-Mullu, Mesio and Amibara districts with the response pattern being significantly different at 5% between the three study sites. Pastoralists may also face many challenges due to their mobility as a coping and adaptation strategy to climate change/ variability. For example, agro-pastoralists' farm plots frequently block access to their grazing areas, introduction or the redefining of regional borders among pastoralists also restricts their easy movement and access of resources across time and space, national border controls also hinder their trade patterns, and the areas they traditionally own and preserve for times of drought are now mostly turned to either national parks/game reserves or privately/government owned large scale agricultural schemes. Cases in point are the encroachment of Issa pastoralists to the farm lands of Oromo agro-pastoralists in Mieso district, the establishment of new national park i.e. Alledeghe national park besides to the existed Awash national park, several game reserves in Amibara district, the previously government owned farming areas are now turned in to privately owned agricultural enterprises along the Awash River, etc. All these interventions contributed to the increasing nature of resource scarcities which in turn aggravates the inter-ethnic violence among the rival groups. In other areas national government policies actively encourage pastoralists to settle and be 'modern'. These policies are often driven by unfounded perceptions that pastoralism is economically inefficient and environmentally destructive. But this is not evidence based.

Mobility on the other hand is a key element in the pastoral production system, and experience has shown that if mobility breaks down, pastoralists' livestock production dramatically declines and environmental degradation arises. Mobility is not only about moving herds to areas of good pasture, but also about managing natural resources to ensure the existence of healthy pasture which will support these herds in the longer-term. Management of pastoral mobility and resources has long been guided by customary institutions. Therefore, customary institutions have been a vital part of pastoralists' adaptive/coping strategy, helping pastoralists to take advantages of the opportunities and cope with the consequences of climate change/ variability.

Sample respondents also reported that climate change-induced mobility can create ethnic tensions and animosities if the competitors/rivals belong to the different ethnic groups, the 3rd

for Mieso-Mullu and Mieso and the 2nd most important factor for Amibara district respondents respectively with the response pattern being significantly different at 1% between the three study sites. The Issa pastoral nomads are constantly encroaching the territories of the Afar as well as the Ittu, Alla, Nolle and other Oromo clan groups for pasture land and water points especially during prolonged and severe droughts in the area. These (agro) pastoral groups are always in suspension of the encroachment of the Issa and Hawiya–Somali nomadic pastoralists as the latter claimed the area once they began to access such resources. On the one hand the Issa pastoral grazing areas are also encroached by the above listed agro-pastoralist Oromo clans for agricultural farming plots, settlement areas, charcoal making purposes, and tree cutting for permanent house constructions. These west ward expansion (Issa towards the Afar and Oromo lands) and east ward encroachment (mostly Oromo clans towards Issa's grazing areas) is primarily for the purpose of securing their livelihood strategies which are severely endangered and vulnerable by the impacts of climate change/variability. These relentless expansionary moves of one group over the other create ethnic tensions and animosities among the contending parties to the extent that the Afar and the Issa ethnic groups are considered as traditional enemies. It is also reported that climate change-induced mobility can also create ethnic distrust and fear of ethnic imbalances among the rival groups, the 2nd for Mieso-Mullu and Mieso and the 3rd important factor for Amibara district sample respondents respectively. Reuveny [18] argued that climate change-induced mobility can promote conflict in the receiving areas, and that the intensity of such conflict may vary across cases. He further argued that this is due to competition over resources, ethnic tensions distrust and fault lines (for example, mobile pastoralists and resident farmers may compete over land).

Therefore, there is sufficient evidence that climate change/variability leads to conflicts. When pastoralists lose their livelihoods through loss of access to pastures and water due to climate variability/change, destitution threatens and they turn to violence. This is exacerbated by other factors, including the proliferation of small arms, breakdown in customary institutions and the absence of state governance in remote border areas [8]. Whether pastoralists will successfully adapt to the current climate variability/change will depend on how the environmental challenges are tackled and whether their mobility is secured.

Coping Strategies to Climate Change and Variability Inducing Conflicts

This study tried to reveal some of the coping and/or survival strategies to the impacts of climate change/variability that are directly or indirectly inducing ethnic/clan based conflicts such as migration to neighboring regions, searching for daily/wage labor, charcoal production, involving in contraband trade, theft of properties, petty trading, brokering in livestock trade, fire wood collection/clearing forests for market, safety net program and MERET project (Managing Environmental Resources to Enable Transition to More Sustainable Livelihoods) and their rationing program, cattle raiding, among others . The result of the response of the respondents that were asked the question how the different coping strategies to climate change/variability are inducing/aggravating pastoral conflicts is presented and discussed below.

The survey result shows that migrating to the neighboring countries and searching for daily/wage labor are reported to be factors that aggravate ethnic conflicts among the rival groups. Those migrants who considered themselves as Diaspora are fueling and sponsoring ethnic based conflicts in the region. A large number of (agro) pastoralist youth are dropping off their old aged livelihood strategy primarily based on livestock production due to the continued pressure of the impacts of climate change/variability coupled with other factors and migrate to the outside world mainly for wage labor[2] as well as to the nearby major towns and cities. The more the pastoralist youth are dropping off their livelihood and left their homestead, the more the likelihood of infusing ethnic based pastoral conflicts in the area. While migration to the neighboring countries is the cause of inter-ethnic conflicts, the 9th, 10th and 4th factor for the Mieso-Mullu, Mieso and Amibara district respondents respectively; searching for daily/wage labor as a coping mechanism inducing conflicts is reported to be the 7th for Mieso-Mullu and Mieso and the 9th for Amibara district respondents respectively.

The production of charcoal and fire wood collection as coping mechanisms are reported to be the most important factors aggravating ethnic/clan-based conflicts among the rival groups. While the sample respondents perceived charcoal production as the 3rd, 9th and 5th important factor for the Mieso-Mullu, Mieso and Amibara district, they also reported that the collection of fire wood by clearing forests for the purpose of income generating activity is also inducing ethnic/clan conflicts among the rival groups, the 3rd for Mieso and the 1st most important factor for Mieso-Mullu and Amibara district respondents respectively. The production of charcoal and fire wood collection in the (agro) pastoralist areas as coping livelihood strategies are mainly practiced by those households or individuals who are forced to drop or near to drop their main livelihood system. Both charcoal production and clearing of forests for fire wood collection as coping strategies by few individuals are aggravating the competition on scarce natural resources like forest. The (agro) pastoralists need the forests and their shrubs for feeding their animals especially for browsers and they mainly depend on the shrubs during the prolonged drought periods. While these individuals are clearing forests for charcoal production and fire wood collection for marketing purposes on extensive bases, the (agro) pastoralists are managing, protecting and preserving the forests so as to sustain their livelihoods since they need the forests for their shrubs to feed their animals, for rain/water, for medicinal plants, among others. These divergent interests between the two actors create conflicts and tensions among themselves.

The survey result also shows that individual's involvement in contraband trade, theft of properties and cattle raiding are also reported to be alternative ways of coping strategies that induces ethnic/clan-based resource conflicts among the rival groups. The involvement of contraband trade that induces violent conflicts among the contending parties is reported to be the 7th for Mieso-Mullu and Mieso and the 9th factor for Amibara district respondents respectively. Compared to the factors of contraband trade and theft of properties, the practice of cattle raiding that instigates violent conflicts among the rival ethnic groups is reported to be the 6th, 3rd and 1st most important factor for the Mieso-Mullu, Amibara and Mieso district respondents respectively. In connection to cattle raiding, the practice of brokering on livestock trade which is a recent phenomenon among the (agro) pastoralists is also reported to be the 4th for Mieso-Mullu and Mieso and the 2nd most important for Amibara district respondents respectively that induces violent conflicts among the rival ethnic groups.

The competition for custom posts, potential market centers for contraband trade such as Gedamaitu, Adaitu, Unduffo, Hardim and also the main high way that runs from the center (Addis Ababa to Djibouti and Asseb port) are the sources of ethnic tensions and conflicts among the rival ethnic groups especially among the Afar and Issa. Places such as Gedamaitu where the Issa already controlled is a small town in Afar region found towards the north of the Alledeghe plain[2] and now Issa, is the centre for dispatch and delivery of the contraband goods. Getachew [6] stated that the Afar, being in the strategic location in this area had the upper hand in controlling and acting as middlemen between traders of the center and the hinterland for generations. However, currently the Afar lost their position to the Issa since the Afar was forced to pushed back to the northward directions by leaving the two important routs (rail way and the asphalt) and other important centers when the Issa encroach the area. The competition between the two is still hot and they are on the accusations and counter accusations for claiming and reclaiming of these important contraband centers and their environs.

The practice of safety net and rationing programme as well as MERET project and its associated benefits as a coping strategy create clan-based conflicts and tensions, which is the 2nd for Mieso-Mullu and Mieso and the 7th important factor for Amibara district respondents respectively.

[2]The vast plain used as the main grazing area for Afar

Summary and Conclusions

This research identified some of the adaptation strategies to the impacts of climate change that have causal effect of resource based ethnic conflicts among the Afar, Issa and Ittu in eastern Ethiopia. Some of these adaptation strategies are area enclosures as well as production of hays and crop residues in response to the declining nature of resources. Sedentarizations and its associated activities like crop farming of pastoral communities is reported to be the fifth for Amibara and Mieso and the third important factor that instigates conflicts among the rival groups for Mieso-Mullu district respondents respectively. The survey result shows that mobility as an adaptation strategy is the first most important factor instigating violent conflicts for all respondents of Mieso-Mullu, Mieso and Amibara districts with the response pattern being significantly different at 1%. Climate change-induced mobility can instigate ethnic conflicts through aggravating resource competition and fighting for such scarce resources, creating ethnic tensions and distrust among the rival groups and aggravates the fear of ethnic imbalances.

Migrating to the neighboring countries and searching for daily/wage labor as coping strategies are reported to be factors that aggravate ethnic conflicts among the rival groups. The production of charcoal and fire wood collection as coping strategies are reported to be the most important factors aggravating ethnic/clan-based conflicts among the rival groups. There are also other factors such as contraband trade, theft of properties, and cattle raiding as coping strategies that fuel ethnic conflicts among the rival groups.

Lastly, the research concluded that there is a causal relationship between climate change/ variability and resource based inter-ethnic conflicts among the Afar, Issa-Somali and Ittu-Oromo rival groups in eastern Ethiopia. The changing nature of climate change/variability is closely related to political and social instability and a higher risk of conflict. Climate change/variability can cause resource scarcity and hence leads to resource based ethnic conflicts. Conflict arises from the competing demands on scarce natural resources by different claimants impacted by climate change/variability.

References

1. Alem Habtu. Ethnic Federalism in Ethiopia: Background, Present Conditions and Future Prospects. Paper Submitted to the Second EAF International Symposium on Contemporary Development Issues in Ethiopia. The Ghion Hotel Addis Ababa Ethiopia. 2003.
2. Barnett Jon, Adger Neil. Climate change, human security, and violent conflict. In: Political Geography. 2007; 26: 639-655.
3. Collier P, Hoeffler A. Greed and Grievance in Civil War. Working Paper Series 2002–01, Centre for the Study of African Economies, Oxford University. 2004; 56: 563-595.
4. Cramer. Homo Economicus Goes to War: Methodological Individualism, Rational Choice and the Political Economy of War. World Development. 2002; 30: 1845–64.
5. de Soysa. Paradise Is a Bazaar? Greed, Creed and Governance in Civil War, 1989–99. Journal of Peace Research. 2002; 39: 395–416.
6. Getachew Kassa. Resource Conflicts among the Afar of North-East Ethiopia. In Mohamed Salih, Dietz and Mohamed Ahmed (eds.) African Pastoralism: Conflicts, Institutions and Government. Pluto Press, London. 2001.
7. Hegerl GC, Zwiers FW, Braconnot P, Gillett NP, Luo Y. Understanding and attributing climate change. Climate Change 2007: The Physical Science Basis. Contributing of Working Groiup I to the Fourth Assessment Report of the Inter – governmental Panel on Climate Change (eds. S. Solomon et al.), Cambridge University Press, Cambridge, UK and New York, NY, USA. 2007; 663-745.
8. IIED (International Institute for Environment and Development) and SOS Sahel International UK. Modern and mobile: The future of livestock production in Africa's drylands. 2010.
9. IRIN (Integrated Regional Information Networks United Nations), 2007 AFRICA. Can pastoralism survive in the 21st century? ISIOLO, 21 August 2014 (IRIN). 2008.
10. Jefrry Stark, Christine Mataya, Kelley Lubovich. Climate Change, Adaptation, and Conflict: A Preliminary Review of the Issues, Bangladish. 2009.
11. Jeffry Stark, Katsuaki Terasawa, Mersie Ejigu. Climate change and Conflict in Pastoralist Regions of Ethiopia: Mounting challenges, Emerging Responses, USAID, CMM Discussion. 2007.
12. Kariuki GK. Socio-economic impact of smallholder irrigation schemes among the Borana nomads of Isiolo district, Kenya. The African Pastoral Forum, Pastoral Information network program. 1996.
13. Korf Benedikt. Rethinking the Greed-Grievance Nexus: Property Rights and the Political Economy of War in Sri Lanka. Journal of Peace Research. 2005; 42: 201–17.
14. Functions of Violence Revisited: Greed, Pride and Grievance in Sri Lanka's Civil War. Progress in Development Studies. 2006; 6: 109–22.
15. Korf Benedikt, Hartmut Fünfgeld. War and the Commons: Assessing the Changing Politics of Violence, Access and Entitlements in Sri Lanka. Geoforum. 2006; 37: 391–403.
16. Marcel Leroy, Fana Gebresenbet. Climate Conflicts in the Horn of Africa, ACCORD, Conflict Trends. 2011.

17. Percival Val, Thomas Homer-Dixon. Environmental Scarcity and Violent Conflict: The Case of South Africa. Journal of Peace Research. 1998; 35: 279–98.

18. Reuveny R. Climate change-induced migration and violent conflict. Political Geography. 2007; 26: 656–673.

19. Sustainable Land Management Program Knowledge Base, Ethiopia n.d.

20. Tobias Ide, N.d. Climate Change: Source of Conflict or Promoter of Peace? University of Hamburg, Department of Geography, Research Grroup Climate Change and Security (CLISEC), Grindelberg, 20144 Hamburg.

21. Tsuma William. Climate Change–Conflict Nexus: Framework for Policy-oriented Action, ACCORD, Conflict Trends. 2011.