

An Overview: Climate Change and Violent Conflicts in East Africa

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EVELYN OLDFIELD UNIT

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Executive Summary

The economy of rural Africa relies almost exclusively on available renewable resources. Bad economic and ecological policies threaten the very survival of rural people. In response to this stress, many people take up arms and fight against their perceived enemy, who is often none other than their neighbour.

This research looked into the link between sustainability of natural resources, by reviewing literature of temperature and rain fall levels, and violent conflicts in three East African countries over fifty years. These countries were: Sudan, South Sudan and Ethiopia. As most of the present conflicts would be seen as religious, ethnic and cultural based ones, some studies suggest a correlation between degradation of natural resources, as a result of drought and change in rain fall levels, and root causes of these conflicts as a main factor triggering the unrest and tension.

Relaying on more than 15 different sources, data was gathered from institutions specialised in the conflict–peace building field as well as environmental research and climate monitoring ones. These include institutions such as UNCHR, UNEP, Centre for Systemic Peace UK, FEWS Food security analyses, Imperial Collage London and other research work by individuals. Some focus was particularly on two large-scale studies: (Environment and Conflict Project (ENCOP), and Environmental Change, Consensus Building and Resources Management in the Horn of Africa project (ECOMAN)) conducted between 1995-2005 with regard to investigating the role of environmental change in triggering unrest and conflict in Sudan and the neighbouring countries.

Methods consisted of reviewing literature of levels of rain fall and temperature with a specific focus on the case of drought, agricultural productivity and food security. In addition, conflict literature within the East African region, with a specific focus on Sudan, South Sudan and Ethiopia, was reviewed. The overall aim of the review was to investigate whether a correlation between regions where conflicts exist and sustainability of natural resources could be established. Data collected from focus groups with post-conflict communities living in the UK was qualitatively analysed and presented in the results section as to add a community prospective to the study.

The results concluded show that environmental factors, combined with other economic, social and historic ones could act as a cause of conflict. More importantly was the emphasis on the political factor and power to allow or deny people access to natural resources. This specific variable has shown to be a more significant variable of violence than environmental degradation standing on its own.

In conclusion, the main outcome of this report was highlighting the effect of climate change, through reviewing climate literature, on sustaining resources as well communities which live in stressed/ vulnerable environments. As a recommendation, a multi- disciplinary approach is needed to better analyse conflicts and establish more efficient management strategies to help sustain the natural resources and maintain long-term peace.

Chapter 1

Central aim and research plan

Having grown up in Sudan, a country with a history of long-lasting and terrifying wars has made me develop deep interest in politics and human rights. Combining this with my passion about nature and later training as an ecologist helped me value the technique of using a multi-disciplinary approach to better understand and analyse violence conflicts where they exist.

This study is a small-scale overview questioning the traditional analysis of conflicts which rely primarily on ethnic, religious, and cultural explanations since these do not take account of the increasingly obvious link between the growing scarcity of renewable resources and violent conflict in the three East African countries. Shortages of cropland, fresh water, woodland, pasture and marine resources cannot be ignored. At the same time the study emphasizes that one cannot understand domestic conflicts simply in environmental terms. Environmental scarcity could be driven by different historical, economic and political factors within the complex environments and societies it exists in. In particular, an unequal distribution of resources leads to scarcity and fuels conflicts.

Chapter one reviews literature of climate and conflicts within the eastern region of Africa using specific factors to measure and scale the magnitude of change. Three main countries were focused on in this study: Sudan, South Sudan and Ethiopia. The review also refers to other economic, developmental and political factors where relevant.

Methods were detailed in chapter two. These consisted of identifying gaps, establishing patterns and making correlations within the literature reviewed. That was combined with a community based survey with one main post-conflict community living in the UK. The Focus group conducted aimed to shed some light on the dependency of affected communities on natural resources as well as their views on causes and solutions. Ethical considerations have been put into account in order to ensure reliability and accountability of conclusions.

In chapter three, results were presented and maps, tables and graphs were displayed.

Chapter four was the final chapter where I analysed and discussed the results presented in chapter three. Conclusions and recommendations were reached in a different section of the same chapter.

References and Appendixes followed.

Literature review

Overview

Although the Horn/ East Africa region can be defined in numerous ways, in this report the focus would be on three member states of the Intergovernmental Authority on Development (IGAD), namely, Ethiopia, Sudan, and south Sudan.

The East African region has been a conflict prone area for centuries. However, sources of and actors in war have changed significantly over time. Today, the horn is confronted with endemic and long-term conflicts as well as numerous potential conflicts at all levels; inter-state, sub national, ethnic and clan-based (Peet R. and Watts M., 1996). The IGAD countries not only belong to the poorest ones; but also rank among least developed according to the Human development index 2011. In addition, various types of environmental problems affect the sustainability of communities in these countries. These include: drought, water scarcity, soil erosion, deforestation, erratic precipitation pattern and over use of a scarce renewable resource. Thus, wars of the recent past, widespread poverty and environmental degradation form a triangle each angle of which has a casual impact on each of the others (Adams, et al., 1995).

In the past, rural African faced with difficult living conditions would not have had to move far to find a richer ecozone (Fairhead J., 2002). This exist option is now drastically limited, especially within the Sahel and Horn regions because of the general worsening of the environmental situation, compounded by higher population densities, large scale mechanized farming, restricting access to land and the growing poverty to the rural life (Sulaiman M., 1994). These factors along with the weakened governmental control of law and order has forced many people to join militia and armed groups as to fight for their basic right of securing resources and developing their regions((Sulaiman M., 1994). On the other hand other groups are calling for separation and establishment of their independent mini-states as the present situation with the Darfur and Nuba Mountain regions in Sudan. Some other groups within the eastern part of Sudan faced by the same conditions have moved toward the thrive of banditry and smuggling (Sulaiman M., 1998)

Since conflicts over non-renewable resources such as oil, gas and minerals are historically well known events, environmental induced conflicts over renewables have not been known until recently. At least not at a phenomenon or a global scale (Vayad P. A.and Walters B.1999). In fact, the sources of conflicts are not scarcity or unequal distribution as such, but they arise from growing supply side restrictions resulting from degradation, pollution or depletion of resources.

Environment scarcity, which has always been the result of violence and war, has recently become in itself a source of violence in the IGAD countries (Sulaiman M., 2004). The denial or limiting of access to renewable resources, water scarcity and soil erosion are the major threats to Environment scarcity in the Horn countries. Looking into Sudan as an example, the farmer-pastoralist conflict in Jabel Marra in the western Sudan province of Darfur is a good example of environmental induced conflict. In particular, since the drought of 1983-84 the nomads have been increasing their pressure on the Fur farmers, penetrating the semi-arid and humid mountain areas with their herds much deeper, longer and in greater numbers than they ever did in the past (Suliaman 1996). Another example is the clashes between the Bagarra Arab and pastoralists in South Kordofan and the Dinka of Bhr el-Ghazal province in Sudan.

What is more, war torn societies and degraded resources can aggravate long-term conflicts which provoke new ones and finally lead to violent clashes and war. Unfortunately, most of the traditional analyses and research within the conflict violence and conflict resolution refer the triggers and causes almost entirely to ethnic, religious and cultural catalysts. This leaves other economic and ecological factors outside the box and makes the traditional hypotheses questionable. A few other issues are also left unexplained as the spread of internal conflicts with no clear advice in most fields of conflict resolutions.

Conflicts in the East African region

Using Marshal's 2005 classification of conflicts, three main types could be distinguished and would be explored in this overview. These are: (1) Societal war: ethnic, revolutionary, inter-communal, and political mass murder, (2) Interstate wars: between two African countries, mainly concerning territorial or cross-border issues, and (3) colonial wars: international wars which are accounted as wars of independence during or after the decolonisation period.

To do so, two main factors have been chosen to assess the conditions which undermine stability and trigger, cause or influence these types of conflicts. Mainly these are the magnitude of major armed conflicts, and numbers of forcibly displaced populations according to the Macro comparative prospective of the Centre for Systemic Peace UK, 2005.

Magnitude of major armed conflicts

Measured by almost any criteria, the Horn of Africa over the recent decades has been one of the world's most conflicted regions, experiencing over 200 armed conflicts since 1990 (Paul Williams, 2011)

However, considering only the total magnitude of major armed conflicts, conflicts have increased rapidly during the decolonisation period (mid-1950s through the mid-1970s); it increased strongly again through the 1980s. The general trend reversed in the 1990s and has decreased by nearly 50% since its peak in 1991. The vast majority of armed conflicts since 1955 have been societal (ethnic, communal, and revolutionary) wars; international wars are largely accounted as wars of independence during the decolonisation period (Marshal, 2005).

Figure (1): Trends in Armed conflicts including societal, interstate and colonial wars in East Africa between 1946 – 2004. Photo courtesy of Centre for Systemic Peace UK, 2005.



(1) Societal war: ethnic, revolutionary, inter-communal, and political mass murder- in Blue

(2) Interstate wars: between two African countries, mainly concerning territorial or cross-border issues- in Yellow

(3) Colonial wars: international wars which are accounted as wars of independence during or after the decolonisation period- in red

Looking into conflict trends in Africa, the magnitude of violence in East Africa is the highest of all African regions and has remained particularly strong in the post-Cold War period (Marshal, 2005). The Comprehensive Peace Agreement (CPA) between the Sudan and South Sudan which led to the separation of the two countries in July 2011, was a potential settlement to end the longest armed conflict within the African scene. This is particularly because it is a continental interior area spanning from Chad and the CAR in the West to Ethiopia in the East and the DR Congo in the South which has been a staging area and refuge for rebel groups from the several concurrent armed conflicts that have plagued the central and eastern regions. However, witnessing the spike in South Kordofan and Darfur since 2003, along with the on-going unrest within the borders of the two countries (Abyay, Nuba Mountains and Blue Nile) there is high potential for another long severe armed conflict within the region. This goes along with the tension between the Ethiopia-Eritrea border which reached its peak between 1998 and 2000. Conflicts within this region may be more difficult to resolve and recover due to their social complexity, protractedness, and high levels of violence; this coupled with general poverty and long-term degradation of local environments and social systems (Marshal, 2005).

Numbers of forcibly displaced populations (refugees and internally displaced persons)

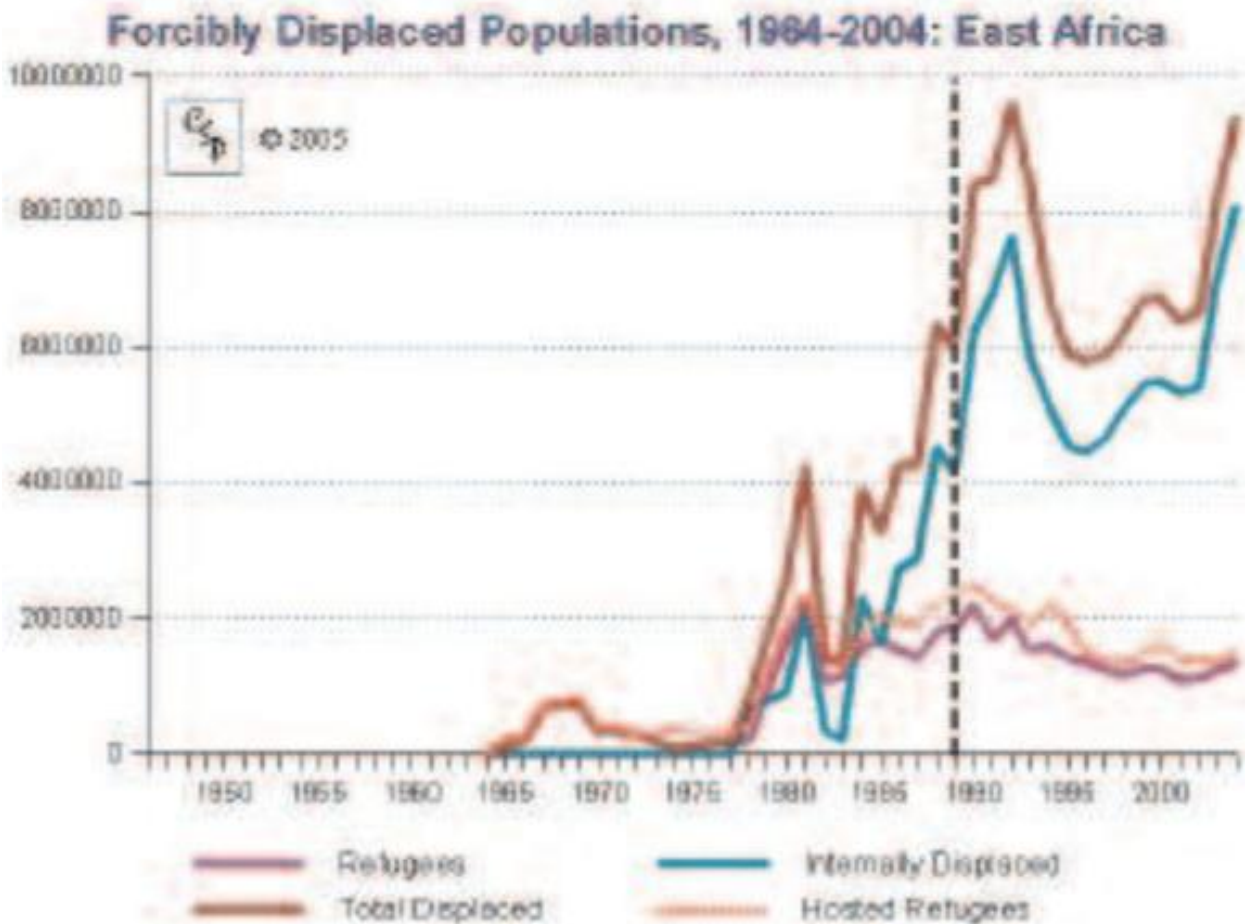
Although the definition is broad and should include everyone who have fled serious deterioration in local security environments due to armed conflicts or political unrest including cross-border “refugees” and “internally displaced” persons (those who do not cross international borders), the figures in this report refers to only those recognised as refugees according to international conventions, asylum seekers awaiting determinations, beneficiaries of more general forms of protection granted for similar reasons, and others reported by the United States Committee for Refugees and Immigrants (USCRI) (World Refugee Survey, 2004).

Internally displaced populations resemble the status and conditions of refugee populations in all ways except that they do not cross international borders and, so, do not enjoy special recognition and protections through international conventions. The enormous increase in the numbers of forcibly displaced populations since the mid-1980s is remarkable, particularly in the numbers of internally displaced people. This trend, in particular, may be controversial as the amount of attention and the quality of reporting in this region at the local, regional, and global levels has also increased dramatically over the same period. So, part of the documented cases may simply reflect changes in the way information is produced and reported. However, the increase may reflect changes in the nature of local economies where once migratory populations have become increasingly settled. It also surely reflects a long-term deterioration in conditions

affecting already marginalized, subsistence-level populations that lead increasingly and more immediately to humanitarian crises in armed conflict locations (Marshal, 2005).

A Macro-Comparative Perspective Population displacements designed by the Centre for Systematic Peace in 2004, shows an extremely high internally displaced persons in the East African region since the mid 1980s (Figure2). This doubles the numbers that have occurred in the Central region at the same period of time. Followed by a peak in the early 1990s, the numbers fell briefly but have risen sharply again with the outbreak of serious violence in the Darfur region of Sudan in 2003 (Marshal, 2005). More recent reports show that disagreements over oil-sharing between Sudan and South Sudan and the shutting down of oil exports have caused high inflation in Sudan Since the independence of South Sudan in 2011 (UNHCR, 2013). Moreover, fighting in the Protocol Areas led to internal displacement in the border regions as well as a large outflow of refugees into Ethiopia and South Sudan in 2011 and 2012 according to the Sudan profile of the 2013 UNHCR. The population of concern includes around 2.3 million internally displaced persons (IDPs), some 140,000 refugees, 7,000 asylum-seekers and an estimated hundreds of thousands persons at risk of statelessness according to the same report. Most are refugees from Eritrea, Ethiopia, Chad, the Democratic Republic of the Congo (DRC) and Somalia, but there is also a very large population of IDPs in Darfur, Khartoum and the East. On the other hand, Ethiopia is now host to 370,000 refugees in which the largest groups are Somalis (56 per cent), Sudanese and South Sudanese (23 per cent) and Eritreans (17 per cent) (UNHCR, 2013).

Figure (2): Forcibly Displaced Populations in east Africa between 1946 – 2004. Source: Centre for Systemic Peace UK, 2005.

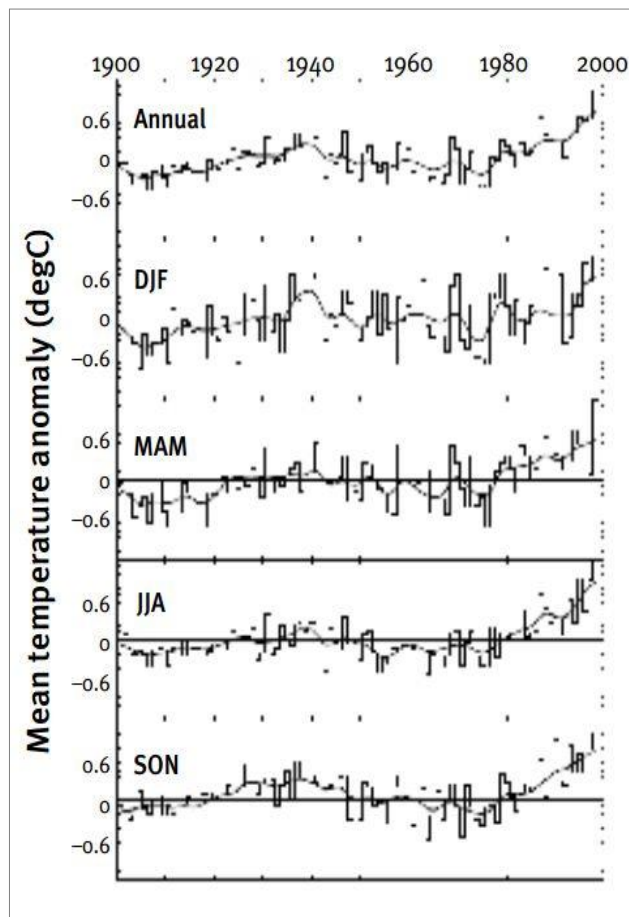


Rain fall and Temp rates (the case of agricultural productivity, food shortage and drought)

Rainfall and temperature levels are the climatic factor of maximum significance for the East African countries, with extreme occurrences resulting in droughts and floods, which are often associated with food, energy and water shortages, loss of life and property, and many other socio-economic disruptions. The economies of East African countries largely depend on agriculture, which is highly vulnerable to the amounts and distribution of rainfall. The efforts to achieve food security in most parts of the African continent including East Africa have long been hampered by civil wars, political volatility, worsening conditions of international trade, rapid population growth, floods and drought. Floods and droughts are natural events, which cannot be controlled. However, in East Africa, like some other parts of the world including India and South Africa (Dyer, 1981), there are prospects for out-of-season rainfall compensation of the deficit conditions. Accurate seasonal to inter-annual climate monitoring and forecasting could therefore contribute to improved planning and the management of climate sensitive activities, involving agricultural and water resources, hydroelectric power supply and tourism, among others. There are other factors such as fires, spread of diseases etc., which are linked to climate variability, some of which have been discussed by Glantz (1974).

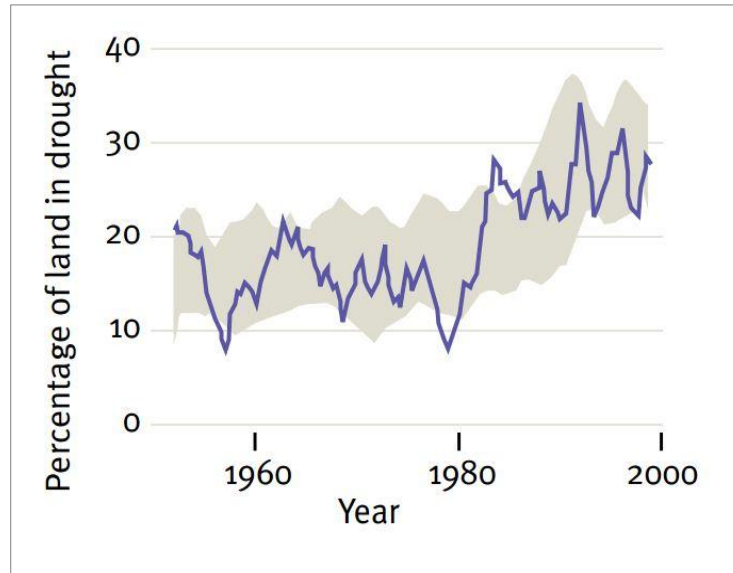
There is already evidence that Africa is warming faster than the global average, and this is likely to continue (G. Conway, 2009). The warming occurs for all seasons of the year. Although the overall trend is geographically widespread, there are variations. For example, the tropical forests have warmed by 0.29°C per decade. In Southern and Western Africa there have been more warm spells and fewer extremely cold days. In Eastern Africa temperatures have fallen close to the coasts and major inland lakes (Figure 3a).

Figure 3a: African mean temperature anomalies for the 100 past years. Source: Grantham Institute for Climate Change, Imperial College London, 2009.



In addition, there would be increased demands on health systems and social security as the result of the rising incidence of droughts, both short- and long-term (Hulme et al., 2001). The worldwide percentage of land in drought has risen dramatically in the last 25 years (Figure 3b).

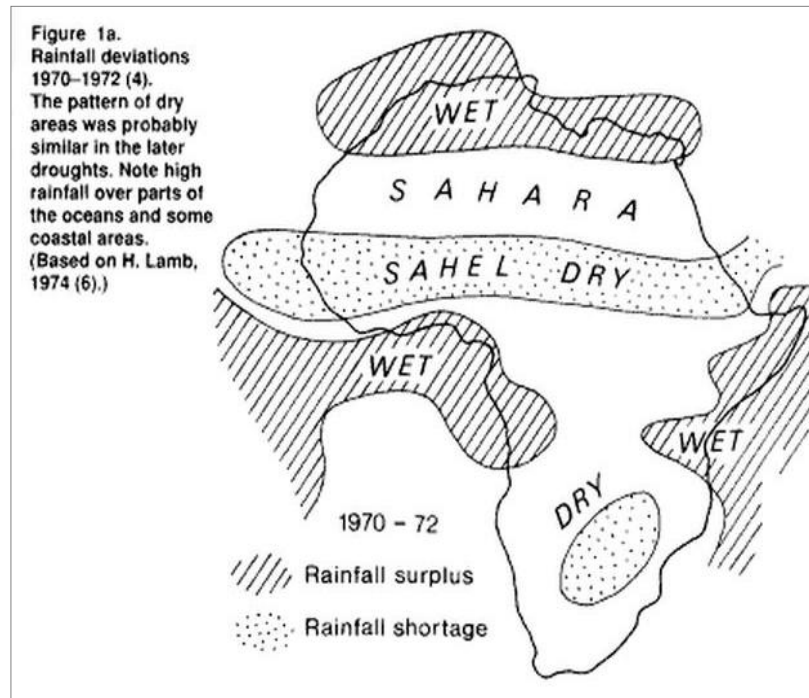
Figure 3b: Global area in drought since 1950 in Africa. Source: Grantham Institute for Climate Change, Imperial College London, 2009.



In the case of agricultural production in Africa, many areas are affected by natural climate variability and are likely to be severely compromised by climate change, in particular by damaging high temperatures and the greater incidence of drought (G. Conway, 2009).

In another study conducted by Jan O. Mattsson and Anders Rapp in 1991 on the impact of droughts in Western Ethiopia and Sudan, they placed the drought, mainly in the periods of 1968-1973, 1979 -1984 and early 1990s, in a climatic context examining the regions in the Sahel zone South of the Sahara region. The study found the causes of dry land degradation to be both climatic and anthropogenic considering the rainfall history in the region (Figure 4). However, the authors suggest a trans-disciplinary research and development effort of some magnitude to predict an early warning system and better establish a correlation between poverty, inequality and environmental degradation.

Figure 4: Rain Fall deviations 1970-1972 (the patterns of dry areas was probably similar in the later droughts). Photo courtesy of Mattsson and Rapp, 1991. Based on H. Lamb, 1974

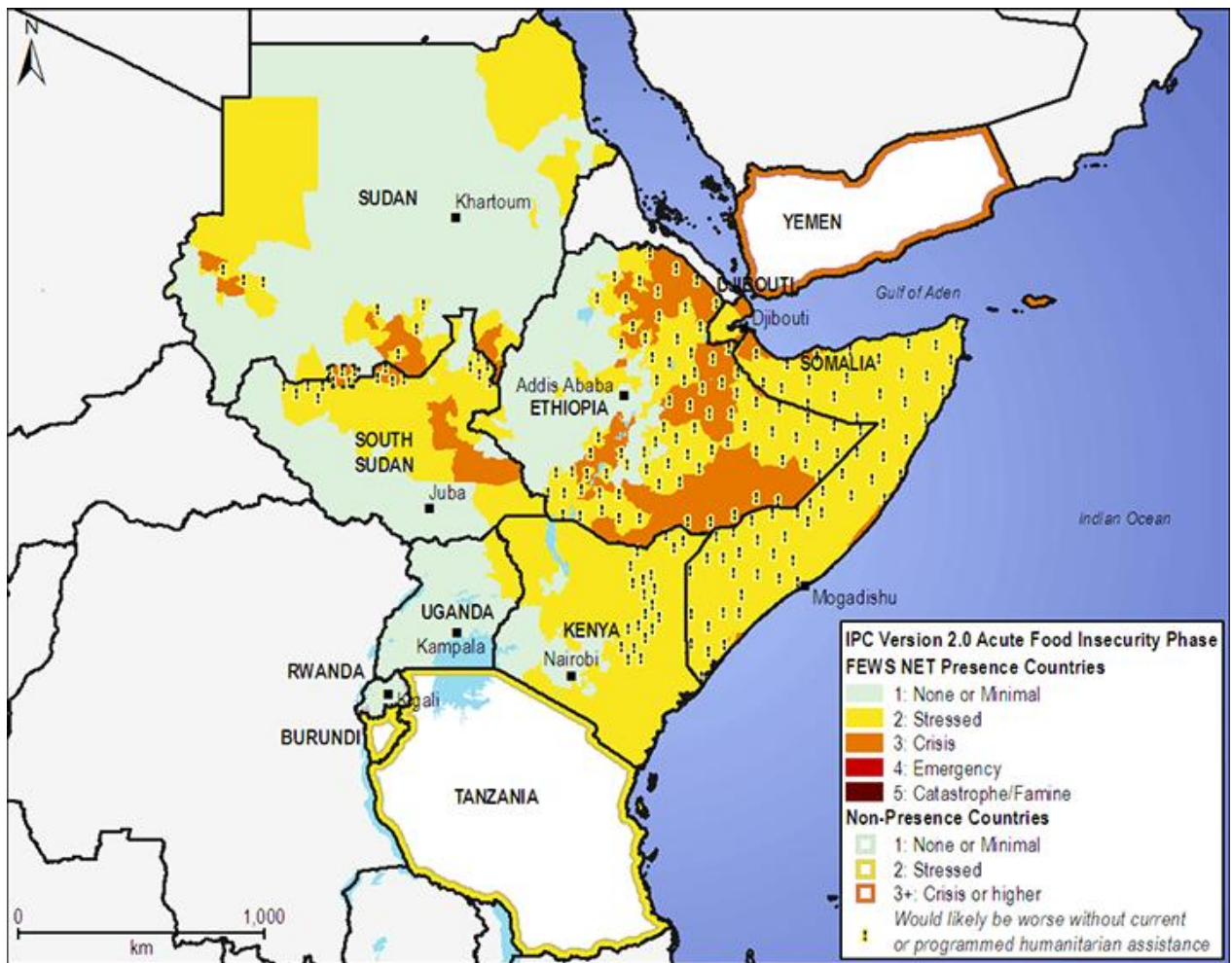


The 1973 catastrophe of starvation and death of people and their livestock in Ethiopia, Sudan and elsewhere throughout the Sahel occurred as a result of a 5-6 years of drought during the period 1968-1973. It caused the death of perhaps 200 thousands of people and millions of cattle's in a zone across Africa from the Atlantic Ocean to the Red Sea. Then drought struck once again during the period of 1979 – 1983 and then later on the early decades of 1990s.

The countries suffering the worst food shortages in the periods of 1968-1973 and 1979-1984 were located in semi –circles of Savannah and mountain zones in the tropical Africa outside the lowland rain forest zone (Mattsson and Rapp, 1991). Ethiopia and Sudan were among those suffering severe food shortages, land degradation and crop failure during these periods. This was followed –up by a United Nations conference in Nairobi, 1977, on Desertification, and a Desertification Control Bulletin programme in 1983. The two meetings acknowledged that desertification and related misfortune were

worse at that time than ever (UN secretariat, 1977, 1983). A most recent food analyses shows that Sudan, South Sudan and Ethiopia still suffer from a food insecurity crisis according to the Famine Early Warning systems (FEWS, 2011). See (Figure 5).

Figure 5: Food crisis in Sudan, South Sudan and Ethiopia. Source: FEWS 2011, Integrated Food Security Phase Classification's, (IPC) Acute Food Insecurity Reference map



Methodology

The two main methods used to conduct this research were (1) reviewing climate and conflict literature within the East African region during the period of 1950 -2004 and (2) conducting focus groups with post conflict communities and refugees from these regions living here in the UK, London.

As the study is an overview and investigation within a relatively new and complex field study, the literature review allowed comparing long-term large scale datasets to each other. This is particularly helpful in terms of identifying gaps and establishing correlations between different co-variables. In this case periods of time and geographical regions were examined against climatic (drought and food security/agricultural productivity) and conflict factors (refugees/displaced people and magnitude of conflicts).

The second method used here was the Focus Group/Discussion method. This entails collecting information from a group (over 2 individuals) through discussing together the key concepts of the research question/s. This method was particularly used to gather information on the perception of post conflicts communities toward the impact of climatic change and conflicts both or either on their lives. A further and important aim is to engage with these communities as to better understand and stimulate strategies which, hopefully, could be implemented and monitored by them in the future.

Considering the many changes I applied to the central plan of my research (check appendix 2 for the original plan), I was only able to conduct one focused discussion with a South Sudanese group. The group consisted of 3 south Sudanese women of previous experience living in both the Sudan and South Sudan. An information sheet including aims, objectives and purpose of their participation in the Focus group was handed out and explained. In addition, a consent form was signed by all participants.

The discussion lasted for 40 minutes. Answers were both written and sound recorded. Results were analysed and presented in a descriptive manner in the results section of this report.

Ethical considerations

Ethical considerations regarding confidentiality and data protection were put into account. An agreement of when, where and how to use, store and destroy data

collected in the Focus group was reached and a consent form was signed by participants.

As the discussion questions were general with no required details about the participants history within the conflict period (check appendix for questions), no additional support for participants was needed.

Results

Climate and Conflict Literature review

From the total 15 studies reviewed on climate change and conflicts in East Africa since 1950, a few patterns between periods of drought and start of conflicts appeared. Three major periods of drought ranging between 3-10 years could be recognised: 1964-1973, 1979-1984 and 1989-1991. Through examining these against the two factors used to measure conflicts: magnitude of armed conflicts and number of displaced people, the following correlation could be established. Table 1.

Table 1: Shows the Magnitude of total armed conflicts in a scale between 0-25 (where 0 is the lowest and 25 is the highest), Total Numbers of displaced people in population and range of drought in three categories (Normal, High, Crisis)

Periods of time	Magnitude of total armed conflicts	No. Of total displaced	Periods of droughts
1950	0-5	0	normal
1955	5-10	0	normal
1960	5-10	0-200,000	high
1965	10-15	0-200,000	Crisis
1970	5-10	0-200,000	Crisis
1975	10-15	400,000-600,000	Crisis
1980	15-20	200,000-400,000	high
1985	20-15	600,000-800,000	Crisis
1990	15-20	800,000-100,000	Crisis
1995	20-25	400,000-600,000	high
2000	20-25	800,000-600,000	high
2005	20-15	-	-

Figure 11: Magnitude of total armed conflicts and total displaced people affected by conflicts over the 50 past years in the east African region.

According to the Centre for Systematic Peace, the measurement of conflict magnitude is based on the assumption that violent conflict stands as a measure of a fundamental disturbance in the “normal” social dynamics of state-societal systems. Symptoms and the degree to which social conflict, combined with ineffective conflict management, are both used as indicators which transform collective action from constructive to destructive modes of behaviour. It is like a scale, which measures the strengths or earthquakes and sandstorms.

Focus Group results:

A focus group of three women from South Sudan was conducted. As I meant to get a broader idea about how post-conflict communities perceive change in specific environmental factors and how that might influence war, the key aspects discussed were:

- General understanding of climate change as a term and broken down to specific variables (Temperature and rain)
- The conflict causes
- Suggested solutions

I have avoided however, asking any direct questions about links between change in climatic variables and unrest as that is one of the key questions I am investigating.

Results and patters of the discussion:

People have a direct connection with the environment: Despite the unspecified answers regarding 'Climate change' as a term, they have great understanding about rain fall seasons, seasonal plants and migratory animals. This was mainly from their direct connections with the environment as farmers and pastorals, and because of the general social and cultural lifestyle there. (cloths, food, and traditions).

The past and the ongoing conflict/s are political and religious ones: Participants used two main examples to demonstrate that: (1) the Muslim/ Arabic Sudan and the Christian/African South Sudan, and (2) the long lasting war between the SPLM and Sudanese government. There was a blurry border between their definition of the National Committee Party as the one ruling the country and the Sudanese people as individuals. They referred to phrases such as "Shamaleen"/ The Northerners and "Jalaba"/ traders from the north, usually those with a lighter skin colour to describe those on power. Accordingly, the suggested solutions were all political. A strong assumption was that people could have avoided this if there were fair distribution of power and recourses, considering that the South of Sudan supplies Sudan with many crops and oil. Accessing natural recourses such as agricultural land and fresh water resources was briefly mentioned as another issue those in power should consider both in the North and South of Sudan.

An interesting point made, was how they saw war affecting the environment. Participant 'A' said: *"30-20 years ago, When I was still in the south, the weather was better and there where trees all around. Now, the weather is too hot and there are almost no trees around, unless you walk to a far distance. This is mainly because of the SPLM army hiding in the forest and using its trees"*.

Chapter 3

Discussion

Links and correlations

Although a few conflict trends appeared during the drought periods mentioned in the results section, no clear or direct connections between conflicts and climate change could be made. This is mainly due to the gaps within literature and small-scale nature of this study. However, some indirect links and correlations could be recognised between different climatic and conflict co-variables.

Climate change and food security

Considering the very direct link between people and the surrounding environment, the first correlations observed was between the change in weather and the percentage of agricultural productivity. This was a result of communities relying completely on rainy season to plant, farm and produce food for local, national and international consumption. The fluctuation in weather variables, especially temperature and rainfall levels has caused unsustainability in natural recourses. This as such led to lack of food, need to search for new recourses and tensions between neighbouring communities. Despite the lack of consistent climatic and conflict data within the three countries overviewed, the fact that the most severe food shortages, land degradation and crop failure occurred mainly during the drought periods of 1968-1973 and 1979-1984 in countries located in semi –circles of Savannah and mountain areas outside the lowland rain forest zone including Sudan, South Sudan, Eritrean and Ethiopia, show that there is a correlation between change in weather and food security or insecurity.

Conflicts and displacement

The other correlation observed was between conflicts and unsustainability of communities in terms of settlement in one place. As wars happen, many find themselves forced to leave their original regions to other new in or outside country areas. They are either fleeing the violence associated with the conflicts or searching for food and shelter after their normal professional and social lifestyle have been disrupted.

The figures of displaced individuals and refugees have peaked up with the start of some national and regional conflicts. The mid 1960's (60-65), end of 1970's beginning of 1980's (79-83), the beginning of 1990's (1990-1993) and 1995-2000 witnessed the major conflicts within the east African region since 1950. This compared to the number of those displaced and refugees, show a slight pattern following periods of war during the early 1960's and then a strong trend between mid 1980's up to 2000.

Despite the evidence of the dramatic increase in both the number and level of violence of intercommunal conflicts since the 1980, the documentation of these incidents and number of displaced persons has improved recently in terms quantity and quality. This might have influenced the increase in reported cases compared to old records. It may also be partly due to the development and use of light weapons.

Other developmental, economical and political factors

As assessing the conflict- peace situation in East Africa requires consideration of many inter and intra connected factors, I have unfortunately only assessed a few considering the small-scale and short term objectives of this study. However, a few considerable political, development and economical factors could be mentioned here.

a- Development status

The United Nations Convention to Combat Desertification (UNCCD) points out that land degradation is intricately linked to poverty and that addressing this problem requires the participation of the resource users and, where appropriate, providing them with alternative livelihood options (Economics and Ecosystems/UNEP, 2001). A recent study estimated that desertification processes affect 46 per cent of Africa, and 55 per cent of that area is at high or very high risk. The worst affected areas are along desert margins and in total about 485 million people are affected (Reich and others 2001). Given the general weakness of the commercial sector and civil society in the three East African countries reviewed, much work is needed to improve local and national development. These mainly includes proactive international engagement, mainly by governments to help manage social tensions and stimulate the development of self-regulating civil societies (Marshal, 2005)

b- Peace building capacity

As defined by the Centre for systematic peace, 'Peace-building capacity' measures the ability of a state to manage conflict and respond to domestic challenges peacefully. This is usually greater in countries that can provide reasonable levels of human security, have no official policies of discrimination, have successfully managed previous group demands for greater self-determination, maintain stable and democratic governance institutions, have attained substantial human and material resources, and are free from serious threats from neighbouring countries. All which is not the case in Sudan, South Sudan and Eritrea.

c- Instability of governments

Over half of new countries in Africa experienced varying periods of "state-formation instability" and most regions of the East African countries have not yet gained initial stability (Marchal, 2004). These include regions such as Darfur, Kurdufan, Nuba Mountains, Abyay, South Sudan, Bija region and the Eritrean borders with Ethiopia. Difficulties and opportunities associated with regime liberalization could be among the factors influencing the instability of governments in East Africa. This could be seen in the present struggle of both Sudan and Eritrea to over through their dictatorship regimes.

d- International/local economy and agriculture

International demand and privatization of the agricultural sector in Sudan has shifted the crop planting industry to machinery agriculture instead of the rain-fed one which used operate for decades (still does in some parts of Sudan). This expansion involved the cultivation of marginal areas, or clearance of important natural habitats such as forests and wetlands. At the end, it resulted in degradation of farmland adding another influence of violence.

e- political power and access to resources

The political power to allow or deny people access to natural resources seem to be a more potent variable of violence than environmental degradation standing on its own. The number of groups that continue to be politically disadvantaged due to historical conditions or through general social practice remains fairly high and level. Some of the political issues between Sudan and south Sudan before separation were a clear example. Other parts of Sudan including the very north Nuba community, Darfur region and the Blue Nile state are regions being currently excluded from fairly sharing power and recourses.

Chapter 4

Conclusion

Considering the effort made to build peace over the last decade in Africa generally, it is possible to resolve political conflicts through mediation persuasion and intervention. However, the economic-environmental conflicts which are likely to dominate the African scene in the upcoming years, especially with the reported change in weather variables, require and demand that more attention be given to the conflicts root causes rather than its manifestations. Most inter-communal conflicts, which have dramatically increased in east Africa recently, are as such avoidable as they don't involve the power unbalance element and are conflicts of the weak against the weak.

This could be achieved through better exploring the different types and levels of links and correlations between climatic co-variables and conflict factors as to better draft management plans and peace strategies.

The strengths and limitations of research

No consistent record of war and climate change data. As such many gaps occurred and conclusions cannot be considered final. Further explorations and more detailed research are required.

Very recent documenting of war displaced people and refugees. This makes the comparison between old and new records to measure changes in figures of displaced persons and those affected by conflicts questionable - unless all factors are included and examined.

The similar terms used in different studies had different meanings. For example, the 'East African region' term was used to identify different specific countries in different reports. As well is the term 'conflict' which identified different types and level of violence/

instability strength. I have however defined all terms at the first part of each section and clarified details where required.

As for the tools used, I used the 'snowballing' method to choose my participants for the focus group. Considering that the main aim of the discussion group was to better understand the post-conflict communities' perception of wars and links with climate change, the focus group in this case was an efficient tool. It covered the key aspects of the study and allowed details were necessary. While for the literature review, I chose data and research studies of more than fifteen well established organisations and individuals. This helped to detect gaps and correlations, as well as differences in approaches, methods used and conclusions reached.

Never the less, this study is a step further and a contribution to the new field of conflict – ecological understanding and analysis. From the review carried out and the recommendations reached, a long-term well focused study could be designed to efficiently suggest better peace building mechanisms and draft more advanced strategies to sustain both the communities and the natural recourses.

Recommendations

A large-scale and well-detailed country specific climate and conflict research study is needed beside the regional studies already going on. This will help to better understand and analyse links and connections between the environmental, political, economical and social factors influencing violent conflicts and vice versa.

This multi-layered approach including environmental conservation, rehabilitation, Environmental entrepreneurship and general understanding of the dynamics of ecological-social systems as one of the conflict management mechanisms along with the other political, economical and social analyses could help us better understand the ongoing situation, predict and hopefully avoid future potential ones.

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Appendixes

Appendix 1:

Focus group questions

These are questions designed for a research study to assess the influence of climate change on armed conflicts in the east African region. Specifically, Sudan, south Sudan and Eritrea. Details about yourself and your opinion will be anonymised and all information provided will be confidential. Estimate time for this session in 40mins more or less.

- 1- What is climate change?
- 2- What are the causes this change?
- 3- Does the environment influence people's lives and livelihoods in your home country? To what extend? (Financial and income source, medical purposes, social and cultural values)
- 4- What do you think caused the conflict in your home country? What are the root causes of the conflict?
- 5- Do you think there are any links between the conflict and the change in weather/climate/environment?
- 6- What do you think could be done to maintain peace and stop the conflict?

Appendix 2:

Original research plan

Although this was a six months project (September- March 2013), the actual time dedicated for this research study and field work was less than 4 months starting March 2013 up to June 2013. This was mainly due to the nature of the part-time course and lectures and training sessions involved. Despite these being very crucial to conducting the community-based research required, the scheduled sessions ended late and created a tight timeline to conduct the field work and write up the report.

The original plan for this study was to overview the entire east African region including eight countries: Sudan, South Sudan, Eritrea, Ethiopia, Somalia, Somali land, Tanzania and Kenya. As I started reviewing relevant literature and conducting focus groups - mainly done two: with an Ethiopian group and a Somali land one- the time left to properly review both the climate and conflict literature of each specific country out of the eight planned was too tight. I so decided to focus on the three most politically unstable ones which are: Sudan, South Sudan and Eretria.

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