

UNIVERSITY OF THE FREE STATE

**An Investigation into the prevalent types of conflicts,
their indicators, the role played by these indicators and
how conflict undermines the management of disasters
in Africa.**

By

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**Submitted in partial fulfilment of the requirements of the
Masters Degree in Disaster Risk Management**

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EXTERNAL EXAMINER

DATE:

DEDICATION

This research is dedicated to all those who supported me in this endeavour to complete this powerful masters degree programme. The outmost mention goes to **Mr Andries Jordaan** who wholesomely assisted me access the required study fees after I had dropped out of the programme due to sponsorship / financial (study fee) challenges. I will always remember him, for his good heart and profound assistance. Without him I wouldn't have completed this master's programme.

ABSTRACT

Conflict is a very serious hazard in Africa. Many people are dying everyday but it's not commonly recognised as a disaster hazard unlike the conventional hazards of floods, earthquakes and volcanoes. The study sort to identify the prevalent types of conflicts, their indicators, the role played by these indicators and how conflict undermines Disaster Management activities in the continent.

The objectives of the study were to - (1) identify the main types of conflict in Africa, (2) Establish their trend in relation to each country, (3) identify the most prevalent conflict types and prioritise them, (4) identify the indicators for these conflicts, (5) explain the role of conflict indicators in Disaster Management, (6) explain how conflict is undermining disaster management activities in Africa.

The historical method of data collection was used. Data collected included both primary and secondary data. This was meant to compliment each of the data types. Collection involved the researcher visiting various web sites on the internet and various published works, which had information on conflicts in Africa. The study population comprised of 52 African countries which were all evaluated.

The results show an identification of the following six types of conflict, armed conflict (divided into major, intermediate and minor), boarder disputes, food riots, political violence, targeted attacks and inter-communal strife. Nigeria, Sudan, Ethiopia, Somalia, the Democratic Republic of Congo and Kenya were quantitatively identified as high conflict areas in the continent. Armed conflict came out as the high priority conflict type that needed urgent attention. Various types of conflict indicators were identified and their role was explained as that of providing early warning to Disaster Management. Conflict was seen as undermining disaster management activities through retarding, stopping and stalling access to victims and many more other issues.

The study recommended various ways to deal with conflicts, all directed towards the search for peace and security that requires the mobilization, coordination and cooperation of all states, Non-Governmental Organisations, civil society, community leaders, the community and others to participate in efforts of promoting peace, security and stability in Africa.

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Chapter One

Introduction to the study

1. Introduction.

This chapter looks at the background, statement of the problem, research questions, research objectives, research hypothesis, and assumptions guiding the study, scope of the study, limitations of the study, importance of the study, definitions of conflict, the research methodology, ethical considerations, the research outline and a conclusion.

1.1 Background.

The globe is awash with disasters. They range from natural namely volcanoes, earthquake, floods, tsunamis and man-made also ranging from chemical spills, transport accidents and conflicts. All these are found and are occurring in all corners of the world but with different frequencies and intensities (UNDP, 2001).

Some of the disasters are becoming a problem in some continents and some countries. One of the most prevalent disasters the world over is conflict. Due to various political, economic, religious and other reasons, wars and conflicts often erupt. Violent conflict is becoming a major developmental challenge. Conflict causes human misery, destroys communities and infrastructure, and can cripple economic prospects (UNDP, 2001).

The continent of Africa is not spared and is affected by a number of disasters. Many people are being killed than anywhere else in the world. Apart from the conventional disasters caused by floods, earthquakes and volcanoes, the continent also suffers from a lot of other disasters only to name conflict, droughts, poverty, illness and hunger (IFRC, 2001).

Disasters in the continent now vary from the traditional disasters to the modern disasters of conflict, viral diseases, terrorism, ethnicity and global warming. Environmental pollution taking place today could cause many disasters in the coming years. The increased mobility due to conflict displacements might bring about the danger of a serious outbreak of fatal diseases, for

instance, swine flu which of late has caused some problems even in the most developed countries (IFRC, 2001).

Africa has become one of the most disaster risk-prone continents. It has a weak development status. The disaster victims are mainly communities living below the poverty datum line. The poor people are the most vulnerable to these disasters because they have fewer resources and capacity to prevent or cope with the impacts. This is a factor that significantly contributes to their vulnerability (DMC, 2000).

The impacts of disasters include loss of lives and livelihoods, damage to infrastructure and communication, increased risk of disease outbreaks. In many places the impacts are worsened by conflict, poverty, marginalization, and overcrowding. Inadequate, old and deteriorating infrastructure and lack of economic security to provide for times of hardships also compromise people's coping capacities and therefore magnify the impacts of disasters (FAO, 2001).

There is growing concern that the frequency and severity of disasters is increasing at a time when early warning systems are inadequate. Proper identification, assessment and mitigation of disaster hazards also leave a lot to be desired. Further to that effective disaster management systems are not in place (DMC, 2000).

1.2 Statement of the problem.

Disaster managers are failing to identify conflict as a disaster hazard which is undermining disaster management activities in the continent.

1.3 The main objective of the study.

To identify the main types of conflict, their indicators, the role played by these indicators and how conflict undermines Disaster Management activities in the continent.

1.3.1 Research questions.

- (1) What are the main types of conflict in Africa?
- (2) What is their trend in relation to each country?
- (3) What are the most prevalent types of conflict and their priority?

- (4) What are the indicators for these conflicts?
- (5) What is the role of conflict indicators in disaster management?
- (6) How is conflict undermining disaster management activities?

1.3.2 Research objectives.

- (1) To identify the main types of conflict in Africa.
- (2) To establish their trend in relation to each Country.
- (3) To identify the most prevalent conflict types and their priority.
- (4) To identify the indicators for these conflicts.
- (5) To explain the role of conflict indicators in Disaster Management.
- (6) To explain how conflict is undermining disaster management activities.

1.4 Research Hypothesis.

There are various conflict types and indicators with different trends in Africa and armed conflict is the most serious and a priority to disaster management. Conflict indicators help mitigate disasters as early warning.

1.5 Assumptions guiding the study.

In conducting the research it was assumed that:

- (a) The researcher had at least enough time to carry out the investigation.
- (b) There were at least enough financial resources to satisfactorily do the research.
- (c) The researcher managed to collect at least enough data to complete the study.
- (d) Disasters are looked at as volcanoes, earthquakes or floods but yet conflict causes illness and hunger leading to more loss of life.
- (e) There is no thrust towards a comprehensive approach to disaster management.
- (f) Hazards are looked at in isolation to one another.
- (g) Conflict indicators can be used as early warning signals of disaster.

1.6 Scope (delimitation) of the study.

The study was limited to Conflicts in Africa. It only looked at six types of conflicts that are prevalent in the continent. These were subjected to conflict analysis in relation to each country and their indicators spelt out. The period reviewed was from Jan 2007 to April 2009.

1.7 Limitations of the study.

The best literature both theoretical and empirical was difficult to get. The information I got on many websites was outdated. Even though, a lot of effort was done to get information by searching on the internet, newspapers, magazines, news agencies, other published works and websites of organizations dealing with disasters and conflict in Africa.

1.8 Significance (importance) of the study.

The research study added value to the already existing information on the occurrence of disasters in Africa. Most studies seem to have been confined to looking at single disaster hazards in isolation, as the sole cause of a disaster in Africa but yet the causes are multiple and conflict included.

The study also enhanced the concern that is being raised by many to quickly deal with conflict in the continent. It has more devastating consequences than any other disaster.

The study looked at conflict as a disaster hazard. It further identified and analyzed conflict types. This gave the researcher an opportunity to obtain a deeper understanding of the specific characteristics of conflict types in Africa and the indicators that might be adopted and be used as signals of early warning to conflict.

The study also provided explanations as to why conflict is a major disaster in Africa by highlighting some of its negative effects. Towards that thrust, it sort to unravel a disaster management challenge where there is failure to identify, declare and manage conflict as a priority. This has become a very serious short coming in a holistic approach to disaster management in Africa.

Having solutions to conflict also provides the bedrock for the success of other disaster management activities. Where there is conflict it's difficult to manage other disasters. It's always not safe and conflict actually complicates the situation. In other words conflict may be singled out as the root cause of disasters.

The study also identified a knowledge gap in disaster management that needs to be closed or tightened, vis-à-vis failure to recognize the serious role played by conflict indicators as an early warning and as a starting point to disaster mitigation.

The study will benefit DiMTEC, Universities, Governments, Non-Governmental Organizations, Regional Blocks, the United Nations and other stake holders in that they will be in a position to put in place appropriate priority and strategic plans to manage disasters in Africa with special emphasis on the role of conflict indicators as an early warning system.

1.9 Definition of Conflict.

Various authors have defined conflict in different ways as:

Conflict is a form of competitive behavior between people or groups. It occurs when two or more people compete over perceived or actual incompatible goals or limited resources (Boulding 1962, cited in Henderson 2004:11).

A social conflict exists when two or more persons or groups manifest the belief that they have incompatible objectives (Kreisberg 1988:2 cited in Henderson 2004:11).

Conflict relationship is one in which the parties have incompatible preferences, a co-operative relationship is one in which the parties can obtain highly preferred outcomes if they work together (e.g. marriage, employer-employee relationships). Most relationships involve a mixture of conflict and co-operation (Kent 2000:4 cited in Henderson 2004:11).

Conflict is an outgrowth of the diversity that characterizes our thoughts, our attitudes, our beliefs, our perceptions, and our social systems and structures. It is as much a part of our existence as is evolution (Weeks 1994:7 cited in Henderson 2004:11).

While individual people continue to relate to each other, but in pursuit of differing goals, there will always be conflicts of one kind or another (Rupesinghe 1998:27 cited in Henderson 2004:11).

The existence of social or political conflict is not in itself a cause for concern. Conflict is often a source of creativity and change (Rupesinghe 1998:27 cited in Henderson 2004:11).

From the above it can be said that:-

- Conflict involves people: It is a state of human interaction between two or more parties.
- Conflict is a state of human interaction where there is disharmony.
- It emerges when parties compete over perceived or actual goals, values or interests.
- It occurs when parties confront each other with opposing actions and counter-actions.
- It is an indicator that something is changing, has changed or needs to change.
- It is an interaction which aims at 'beating' an opponent.

1.10 Research Methodology.

This area focuses on the research method and design that was used in this project. Furthermore this section describes the population and data collection methods used. The Justification of their use is discussed. The validity and reliability of data collected was highlighted.

1.11 Research method used in this study.

In order to have an exhaustive analysis of this investigation a triangulation research approach was used. This was achieved by collecting facts, opinions and figures from various sources and the use of both primary and secondary data. According to Saunders, Lewis and Thornhill (2003) triangulation is a research approach whereby the research study is created through a combination of qualitative and quantitative techniques.

1.12 Justification.

The triangulation method was used because of the following merits.

1.12.1 Quantitative research methods.

The quantitative method is objective and is primarily used to measure different kinds of data (Hussey and Hussey, 1977). This numerical or quantifiable data can help to answer the research questions in a thesis (Saunders et al, 2003). The objectivity that one gains makes it possible to notice patterns. The use of statistical or mathematical analysis techniques is also another aspect that is involved in the quantitative method (Bhattacharyya. D, 2003)

The quantitative method delivers more general conclusions, because of the choice of large amount of elements to study and with a small amount of variables (Hussey and Hussey, 1977). However detail is therefore neglected when studying large amounts of elements where generalisability is achieved (Bhattacharyya. D, 2003). The numbers in a quantitative study are called cold figures and they create groundwork in a quantitative study. The numbers give the opportunity to take in the whole picture and summarize, but they give no information about why things are as they are (Charles and Mertle, 2003).

1.12.2 Qualitative research method.

The qualitative method provides a deeper knowledge than the quantitative method. The qualitative approach is used in studies that want to answer why things are as they are (Hussey and Hussey, 1997). Detail and depth are therefore very important in this research method. Depth means that more effort is put in the analysis and interpretation work (Bhattacharyya. D, 2003). This method is characterized by subjectivity, that is, the study is made from the writers' perspective and is not affected or influenced by any existing theories. The qualitative study is based on soft figures that can be analyzed to answer why things are in a specific way (Hussey and Hussey, 1997).

1.13 Research design used.

The historical method of data collection was used. Data collected included both primary and secondary data. This was meant to compliment each of the types of data. Collection involved the researcher visiting various web sites on the internet and some published work which had information on conflicts in Africa.

1.13.1 Justification for using the method.

It was suitable for this research because -:

- (a) It is the one of the best alternatives to conduct this research (Hussey and Hussey, 1997).
- (b) There is no manipulation and control of the variables (Hussey and Hussey, 1997).
- (c) The research relied on what exactly took place on the ground at the time of conducting the research (Hussey and Hussey, 1997).
- (d) Historical events were used to investigate the problem in its realistic setting.

- (e) The costs were reasonable considering the amount of information gathered.
- (f) A large amount of data was collected with relative ease from mostly the internet, recent published works and news agencies.
- (g) It was easy to use and was less costly in terms of time and money.

1.14 Study Population.

In this study the population comprised of 52 African countries.

1.15 Sampling procedure.

In this research the writer did not select any sample from the population of elements under investigation. All the 52 countries that make the population of the study were subjected to data collection and investigation.

1.16 Data Collection Instruments and sources.

In this investigation no data collection instrument was used. The study made use of both primary and secondary data sources. Primary data is the original data collected from or at a source.

A systematic search for open-source data was conducted. The search was specifically aimed at Identifying organized data collection projects related to conflict and security issues around Africa. A comprehensive search strategy was initiated using various websites like the CNN (www.cnn.com), BBC (news.bbc.co.uk), Alertnet_Reuters (www.alertnet.org) Relief Web (www.reliefweb.int), UN News (www.un.org/News and situational reports from various websites like www.crisisgroup.org, www.alertnet.org, www.systematicpeace.org, and www.hewsweb.org. This was also through listening to radio or television news casts and the internet. Other information was also got through reading recently published works like journals, articles and communiqués from various meetings and forums of the African Union.

The following key words, both alone, and in combination, were used in the search for electronic Sources: conflict, conflict indicator, causes of conflict, early warning, disaster, armed conflict and many others. The websites were included if: (a) they contained open-source data (i.e., accessible to the public) on conflict and disaster issues; (b) the data were either quantitative or qualitative, (c) the data came from a credible source; (d) the data collection was periodically

updated and (e) the events were in a time-series. Websites not meeting the listed inclusion criteria, but still containing information of interest, were included but at times reviewed by the researcher until a decision was made either to include or discard them. Websites containing open-source data and satisfying the inclusion criteria were then searched for links to other possible websites and data collection projects of interest. Two prominent journals, namely, the *Journal of Conflict Resolution* and the *Journal of Peace Research*—were also searched for articles on open-source data published within the last three years. In an attempt to be as thorough and comprehensive as possible, the search strategy was complimented by a general search of WWW by means of popular search engines (e.g., Google and Yahoo).The information was transcribed on paper using pen and then copied for storage on a computer for future references.

1.17 Merits of secondary data to primary data.

Secondary data was collected as it is cheaper and easier to collect than primary data. The accessibility of the data made it easier to process during the limited period of time. The accessibility also makes the data available for others and easier to review (Saunders et al, 2003).

1.18 Data presentation.

All qualitative data was reduced to numbers (quantitative) by categorizing it according to the conflict types. Computer generated pie charts and maps were used for the presentation of the overall quantitative data. They were drawn using Microsoft excel and Quantum GIS system software.

1.19 Data analysis and interpretation.

Qualitative data was quantified and relationships evident from the data were determined. This was done by identifying the types of conflict and indicators (qualitative data), relate them to countries in Africa and then quantify (by counting) the number of countries that are related to them. Quantifying helped to identify countries with high conflicts that are prevalent. Both quantitative and qualitative methods were used to rank the conflict types in their priority of importance. The researcher then used a computer to develop the pie charts and compute the percentage variables on them. Microsoft excel package was used. Using Geographical Information Systems, a shape file for the continent of Africa was used to indicate the various conflicts in each and every country and analysing them.

1.20 Validity and Reliability.

The websites, published articles and various news media used in extracting conflict data are respected and are internationally recognized in issues of conflict. In addition to that, the information from all these sources is public and can be accessed on the internet free of charge.

One of the main challenges faced when selecting sources was to ensure that there is periodical update of information, in order to trace the developments in each country. Some information sources had very old information which was almost a year old. Nevertheless, since this research was interested in identifying conflicts and indicators within a prescribed time period, sources published on a once of basic were taken into consideration as long as they fell within the time frame.

According to Saunders et al (2003), validity and reliability is an issue that can affect how much one can trust the results of a thesis. A thesis with high reliability and high validity increases its trustworthiness. Saunders further states that, depending on which method has been used and from what source data has been collected, validity and reliability of data can be measured and evaluated by estimating the authority of the source for data collection. Data from respected and well known sources are most likely correct and believable.

1.21 Ethical considerations.

(a) Honesty with professional colleagues.

1. Findings will be reported in a complete and honest way, without misrepresenting what was done, or intentionally misleading others as to the nature of findings.
2. No data will be fabricated to support a particular conclusion, no matter how noble it might be.
3. Appropriate credit will be given where it is due. Any use of another person's idea or words will be acknowledged.

1.22 Dissertation outline.

Chapter one gave an introduction to the study looking at the background, statement of the problem, research objective, hypothesis, assumptions of the study, scope of the study, limitations of the study, significance of the study, definition of terms and the research methodology, ethical considerations and the dissertation outline.

Chapter two reviewed literature related to disaster management and some conceptual frameworks.

Chapter three looks at conflict, conflict indicators and early warning systems.

Chapter four looks at data presentation, analysis and interpretation.

Chapter five will give a summary of the study, summary of findings, conclusions and recommendations.

1.23 Conclusion.

This chapter looked at the background, statement of the problem, research questions, research objectives, hypothesis, assumptions of the study, scope of the study, limitations of the study, significance of the study, definition of terms, the research methodology, ethical considerations and the dissertation outline.

The next chapter reviews literature related to disaster management and conceptual frameworks.

Chapter Two

Disaster Management and Conceptual frameworks.

2. Introduction.

This thesis has a specific focus on conflicts, and the approach used is that of firstly discussing issues related to disaster management in general and then in the next chapter narrow down to conflicts. As a way of building up to conflicts, the chapter looked at the concept of Disaster management, The Millennium Development Goals, The world conference on Disaster Risk Reduction (Hyogo Declaration 18-22 January 2005, Disasters in Africa, natural disasters, man-made disasters, The concept of risk, the Systems Approach, the Disaster Management Cycle, GIS and remote sensing and Key players in Disaster risk.

2.1 Disaster Management.

The term ‘disaster’, meaning ‘bad star’ in Latin, is defined as an impact of a natural or man-made hazard that causes human suffering or creates human needs that the victims cannot alleviate without assistance. The word’s root is from astrology and implies that when the stars are in a bad position, a bad event is about to happen ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

The United Nations Development Programme (UNDP, 2004), defined a disaster as ‘a social crisis situation occurring when a physical phenomenon of natural, socio-natural or anthropogenic origin negatively impacts vulnerable populations causing intense, serious and widespread disruption of the normal functioning of the affected social unit.

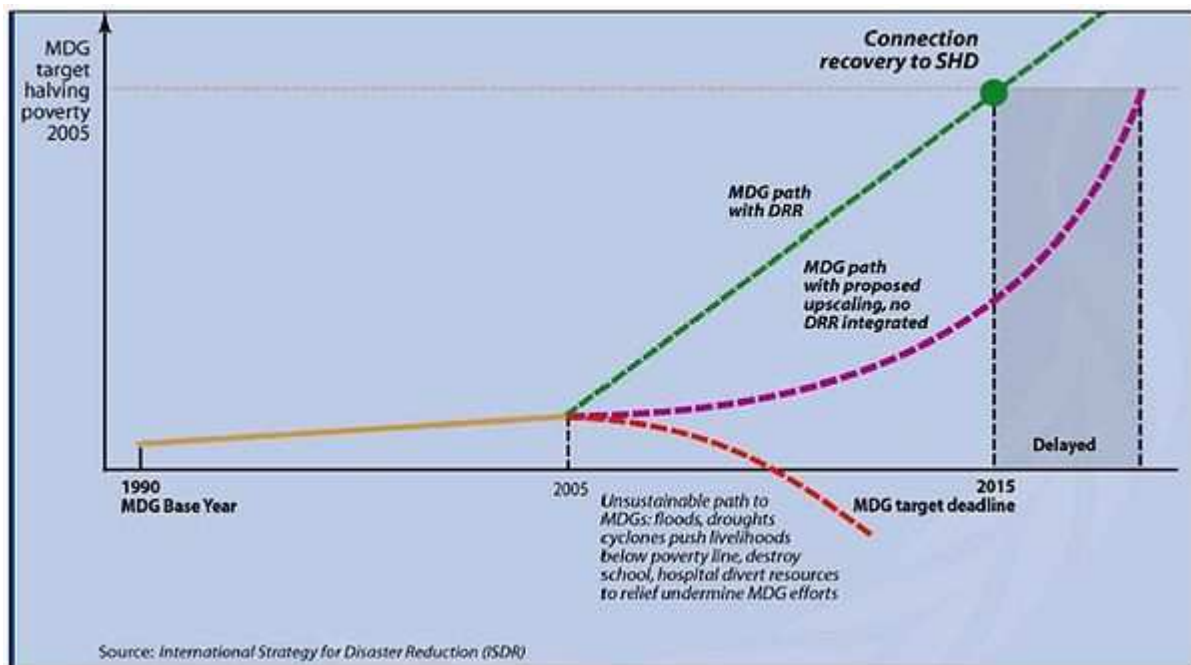
What this means is that disasters occur when hazards strike in vulnerable areas. The victims will fail to help themselves and there will be need for external help from third parties.

In general Disaster management (also called disaster risk management) is a discipline that involves preparing, warning, supporting and rebuilding societies when natural or man-made disasters occur. It is the continuous process by which all individuals, groups and communities manage hazards in an effort to avoid or minimize the impact of disasters resulting from hazards. Effective disaster management relies on thorough integration of emergency plans at all levels of

government and non-government involvement. Activities at each level (individual, group, community) affect the other levels (DMC, 2000).

Unfortunately no Millennium Development Goal (MDG) directly addresses the issues of disaster prevention and mitigation. An inference may be drawn that, “building a safer world”, which is a prerequisite for the achievement of all the eight MDGs leads to disaster prevention and mitigation. Poverty eradication, freedom from hunger, primary education, freedom from disasters, and building a sustainable world and others are all key aspects of the disaster management process. It has been shown that any nation should have effective disaster reduction and recovery processes in place to achieve the MDGs by the expected deadline of year 2015 (UNDP, 2004).

Figure 1: Illustration of how proper Disaster Reduction and Recovery processes can assist in achieving the MDGs by 2015.



2.2 The Millennium Development Goals.

Showing their concern about disasters, in September 2000 there was a world conference / summit where world leaders came together at the United Nations Headquarters in New York and

adopted the United Nations Millennium Declaration, committing nations to a new global partnership to reduce extreme poverty and setting a series of time bound targets with a deadline of 2015, that have come to be known as the Millennium Development Goals. There are eight Millennium Development Goals (MDGs), which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education for all by the target date of 2015. They have unprecedented efforts to meet the needs of the world's poorest (The Millennium development goals, 2000).

According to the website www.worldforworld.org/millennium_goals.asp, the goals stand as:

1. Goal 1: Eradicate extreme hunger and poverty.
2. Goal 2: Achieve universal primary education.
3. Goal 3: Promote gender equality and empower women.
4. Goal 4: Reduce child mortality.
5. Goal 5: Improve maternal health.
6. Goal 6: Combat HIV/AIDS, malaria and other diseases.
7. Goal 7: Ensure environmental sustainability.
8. Goal 8: Develop a global partnership for development.

Some evaluations on these goals have been done and the following has been discovered.

- The first goal to eradicate extreme poverty and hunger has a lot of setbacks. High food prices are pushing people deeper into poverty and threaten limited gains in alleviating child malnutrition. Conflict is leaving many people displaced and impoverished. Employment for all remains a distant possibility as there is not much employment creation, unstable and insecure jobs (www.un.org/millenniumgoals/2008highlevel).
- The second goal looks at achieving universal primary education. There has been a lot of progress towards achieving the goal due to political will, coupled with targeted investments but poverty keeps many children out of school especially girls (www.un.org/millenniumgoals/2008highlevel).
- The third goal of promotion of gender equality and empowerment of women is gaining ground. Women are now becoming active in political decision making, but progress is

still erratic. Job opportunities are opening up but many women still remain trapped in insecure and low paid positions. Girls still wait for equal primary school access in some regions and communities. Targeted action is required to help girls from poor, rural areas stay in school as they mostly drop out (www.un.org/millenniumgoals/2008highlevel).

- This next goal focuses on reducing child mortality. Vaccinations have reduced deaths from measles. Despite the progress it's on record that deaths of under five children remain unacceptably high (www.un.org/millenniumgoals/2008highlevel).
- The fifth goal looks at improving maternal health. The high risk of dying whilst pregnant or giving birth continues unabated. Little progress has been made in saving mothers' lives. Skilled health workers, who are key at delivery, are leaving for better overseas jobs. Antenatal care is on the rise and adolescent fertility is declining slowly. An unmet need for family planning is undermining the achievement of other goals (www.un.org/millenniumgoals/2008highlevel).
- The sixth goal is of combating HIV/AIDS, malaria and other disease. Prevention programmes are yielding results but AIDS still continues to take a terrible toll. Antiretroviral drugs are adding life to people but the need for treatment outpaces the available supply. Children orphaned by HIV/AIDS are being catered for but support for such programmes is slow. The treatment and prevention of malaria has improved but the use of treated mosquito nets falls short of targets. There are new malaria treatment strategies but they are underutilized. Progress towards the treatment of tuberculosis is not clear and halving its prevalence by 2015 is unlikely (www.un.org/millenniumgoals/2008highlevel).
- The next goal is on ensuring environmental sustainability. There has been some success in limiting ozone depleting substances which is helping to mitigate climate change. Action is needed to contain rising green house gas emissions. There is also need for marine, water and land conservation, improved sanitation facilities, the quality of

drinking water and lives of slum dwellers
(www.un.org/millenniumgoals/2008highlevel).

- The eighth goal is concerned with developing a global partnership for development. Development aid is falling and assistance has to increase to double aid in Africa. Market access for developing countries has not improved much. Debt is becoming less as some of it is being cancelled. There is poor availability and high prices for drugs, limiting their availability. Mobile phones have expanded communication and internet use is increasing rapidly but poor regions still lag behind (www.un.org/millenniumgoals/2008highlevel).

Constant evaluation of objectives is very important in managing disasters. The objectives of the Millennium development goals will be achieved over time. This therefore calls for the need for formative evaluation, to monitor progress and make corrective actions before losing track. The Millennium Development goals are way of trying to reduce disaster risk. This is a clear sign to show that there is really concern to deal with disasters the world over; probably the missing link might be where to start.

Some questions may be asked to evaluate the achievement of these goals in Africa. Questions like, how will the MDG be achieved in Africa in the face of conflict? How will hunger and poverty be eradicated when people are being displaced, farming activities are being disrupted, food handouts are being looted and many other things? Who will go to the schools when the children are being abused, the teachers migrating, school structures are being destroyed? This means there is no child education. How is HIV/AIDS going to be reduced when men and especially women are being raped and are being targeted by all the conflict players and more also to say that some authorities seem to confirm that rape is now being used as a tool of fighting a war? Conflict especially armed conflict totally affects the achievement of the MDG and disaster managers, politicians and all stake holders need to take cognizance of this and deal with conflict first and now. Conflict destroyed, is destroying and will always destroy what people are trying to build.

2.3 The Hyogo framework (Hyogo Declaration 18-22 January 2005).

This was a follow up to the MDGs. The conference was concerned with the continued experience of excessive losses of precious human lives and valuable property as well as injuries and major displacements due to various disasters worldwide by communities. This was said to be undermining the results of development or was drawing back development investments in a very short time. This has become a major impediment to sustainable development and poverty eradication especially in most countries in Africa. Coping with and reducing disaster so as to enable and strengthen nations' sustainable development is, therefore, one of the most critical challenges facing the international community in general and Africa in particular. The Hyogo framework is determined to reduce disaster loss of lives and other social, economic and environmental assets, mindful of international cooperation, solidarity and partnership, as well as good governance at all levels (Hyogo Framework, 2005).

It was declared that there was need to -

- Recognize the relationship between disaster reduction, sustainable development and poverty eradication.
- Empower all stakeholders and recognize the importance of involving them, including governments, regional and international organizations, financial institutions, civil society, non-governmental organizations, volunteers, private sector and scientific community.
- Recognize a culture of disaster prevention and resilience, and associated pre-disaster strategies which must be fostered at all levels ranging from the individual up to the international levels.
- Alleviate suffering from hazardous events by reducing the vulnerability of society.
- Further build the resilience of nations and communities to disasters through people centred early warning systems, risk assessments, education, and other proactive, integrated, multi-hazard, and multi-sectoral approaches and activities in the context of the

disaster reduction cycle which looks at prevention, preparedness, response, recovery and rehabilitation.

- Ensure that states have the primary responsibility to protect the people and property in their territory from hazardous events.
- Give high priority to disaster risk reduction in national policy, consistent with capacity and resources available.
- Strengthen community level capacities to reduce disaster risk at that level as it enables communities and individuals to reduce their vulnerability to hazards.
- Enhance the capacity of disaster-prone developing countries in particular and the least developed states to reduce the impact of disasters, through strengthened national efforts, enhanced bilateral, regional and international cooperation.
- Underscore the importance of strengthening cooperative and synergistic interactions among stakeholders and promoting voluntary partnerships for disaster reduction.
- Develop information sharing mechanisms on programmes, initiatives, best practices, lessons learnt and technologies in support of disaster risk reduction so the people can share the results and benefits (Hyogo framework, 2005).

The writer is of the opinion that all these resolutions by the Hyogo Framework make sense and where the problem lies is the implementation part. Gnaedinger (2006) is of the opinion that, in countries where there is continuous conflict, the problem is that there is no political will between parties to end the conflict.

The 1990s saw the emergence of conflicts occurring in “failed states” which, it was argued, were a consequence of the end of the Cold War. These wars are marked by the partial, and sometimes even total, breakdown of State structures. In such situations, armed groups take advantage of the political vacuum in an attempt to grab power. A specific feature of such conflicts is a weak chain

of command within armed groups, often run by war lords whose political ambitions are outweighed by the personal enrichment they anticipate. Their aim is thus to keep an armed conflict going, not necessarily to win it. In this context, even mutual support between the adversaries becomes possible (e.g. arms trading) (Gnaedinger, 2006).

In such an environment, how then will a state commit itself to disaster risk reduction, protect its people, take disaster risk as a priority, or how do we develop the capacities of people who are displaced by conflicts as mandated by the Hyogo framework? The bottom line for disaster risk reduction in Africa really depends on the management of conflicts. This must be a major starting point.

2.4 Disasters in Africa.

Africa is prone to natural and man-made disasters. These events become disasters where large numbers of people or infrastructure are affected (Findlay 1996).

2.5 Natural disasters.

Africa has experienced some of the worst droughts and famines in terms of number of people killed or number affected with particularly severe droughts in 1972-73 and 1984-85, affecting much of Northern, Southern, Eastern and Sahelian Africa (Gommes and Petrassi, 1996). In countries affected, the impacts of famine are exacerbated by inadequate transport facilities to receive and distribute food and medical aid (Ehrlich and Ehrlich 1990). There are some indications that droughts are becoming more prolonged and their impacts more severe (FAO 2000).

The risk of damage from heavy rain is greater in drier areas than in those that usually receive higher rainfall because there is less vegetation cover to absorb the water and stabilize soils. Expansion of informal settlements into the flood zone is putting many more people at risk of flooding. In South Africa, many families are living in shacks below the flood lines and are subjected to flooding and outbreaks of cholera (Kim, 2000).

Disasters can have severe economic impacts which are difficult to calculate. Cyclones bring strong winds and heavy rainfall. This causes destruction of infrastructure, particularly in low-lying areas and where settlements have encroached into flood-prone areas. Huge costs are incurred due to destruction of income-generation activities, including tourism revenues, and rehabilitation and replacement of damaged infrastructure and crops (World Bank 2001a).

Globally, Africa suffers the least damage from disasters in purely financial terms but the significance of such losses may actually be greater in terms of impact on economic development. Africa's people and economies are heavily dependent on rain fed agriculture, and are therefore vulnerable to rainfall fluctuations. It is usually the poor who suffer most from flood or drought-induced crop failure; because they often cultivate areas that are climatically marginal for crop production and they cannot accumulate reserves for times of hardship (World Bank 2001a).

According to the World Bank Report (2001a) both droughts and floods can result in malnutrition and famine, and the associated food imports and dependency on food aid can affect the economic growth potential of affected countries. Let's just imagine what would happen, if a conflict starts in such an environment. Obviously there will be another disaster and it just complicates things.

2.6 Human-induced disasters.

Although climatic variability is a natural phenomenon, the increasing frequency and severity of extreme events can be in part attributed to human activities such as deforestation and inappropriate management of land and water resources. Clearing of tropical forests in Central and Western Africa has altered the local climate and rainfall patterns, and increased the risk of drought. Clearing of vegetation may also increase run-off and soil erosion (World Bank 2001a).

Damming of rivers and draining of wetlands reduces the environment's natural ability to absorb excess water, enhancing the impacts of floods. Over the past three decades, millions of Africans have sought refuge from natural and human-made disasters with both environmental and socio-economic impacts (World Bank 2001a). Often refugees are settled in fragile ecosystems where they exert considerable pressure on the natural resources, as they have no other means of survival. Refugee and internally displaced populations also experience further conflicts with

neighboring communities, through competition for resources for instance xenophobia in South Africa) (World Bank 2001a).

Conflict is also another type of human induced disaster and is the main area of focus in this study. Political and governance systems, investment and economic growth, and environmental conservation and stewardship in Africa are all at risk due to wars and other civil conflicts. War, and post-conflict situations, places stress on the environment, sometimes contributing to the overexploitation of natural resources. Environmental resources have been acknowledged as a factor in influencing or prolonging some conflicts in Africa. Despite being one of the richest regions, in terms of both human and natural resources, extreme poverty and hunger abound in the region (Cutler, 2007).

According to the World Bank report (2001), armed conflict has along with large populations of displaced people and refugees and the HIV/AIDS pandemic been identified as a major factor in slowing down the achievement of the Millennium Development Goals (MDGs). The resources spent on warfare could, if redirected, make a significant contribution to addressing the MDGs and other development targets. For example, sub-Saharan Africa (SSA) has the lowest access globally to improved drinking water supply, with only 58 percent of the population having such access in 2000. Often, food production is drastically affected by armed conflict. Areas affected by conflict suffer annual losses of more than 12 percent of production, although the figure varies widely from country to country.

In a special session of the assembly of the African Union on the consideration and resolution of conflicts in Africa, in August 2009, the Chairman of the Commission reported that conflict was also a cause of concern in Africa. It is one of the most deadliest and silent disaster hazards that are killing so many people along side hunger and disease. Of the many challenges facing Africa, the quest for peace and security is undoubtedly the most pressing. Over the past two decades, the continent has witnessed a number of long-term, severe and, in some cases, inter-related crises and violent conflicts.

While interstate wars and liberation struggle dominated the 1970s and 1980s, these years are characterized by intra-state violence. In the past few years, the number of violent conflicts has

been significantly reducing, and important advances, even though some still fragile, have been made. However many African countries remain trapped in a vicious cycle of conflict and its deadly consequences (Chairman of the Commission, 2008).

In order to do just literature review in the area of conflict, chapter three has been devoted to and thoroughly looks at this concept. It analyzes its causes, its indicators, its consequences and the importance of early warning systems in conflict resolution.

2.7 The Concept of Risk.

A disaster risk consists of three main interrelated factors namely; i) hazard, ii) vulnerability, and iii) capacity. These three factors relate to each other via the equation: $R = H + V$ defines disaster (Wisner *et al.*, 2004).

According to the ISDR (2002:13) another component can be added to the factors determining risk by stating that risk results from “*the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk*”

The above statement may be translated into the following equation (ISDR 2004:36):

$$\text{RISK} = \frac{\text{HAZARD} \times \text{VULNERABILITY}}{\text{CAPACITY}}$$

Or in short

$$\text{RISK} = \frac{\text{H} \times \text{V}}{\text{C}}$$

It can also be argued that the capacity to reduce the level of a hazard within a specific community or given environment will necessarily not be the same level of capacity to deal with improving the vulnerability of the given environment. From the above mentioned a third equation can be formed (ISDR 2004).

$$\text{RISK} = \text{HAZARD} \times \text{VULNERABILITY}$$

$$\text{CAPACITY 1} \quad \text{CAPACITY 2}$$

Or

$$\text{RISK} = \text{H} \times \text{V}$$

$$\text{C1} \times \text{C2}$$

Taking the two cited equations it can be said that risk of a possible disaster can be determined by at least three main contributing factors:

- i) The characteristics of the hazard
- ii) The level of vulnerability of the particular elements at risk
- iii) The Capacity in dealing with the hazard as well as the vulnerability (ISDR 2004).

This means that a disaster is an interaction of the three factors and mitigating their impacts needs managing the three areas together. There must be a balancing effect on the three (ISDR 2004).

With the application of the risk equation within the context of conflicts, conflict can be taken as a specific hazard that needs to be managed in relation to other hazard factors that look at the people's vulnerability and their coping capacities.

2.7.1 The Concept of Hazards.

A hazard is the physical agent in a disaster. With the aid of risk, communities are able to forecast the probability and frequency of a hazard. Hazards have the following characteristics (ISDR, 2002:14):

- (a) Hazards are physical events or conditions, which are man-made or natural in nature,
- (b) Hazards pose future threats
- (c) These threats have the potential of influencing a society or elements in a detrimental or negative manner.

Since hazards are a dynamic force with varying potential impacts, it is important to understand the nature of hazards so that they can be prioritized and managed. That is why many countries and regional organizations require a greater knowledge of hazard characteristics that are specific to their own environments. A wide range of geophysical, meteorological, hydrological, technological, biological and even socio-political hazards can threaten lives and sustainable development (ISDR, 2004).

The hazard being focused in this study is of a socio-political nature. Socio-political hazards can be classified as man-made disaster. These hazards can also be classified as accidentally or deliberately caused hazards. Therefore conflict can be classified as a deliberate man-made hazard. According to (Foster, 1980), deliberate caused man-made hazards include the following types of hazards

- (a) Civil or Political hazards.
- (b) Social hazards.

2.7.2 The Concept of Vulnerability.

According to Wisner *et al.* (2004) extreme natural events are not disasters until a group of people is exposed and vulnerable. Vulnerability looks at the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of an extreme natural event or process.

The International Strategy for Disaster Reduction (ISDR) (2002) looks at vulnerability as the conditions determined by the following factors namely physical, social, economic, political, cultural, organizational, institutional, ecological, educational, location, physical and environmental factors or process, which increase the susceptibility of a community to the impact of hazards.

Particular social groups are more prone to damage, loss and suffering in the context of differing hazards. Wisner *et al.* (2004:11) states various key variables explaining variations of impacts include class and the different levels of wealth within a community. Class levels can include occupation of the target system, caste, ethnicity, gender, disability and health status and age.

Social networks are also very important in determining the vulnerability status of a community (Wisner *et al.*, 2004). It is how people stay together as a community sharing scarce resources. Networking helps as people become aware of where they get particular resources to help themselves in before and after a disaster. A strongly networked community is resilient as they usually pool their resources and ideas together when encountered with a problem. Vulnerability can be social, political, economic and technological

One of the sub-components of social vulnerability which forms a part of this study is that social vulnerability is partially a product of social inequalities — These types of vulnerability and other forces, create the susceptibility of various groups to harm, and in turn affect their ability to respond, and bounce back (resilience) after a disaster (Cutter, 2006).

Vulnerability is also perceived to derive from a spectrum of historical process. During the late 1970's a concept named *people's vulnerability* was developed in relation to disaster research and its focus falls on the various ways in which a social system generates disasters by making people vulnerable (Anderskov, 2004).

According to Anderskov (2004) the concept of vulnerability was introduced via political economy and political ecology. Even though these approaches focused in the past on the social realm regarding vulnerability, they did so in a manner that has later been questioned and criticized. They are said to have been focusing more on global structures and systems, rather than focusing on people's actions against or within those structures. In turn that approach represented a rather deterministic view on how people become vulnerable.

Wisner *et al.* (2004) reintroduces the human factor into disaster research and the vulnerability concept. They do this by avoiding deterministic explanatory notions of vulnerability that do no more than identifying it with poverty in general or some specific characteristics such as crowded conditions, unstable hillside agriculture, or traditional farming technology methods.

Vulnerability is the reflection of the current state of the individual and collective physical, social, economic and environmental conditions at hand. The mentioned factors at hand are shaped continually by attitudinal, behavioral, cultural, socio-economic and political influences on individuals, families, communities and countries. Governed by human nature and activity, vulnerability cannot be isolated from ongoing development efforts. Vulnerability therefore plays a critical role in all aspects of sustainable development (ISDR, 2004).

Vulnerability in the human sciences is typically identified in terms of three elements (Kasperson, 2001:1)

- system exposure to crises, stresses, and shocks;
- inadequate system capacities to cope; and
- Severe consequences and attendant risks of slow (or poor) system recovery.

2.7.3 The concept of coping capacity.

The ISDR (2002:134) defines capacity as the *“combination of all strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster.”* Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management.

The definition shows that capacity is a characteristic that plays part both before and after a disaster. People must have the capacity to plan, prepare, mitigate, respond and recover from disasters. This mostly has a lot to do with resources, knowledge, education, early warning and other issues. The more capacity a person, group, organization or a community has, the more they can mitigate disasters

Post-disaster coping capacity can be defined as *“the manner in which people and organizations use external resources to achieve various beneficial ends during unusual, abnormal and adverse conditions of a disaster phenomenon or process”* (UNDP 2004:135).

For pre-disaster capacity one can consider the formula previously proposed to determine the level of risk: **Risk = (Hazard / Capacity₁) x (Vulnerability / Capacity₂)**

It is important to notice that two different aspects of capacity can be identified. Firstly, Capacity₁ refers to a capacity with regard to influencing the characteristics of the hazard. Capacity₂ influences the characteristics of the community with regard to aspects of vulnerability (UNDP 2004).

Foster (1980:1) refers to the increase of capacity as “capacity building”, stating “*capacity building can increase the limits of tolerance of a society to hazards, therefore reducing the potential for disaster.*”

2.7.4 Writer’s view on risk.

The determination of risk is the whole essence of disaster management. It is only after one has identified and assessed the hazard, the vulnerability and the people’s coping capacity that the risk the people face may be determined (Wisner *et al.*, 2004). The risk might be high or moderate or low. After risk has been determined that’s only when can people start making plans to manage disaster in relation to the disaster management cycle. It is the information that is important and that one must have or access in order to determine risk. Without information risk cannot be determined and there will be no basis for disaster management planning or management. Therefore the first step in disaster risk management is the proper determination of risk based on the risk equation.

Looking at conflict, it is a hazard that needs to be properly managed. The places and people that are vulnerable then have to be identified and a thorough assessment of their vulnerability and coping capacities done. Only then can people be able to make plans to manage the risk identified. Risk assessment in conflicts is normally referred to as conflict mapping (Henderson 2004).

2.8 The Disaster Management Cycle.

Disaster management aims to reduce the potential losses from hazards, assure prompt and appropriate assistance to victims of disaster, and achieve rapid and effective recovery(www.gdrc.org/uem/disasters/1-dm_cycle.html). The Disaster management cycle illustrates the ongoing process by which people and organizations plan for and reduce the impact of disasters, react during and immediately following a disaster, and take steps to recover after a disaster (www.gdrc.org/uem/disasters/1-dmcycle.html). Appropriate actions at all points in the

cycle lead to greater preparedness, better warnings, reduced vulnerability or the prevention of disasters during the next cycle. The complete disaster management cycle includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure (www.gdrc.org/uem/disasters/1-dm_cycle.html).

The mitigation and preparedness phases occur as disaster management improvements are made in anticipation of a disaster event. Developmental considerations play a key role in contributing to the mitigation and preparation of a community to effectively confront a disaster. As a disaster occurs, disaster management actors, in particular humanitarian organizations, become involved in the immediate response and long-term recovery phases. The four disaster management phases illustrated in the cycle do not always, or even generally, occur in isolation or in this precise order. Often phases of the cycle interact, overlap and the length of each phase greatly depends on the severity of the disaster (www.gdrc.org/uem/disasters/1-dm_cycle.html).

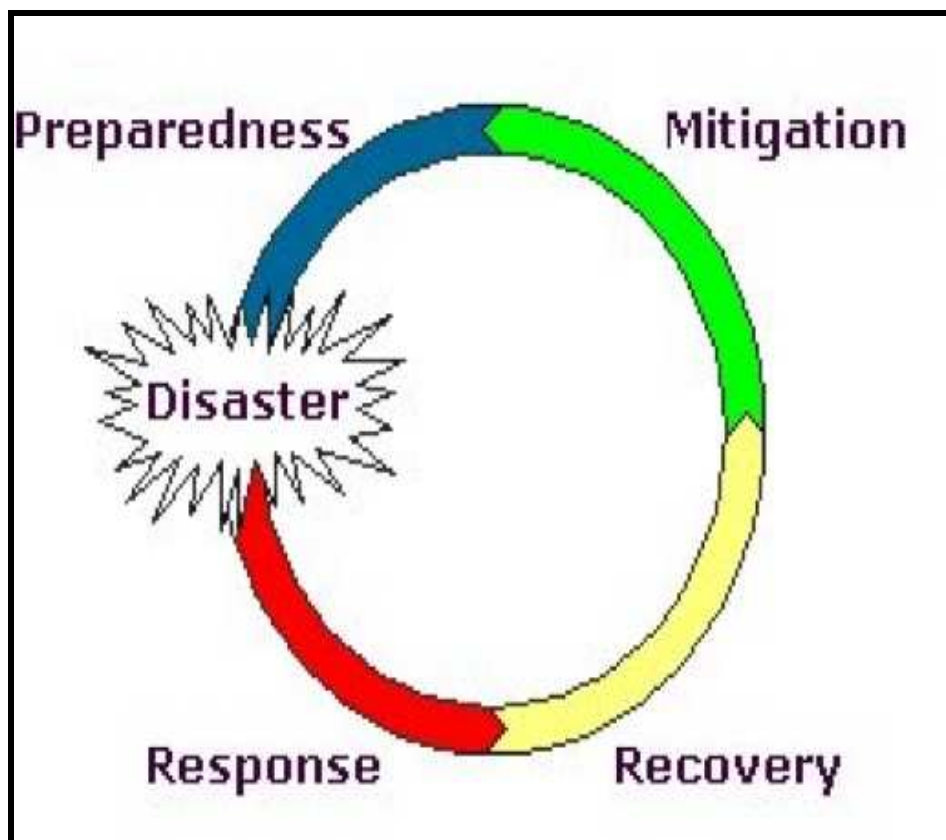


Figure 1: The Disaster Management Cycle (www.gdrc.org/uem/disasters/1-dm_cycle.html).

2.8.1. Sustainable Development.

Developmental considerations contribute to all aspects of the disaster management cycle. One of the main goals of disaster management, and one of its strongest links with development, is the promotion of sustainable livelihoods and their protection and recovery during disasters and emergencies. Where this goal is achieved, people have a greater capacity to deal with disasters and their recovery is more rapid and long lasting. In a development oriented disaster management approach, the objectives are to reduce hazards, prevent disasters, and prepare for emergencies. Therefore, developmental considerations are strongly represented in the mitigation and preparedness phases of the disaster management cycle. Inappropriate development processes can lead to increased vulnerability to disasters and loss of preparedness for emergency situations (www.gdrc.org/uem/disasters/1-dm_cycle.html)

2.8.2. Mitigation.

Mitigation activities actually eliminate or reduce the probability of disaster occurrence, or reduce the effects of unavoidable disasters. Mitigation measures include building codes, vulnerability analyses updates, zoning and land use management, building use regulations and safety codes, preventive health care, and public education.

Mitigation will depend on the incorporation of appropriate measures in national and regional development planning. Its effectiveness will also depend on the availability of information on hazards, emergency risks, and the countermeasures to be taken. The mitigation phase, and indeed the whole disaster management cycle, includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure (www.gdrc.org/uem/disasters/1-dm_cycle.html)

2.8.3 Preparedness.

The goal of emergency preparedness programs is to achieve a satisfactory level of readiness to respond to any emergency situation through programs that strengthen the technical and managerial capacity of governments, organizations, and communities. These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public

education and building early warning systems. Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials are maintained in cases of national or local catastrophes (www.gdrc.org/uem/disasters/1-dm_cycle.html).

During the preparedness phase, governments, organizations, and individuals develop plans to save lives, minimize disaster damage, and enhance disaster response operations. Preparedness measures include preparedness plans; emergency exercises/training; warning systems; emergency communications systems; evacuations plans and training; resource inventories; emergency personnel/contact lists; mutual aid agreements; and public information/education. As with mitigations efforts, preparedness actions depend on the incorporation of appropriate measures in national and regional development plans. In addition, their effectiveness depends on the availability of information on hazards, emergency risks and the countermeasures to be taken, and on the degree to which government agencies, non-governmental organizations and the general public are able to make use of this information (www.gdrc.org/uem/disasters/1-dm_cycle.html)

2.8.4 Humanitarian Action.

During a disaster, humanitarian agencies are often called upon to deal with immediate response and recovery by the host country. To be able to respond effectively, these agencies must have experienced leaders, trained personnel, adequate transport and logistic support, appropriate communications, and guidelines for working in emergencies. If the necessary preparations have not been made, the humanitarian agencies will not be able to meet the immediate needs of the people (www.gdrc.org/uem/disasters/1-dm_cycle.html).

2.8.5 Response.

The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. It also may involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found.

Humanitarian organizations are often strongly present in this phase of the disaster management cycle (www.gdrc.org/uem/disasters/1-dm_cycle.html)

2.8.6 Recovery.

As the emergency is brought under control, the affected population is capable of undertaking a growing number of activities aimed at restoring their lives and the infrastructure that supports them. There is no distinct point at which immediate relief changes into recovery and then into long-term sustainable development. There will be many opportunities during the recovery period to enhance prevention and increase preparedness, thus reducing vulnerability. Ideally, there should be a smooth transition from recovery to on-going development.

Recovery activities continue until all systems return to normal or better. Recovery measures, both short and long term, include returning vital life-support systems to minimum operating standards; temporary housing; public information; health and safety education; reconstruction; counseling programs; and economic impact studies. Information resources and services include data collection related to rebuilding, and documentation of lessons learned (www.gdrc.org/uem/disasters/1-dm_cycle.html).

The disaster management cycle is a very important framework to use when managing disasters. It is easy to follow and actually gives a roadmap as to how one needs properly plan for and manage disasters. Conflict management can also use the framework.

In mitigating conflicts, there is need for education and awareness about the detrimental effects of conflict to society. Early identification of conflict situations is very critical in disaster mitigation. Research as in this endeavor. The identification of conflict indicators and transforming them into early warning signals of an impending disaster goes a long way in disaster risk reduction. This information will be used for education, awareness and planning for disaster. Further to that other methods discussion, negotiation, mediation, arbitration, adjudication and the use of force are also used to stop and mitigate conflict disasters.

In preparing for conflicts, research also plays an important part, which is the whole essence of this dissertation. The best way to problem solving is to identify root causes and this is best done by a scientific enquiry. Outcomes of such endeavors lead to good disaster preparedness plans. Early warning is a good indicator of a good preparedness plan. This is an issue that is being focused on in this project.

Response also looks at how different stakeholders would respond to conflict. This can be best done through an integrated development plan. Conflict kills and destroys. The faster people respond and stop conflict, the earlier is risk reduced. Responses are best done through networks as this pools resources and ideas together. Networks can be through other countries, regional bodies, international bodies, business and non-governmental organizations. The presence of mediators, the African Union or United Nations Missions indicates response efforts to disaster mitigation or reduction. Disarmaments activities are also a good sign of responding to conflicts.

Recovery after a conflict involves a lot more than the normal recovery processes for other disasters. Conflict recovery will involve other processes like disarmament exercises that continue from the response activities, demobilization, and reintegration. At the same time there is also United Nations or African Union or other organizations that monitor elections, human rights issues, reform the security sector, police and army training.

2.9 Disaster Mitigation.

Concerted regional efforts to manage disasters are weak, and disaster responses in Africa have tended to focus on national and sub-regional levels. Efforts have also concentrated on responses rather than mitigation through improved environmental management and agricultural practices. The unpredictable nature of extreme events, and the weak economic performance of most African countries, makes preparation for, and relief from, disasters more difficult. There have however been some successes in preventing famine resulting from drought, such as the Famine Early Warning System (FEWS) project, the implementation of a new efficient seed distribution systems and promotion of more drought-resistant crop varieties.

In Northern Africa, efforts to respond to economic hardship during droughts include financing employment-generating projects to keep farmers from abandoning lands where productivity is declining, while in Eastern Africa afforestation and reforestation projects are being implemented to lessen the impact of future environmental changes, particularly climate change.

In Southern Africa, the SADC Regional Early Warning Unit, the Regional Remote Sensing Project, the Drought Monitoring Centre and the FEWS Project advise governments on drought preparedness. A drought fund was also in place to mitigate the effects of poor rainfall (UNDHA 1994).

In some areas, including parts of West Africa, long term measures such as urban planning regulations which prohibit developments along water courses have been promulgated although resource constraints often prevent them from being strictly enforced. Additional responses include the development and implementation of early warning or forecasting mechanisms such as ENSO forecasting, which has been implemented in Southern Africa. While this has the potential to alert relief organizations and evacuate communities ahead of time, it has been limited by poor communications services (Dilley 1997).

For example, only 152 of every 1 000 people in Africa had radios by 1997 (World Bank 2000b). With global warming, the incidence of drought is likely to increase in many parts of Africa. The frequency and intensity of cyclones and floods in some areas are also likely to increase, adding to the stresses on water and food security, and possibly contributing to outbreaks of disease (IPCC 2001). Seychelles is currently outside the cyclone zone but sea temperature rise could cause an increase in cyclone intensity and expansion of the cyclone zone to include the islands (UNEP 1999).

It is important for disaster management to identify some shortcomings in disaster management. Response is not the only disaster management activity neither is it early warning under disaster prevention. Disaster management needs to be done holistically in line with the disaster management cycle. Plans have to be put in place where the whole system of the disaster cycle

has to be addressed. This has to start from prevention, mitigation, response recovery and rehabilitation. Only planning for and responding to disaster as has been the norm is only a piece meal exercise in disaster management.

2.10 GIS and Remote Sensing in Disaster Management.

GIS can be defined as a system of hardware and software used for storage, retrieval, mapping and analysis of geographic data. In short it is about spatially located objects, spatial distribution, and their spatial analysis (Demers, 2009).

Spatial features are stored in a coordinate system (latitude, longitude) that references a particular place on the earth. Descriptive attributes in tabular form are associated with spatial features. Spatial data and associated attributes in the same coordinate system can then be layered together for mapping and analysis. GIS can be used for scientific investigations, resource management and development planning.

Remote sensing is the observation of objects or groups of objects, normally at a distance, most often with the use of some form of mechanical or electronic device. It is measurement or acquisition of information about an object or phenomenon by a recording device that is not in physical or intimate contact with the object (Demers, 2009).

In practice, remote sensing is the remote utilization (as from aircraft, spacecraft, satellite or ship) of any device for gathering information about the environment. Thus, an aircraft taking photographs, earth observation and weather satellites, and space probes are all examples of remote sensing.

As disaster management work usually involves a large number of different agencies working in different areas, the need for detailed geographical information in order to make critical decisions is high. By utilizing a GIS, agencies involved in the response can share information through databases on computer-generated maps in one location. Without this capability, disaster management workers have to access a number of department managers, their unique maps and their unique data ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

GIS thus provides a mechanism to centralize and visually display critical information during an emergency. There is an advantage in using a map with remote sensing or GIS inputs instead of a static map. A static map is mostly analogous and is not interactive. On the other hand, a vulnerability map with GIS input provides dynamic information with cause and effect relationship ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

The use of GIS in different phases of disaster management can be illustrated as follows

2.10.1 Planning.

Locating and identifying potential problems is a requirement in disaster management. GIS can be used effectively to achieve this objective. Using a GIS, it is possible to pinpoint hazard trends and start to evaluate the consequences of potential emergencies or disasters. When hazards are viewed with other map data, such as buildings, residential areas, rivers and waterways, streets, pipelines, power lines, storage facilities, forests, etc., disaster management officials can formulate mitigation, preparedness, response and possible recovery needs. ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

Information derived from remote sensing and satellite imagery plays an important role in disaster management and crisis prevention. Their effective application depends not solely on technical specifications, but is influenced by factors such as data collection, processing and distribution, capacity building, institutional development and information sharing. Earth observation satellites could be used to view the same area over long periods of time and, making it possible to monitor environmental change, human impact and natural processes. This facilitates in the creation of models that would simulate trends observed in the past, present and assist with projections for the future ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

2.10.2 Mitigation.

After identifying emergency needs, mitigation needs can be addressed. This process involves analyzing the developments in the immediate aftermath of a disaster, evaluating the damage and determining what facilities are required to be reinforced for construction or relocation purposes.

Mitigation may also include implementing legislation that prevents building structures in areas prone to earthquake, flood or tsunami. Other mitigation approaches may target fire-safe roofing materials in wildfire hazard areas. Utilizing existing databases linked to geographic features in GIS makes the task of monitoring these possible ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

2.10.3 Preparedness.

During the preparedness and response phases, GIS can support response planning in areas such as determining evacuation routes or locating vulnerable infrastructure and vital lifelines. It also supports logistical planning by displaying previously available information on roads, bridges, airports, railway and port conditions and limitations .Apart from this, activities such as evacuee camp planning can also be done using GIS ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

GIS also provides answers to questions important to disaster management. The exact location of a fire station if a five-minute response time is expected or the number and locations of paramedic units required in a specific emergency can be determined. It is also possible to estimate what quantity of food supplies, bed space, clothes and medicine will be required at each shelter based on the number of expected evacuees. GIS can also display real-time monitoring for emergency early warning. Remote weather stations can provide current weather indexes based on location and surrounding areas. Wind direction, temperature and relative humidity can be displayed by the reporting weather station. Wind information is vital in predicting the movement of a chemical cloud release or anticipating the direction of wildfire spread upon early report. Earth movements (earthquake), reservoir level at dam sights, radiation monitors, etc. can all be monitored and displayed by location in GIS ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

2.10.4 Recovery.

After a disaster, it is essential to restore vital services and systems. There might be provision of temporary food, water and shelter to those who have lost homes in the disaster. Medical services are needed for those who are injured. GIS can play several roles in this process. It can identify

the damage and begin to establish priorities for action. It can also ensure uniformity in the distribution of supplies to emergency distribution centres. They can be assigned in proper amounts based on the extent and type of damage in each area. Earth observation satellites could also be used in emergency situations where on-the-ground resources are often not available. Satellites can provide data rapidly when there are earthquakes, landslides, floods and other natural disasters that often prevent assessment by ground or aerial services. They also provide accurate global coverage and operability no matter what the weather or conditions are on the ground. They can also be used for a large number of activities during their lifetime ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

Long-term recovery restores all services to normal or better than they were before the disaster. There is replacement of homes, water systems, streets, hospitals, bridges, schools, and returning to normal life. This can take several years. GIS tools can be used to track the progress of these activities. It is also possible to prioritize restoration investments with the help of GIS. GIS can ease the burden of accounting for recovery activities ([http://en.wikibooks.org/wiki/ICT for Disaster Management](http://en.wikibooks.org/wiki/ICT_for_Disaster_Management)).

Geographic Information Systems can also be used in the management of conflicts. This usually comes about with the creation of maps showing particular geographical positions of places where there are conflicts. Instead of having just verbal description a map will clearly give out a picture of a place as observed by the eye. Points, lines and polygons can be shown and buffer zones can also be drawn to show different areas or places that are affected or may be affected conflict. Places with different types of conflict indicators can also be shown and this will always make things easy to understand when one is talking about the occurrence of conflicts in an area.

2.11 Key players in Disaster Management.

The United Nations International Strategy for Disaster Reduction (UN/ISDR) identifies several key parties that play major roles in the disaster management process, especially in disaster warning (UN/ISDR, 2006). For any disaster management activity, there are usually a number of people or groups or organizations who are involved to its success including the victims themselves. It is important that such a network be developed so that all parties work together

towards the achievement of one common goal, disaster risk reduction. Without the participation of all stakeholders, a gap is left and this compromises integrated disaster activities.

2.11.1 International bodies.

They should provide support for national early warning activities and foster the exchange of data and knowledge between individual countries. Support may include the provision of advisory information, technical assistance, and policy and organizational support necessary to ensure the development and operational capabilities of national authorities or agencies responsible for early warning practice (UN/ISDR, 2006).

2.11.2 Regional institutions.

These and organizations should provide specialized knowledge and advice in support of national efforts to develop or sustain the operational capabilities of countries that share a common geographical environment. Regional organizations are crucial to linking international capabilities to the particular needs of individual countries and in facilitating effective early warning practices among adjacent countries (UN/ISDR, 2006).

2.11.3 National governments.

They are responsible for policies and frameworks that facilitate early warning, in addition to the technical systems necessary for the preparation and issuance of timely and effective hazard warnings for their respective countries. They should ensure that warnings and related responses are directed towards the most vulnerable populations through the design of holistic disaster response and early warning frameworks that address the specific needs of the related micro- and macro-level actors. The provision of support to local communities and local governments to develop operational capabilities is an essential function to translate early warning knowledge into risk reduction practices (UN/ISDR, 2006).

2.11.4 Non-governmental organizations.

(NGOs) play a critical role in raising awareness among individuals and organizations involved in early warning and in the implementation of early warning systems, particularly at the community level. In addition, they play an important advocacy role to help ensure that early warning stays on the agenda of government policy makers (UN/ISDR, 2006).

2.11.5 The private sector.

This sector has a diverse role to play in early warning, including developing early warning capabilities in their own organizations. The private sector is also essential as they are usually better equipped to implement solutions. The private sector has a large untapped potential to help provide skilled services in the form of technical manpower, know-how, or donations of goods or services (in-kind and cash), especially for the communication, dissemination and response elements of early warning (UN/ISDR, 2006).

2.11.6 The media.

This plays an important role in improving the disaster consciousness of the general population and in disseminating early warnings. The media can be the critical link between the agency providing the warning and the general public.

2.11.7 The scientific community.

This has a critical role in providing specialized scientific and technical input to assist governments and communities in developing early warning systems. Their expertise is critical to analyzing the risks communities face from natural hazards, supporting the design of scientific and systematic monitoring and warning services, fostering data exchange, translating scientific or technical information into comprehensible messages, and disseminating understandable warnings to those at risk (UN/ISDR, 2006).

2.11.8 Local governments.

These should have considerable knowledge of the hazards to which their communities are exposed. They must be actively involved in the design and maintenance of early warning systems, and understand information received, to be able to advise, instruct or engage the local

population in a manner that increases their safety and reduces the potential loss of resources on which the community depends (UN/ISDR, 2006).

2.11.9 Communities.

The high density of cities and human settlements make them vulnerable to disasters and hazards. Not a week goes by without news of a disaster, natural or man-made, effecting huge losses on humans and the environment as a whole. Disasters are becoming more complex, where a range of multiple factors in the social, cultural and natural spheres are increasing the risks associated with them. The old adage as used in health circles that "Prevention is better than cure", can be applied to disaster management. It is becoming important that planning, preparedness, prevention, mitigation, response, relief, and recovery, to tackle disasters are critical in reducing the negative impacts and effects of such events.

The role of communities and individual families in taking appropriate action to mitigate the impacts of disasters needs to be emphasized, as disaster practitioners realize that response to an emergency situation can be hampered by the disaster itself, and relief can best be delivered by those closest at hand. Community or indigenous-based disaster management is now an integral part of any local or national disaster management planning. Lessons and experiences in disaster management are emerging, as people learn after a disaster has struck (UN/ISDR, 2006).

The success of disaster activities in communities is enhanced by the following and other issues:

(a) Build local community capacity

it is important to support and build local capacities for people to mitigate and prevent disasters, and cope with post-disaster impacts. Such capacities enable communities to cope with those disasters which are unavoidable (UN/ISDR, 2006).

(b) Create partnerships and alliances

there are a number of organizations and groups that are involved, or need to be involved, in disaster management. It is important to build participatory alliances and partnerships among these entities in order to map out responsibilities and activities. Co operation is very vital to avoid competition and share resources (UN/ISDR, 2006).

(c) Share and exchange information

Knowledge embedded in different organizations and groups need to be recorded and shared among all of them, and used for different purposes. This is particularly true of universities and research institutions in the region where disasters occur. Regular learning opportunities are critical for communities to understand experience and prepare themselves for a disaster (UN/ISDR, 2006).

(d) Develop learning and decision-making tools

Existing knowledge and understanding of disasters, man-made and natural has to be used to develop learning and decision-making tools that can be used for disaster mitigation, including the creation of disaster maps, mitigation plans and many more (UN/ISDR, 2006).

2.12 Conclusion.

This chapter looked at the concept Disaster management, The Millennium Development Goals, The world conference on Disaster Risk Reduction (Hyogo Declaration 18-22 January 2005, Disasters in Africa, natural disasters, man-made disasters, The concept of risk, the Systems Approach, the Disaster Management Cycle, GIS and remote sensing and Key players in Disaster risk .

The next chapter looks at Conflicts, Conflict indicators and Early Warning

Chapter Three.

Conflicts, Conflict Indicators and Early Warning.

3. Introduction.

To fully understand the methodologies involved in identifying, classifying, measuring and prioritizing conflicts and conflict indicators, a review of related literature on conflicts, early warning systems and conflict indicators was done. Furthermore the evolution, causes of conflict, conflict research and early warning models will be discussed from the perspectives of several authorities.

3.1 Evolution of armed conflicts in Africa.

In 1990, it seemed reasonable to predict that the end of Cold War conflict would lead to a substantial reduction in warfare in Africa. In two major regional theatres of warfare, Southern Africa and the Horn of Africa, the breadth and duration of local conflicts had been amplified and extended by the external support received by various governments as a consequence of great power rivalries. The capacity of African states for war making was vastly enhanced through their role as Cold War proxies. The end of international bipolar geostrategic competition in Africa should logically have reduced such capacity. Instead, its consequence has been an overall weakening of African states and an intensification of rebellions against their authority (Cutler, 2007).

In many ways, the conflicts now being experienced in many parts of Africa are influenced by problems rooted in the past. The militarization of societies and the social tensions which these create often linger long after violence subsides, having long-term effects on opportunities for development and improving human well-being (Cutler, 2007).

During the 1960s and 1970s, many countries achieved political independence from direct colonial control. However in several countries, particularly in Southern Africa, western countries continued to play a pivotal role. In several countries, the anti-colonial struggles which endured for many years had a very destructive impact on social and political life, as well as environmental resources. Indeed, current tensions in several African countries cannot be fully understood without reference to these early struggles (Cutler, 2007).

In Angola, for example, three different groups fought for independence since the 1950s and 1960s. With the ousting of the Portuguese president in 1974, the new military government in Portugal declared a truce with those fighting for independence, and entered into talks. However, conflict between the rebel groups continued, and some residents of oil-rich areas expressed a desire to become independent. While the Movimento Popular da Libertacao de Angola (MPLA) took over government, two other armed groups, the Uniao Nacional para a Independencia Total de Angola (UNITA) and the Front for the Liberation of Angola (FNLA) continued to oppose the MPLA, and intermittent but extremely destructive conflict continued right up to the beginning of the 21st century (Cutler, 2007).

The 1980s were the height of the Cold War, and this had an undeniably strong influence on events across Africa. During the 1990s conflict in Angola was increasingly determined by struggles for diamonds, oil and other resources. This is part of a wider trend in Africa and elsewhere, in which the struggle for access and control of high value natural resources has resulted in, or perpetuated, conflicts. With the end of the Cold War and the loss of external funding from superpower rivalries control over these resources have become much more important to insurgents. Arvind and Vines (2004), for example, found that UNITA financed its war largely through taxes on the illicit trade in diamonds, particularly between the mid-1990s and 2002. From 1999 to 2002, UNITA is reported to have earned about US\$300 million per year from illicit diamond sales. In Sierra Leone, the Revolutionary United Front (RUF) financed its war by trading in illicit diamonds. In the DRC, struggles over the control of diamonds, Colton and timber has prolonged civil war.

One part of the Africa region which has received global attention due to conflict is the Darfur region of Sudan where 1.6 million people were internally displaced in the 2002-03 period and 200,000 others forced to flee as refugees into neighbouring Chad (Cutler, 2007).

3.2 Causes of conflict.

According to Cutler (2007) the root causes of conflict in Africa have been the subject of much debate and the nature of violence has been poorly understood. In contrast to the stereotypes of “ethnic” conflict in Africa, evidence appears to show that Africa’s great ethnic diversity actually

reduces, rather than increases, the chances of conflict occurring. However, in some cases it seems that where one ethnic group is numerically dominant this may increase the chances of conflict. Power and the manipulation of ethnic identity by elites, is a major driving force. Therefore ethnicity is a cause of conflict. Ethnic conflicts are very common in the Great Lakes Region in countries like the DRC, Rwanda, Burundi, Uganda and Kenya.

According to the Commission on Human Security (2003), causes of internal conflict include:

- Competition over land and resources,
- Sudden and deep political or economic transitions,
- Growing inequity among people and communities,
- Increasing crime, corruption and illegal activities,
- Weak and unstable political regimes and institutions, and
- Identity politics and historical legacies, such as colonialism.

In several places, economic motivations have been a critical factor:

- The international arms trade is very high on the list of those who profit from conflict in Africa, and the protagonists themselves.
- In Liberia, the control and exploitation of diamonds, timber and other raw materials was one of the principal objectives of the warring factions. Control over those resources financed the various factions and gave them the means to sustain the conflict.
- In Angola, difficulties in the peace process owed much to the importance of control over the exploitation of the country's lucrative diamond fields.
- In Sierra Leone, the chance to plunder natural resources and loot Central Bank reserves was a key motivation of those who seized power from the elected Government in May 1997 (Commission on Human Security, 2003).

Lodge (1999) gives a thorough typology of Africa's armed conflicts since 1990 as having been caused by the following seven issues:

- Ethnic competition for control of the state,
- Regional or secessionist rebellions,
- Continuation of liberation conflicts,
- Fundamentalist religious opposition to secular authority,
- Warfare arising from state degeneration or state collapse,
- Boarder disputes, and
- Protracted conflict within politicized militaries.

Lodge (1999) goes further to briefly describe and discuss the above issues in an endeavor to show and justify how they have been a root cause of conflict in Africa.

3.2.1 Ethnic Competition for Control of the State.

The two most prominent examples of such conflict are the wars in Burundi and Rwanda, both featuring struggles for ascendancy between the culturally similar Tutsi and Hutu groups. These conflicts date from the immediate post-colonial period and originate in the encouragement of ethnic rivalries by the former Belgian administration.

During 1993 in Burundi, up to 100 000 people died in the fighting which followed a coup attempt by the Tutsi dominated army after the electoral victory of a mainly Hutu political party. Despite the presence of an OAU contingent that arrived to supply protection to the government in December 1993, clashes between the army and Hutu militias continued. In 1996, the army deposed President Ntibantunganya (a Hutu) and replaced him with the pre-1993 incumbent, Pierre Buyoya (a Tutsi). In reaction, neighbouring countries imposed sanctions on Burundi's external trade. By 1997, about 750 000 Burundian refugees were encamped across the country's borders, mainly in Zaire. A truce agreement in July 1998 ended most of the hostilities that had caused some 200 000 deaths, mainly of civilians, in five years.

In Rwanda the death in an air-crash in April 1994 of the elected President Habyarimana triggered genocidal massacres of Tutsi communities by the Hutu army. A successful invasion from Uganda by the Tutsi-led Rwandan Patriotic Front (RPF) and the installation of an RPF government helped to establish a measure of order, though fighting between RPF units and Hutu militias based in Zairian refugee camps continued. Up to a million people died in 1994. As a

consequence of the continuing militia activity in the second half of 1997, 5 000 people were killed despite RPF involvement in the Congolese war which featured massacres of Hutu refugee communities and the destruction of militia bases in Zaire (Lodge, 1999).

3.2.2 Regional or Secessionist Rebellions.

The most protracted and bloody rebellion was the civil war in Sudan which began as far back as 1957. With a single five-year interlude of peace following a settlement in 1972, the rebellion resumed again in earnest in 1983. The modern phase of the war was prompted by a government decision during 1981 to disband the regional administration that had governed the southern part of the country. In contrast to the Muslim north, six million inhabitants of southern Sudan were mainly Christian or animist and British imperial policy had accentuated local perceptions of colonial-style domination by the North. The imposition of Sharia laws by the Khartoum government in 1983 added impetus to the smoldering rebellion of the newly formed Sudanese Peoples' Liberation Movement (SPLM).

Regional rivalries have helped to sustain the conflict in Sudan. During the early stages, the SPLM and its Sudanese Peoples' Liberation Army (SPLA) received assistance from Ethiopia, Libya and South Yemen, though Libya was to change sides in 1985 with a decision to support Khartoum. During the 1990s, the Sudanese government (now led increasingly by Islamic fundamentalists) has also enjoyed the military support of Iran. By 1988, the United Nations estimated that war-related famine had killed some 260 000 people and displaced many more from their homes.

Since 1996, there has been a resurgence of SPLA hostilities which may be partly ascribed to reinvigorated support from Ethiopia, which was, in turn, prompted by suspected Sudanese involvement in an assassination attempt on Egyptian President Mubarak during a visit to Addis Ababa. In response, Sudan began sponsoring Ethiopian rebels operating across the Sudanese boarder.

In West Africa, regional rebellions have included:

- The two year Tuareg uprising in northern Niger, ending with a peace treaty in April 1994;
- Intermittent local insurgencies in southern Chad; and
- The Casamance secessionist movement in southern Senegal. The latter has had the most serious consequences to date, with the rebellion displacing about 20 000 refugees.

The Casamance province of Senegal was governed by Portugal before the Congress of Berlin. Its population is drawn from communities which straddle the boarder with Guinea-Bissau where the insurgent Movement of Democratic Forces of Casamance (MFDC) was based until its expulsion by troops of Guinea-Bissau in 1997. Support for the Casamance separatists had promoted divisions within the army of Guinea-Bissau, following the dismissal of its pro Casamance Chief of Staff. These tensions sparked off an army mutiny in the country in June 1997.

3.2.3 Continuation of Liberation Conflicts.

In Angola, peace negotiations between Uniao Nacional para a Independencia Total de Angola (UNITA) and the Angolan government during the course of the 1990s was accompanied by intermittent warfare. The rejection of the results of the presidential elections in September 1992 by UNITA had the effect of triggering one of the most severe and extensive conflict experienced in Angola. The 1994 Lusaka Peace Accord of 20 November 1994 was intended to launch a process of demobilization, military integration and the formation of a coalition administration. The ousting of the Mobutu regime in Kinshasa in May 1997 weakened UNITA's support in the region and helped to explain a more conciliatory inclination by UNITA leadership at the end of 1997. However, the opposition movement seemed to have managed to reconstruct its lines of external support and, since February 1998, there was a significant upsurge of UNITA attacks in the north and north-east of Angola. In June 1998, the government began registering the 15 to 34 age group for military service.

The protracted character of the Angolan war is attributable to the complexities of a liberation struggle which featured three popularly-based movements competing for superiority. It is a

reflection of an especially fragmented colonial economy and the historic cultural divisions between a Bakongo business elite in the North, a creolised intelligentsia in the coastal capital, and the leadership of a relatively prosperous peasant community which developed along the Benguela railway. Massive external military assistance to the main contenders in the war after the collapse of Portuguese rule removed any incentives for compromise, accentuating ideological distinctions between them, and hugely expanding the scope of warfare.

On another hand a violent climax in South Africa's liberation struggle was reached in the period between 1990 and 1994 when hostilities between militarized followers of the African National Congress (ANC) and the Inkatha Freedom Party, accentuated by agent provocateur activities of state-sponsored agencies, caused 14 000 deaths, mainly in KwaZulu-Natal. Political competition between and within different organizations continues to be a source of violent conflict in the province, and this was responsible for about 200 deaths in the first half of 1998 (Lodge, 1999).

3.2.4 Fundamentalist Religious Opposition to Secular Authority.

Some 50 000 people died in Algeria as a consequence of a civil war which began in February 1992 after the declaration of a state of emergency by the government in reaction to the victory of the Islamic Salvation Front (FIS) in the first round of parliamentary elections. The strength of the Algerian Islamic movement was principally a consequence of government policies in the 1970s which included the 'Arabisation' of a rapidly expanding secondary school system and the importation of Iraqi, Egyptian and Palestinian teachers trained in modern Islamic theological centres. Accelerating demographic increases, together with the indebtedness which followed the 1985 collapse of oil prices and an increase in unemployment of 200 000 more people per year in the 1980s combined to undercut the National Liberation Front (FLN) government's legitimacy.

In 1989, in the wake of food riots, a new constitution was adopted, that provided for the establishment of a multiparty system. Of the thirty new parties which were founded, however, most included some kind of affiliation to the notion of Islam as a state religion. The largest party, the Islamic Salvation Front (FIS), was outspoken in its dislike not just to secular government but also to liberal democracy.

Militarized Islamic opposition movements are active in several other North African countries, including Egypt and Libya. However, Muslims do not hold a monopoly on anti-secular rebellions. In northern Uganda, for example, the Lord's Resistance Army (LRA), established by prophetess Alice Lekwana in 1987 (driven into Sudanese exile in 1990) sort to establish a government in Kampala based on the Ten Commandments. In what was seen as an attempt to discourage Ugandan backing to the SPLA, the LRA was re-armed by the Sudanese authorities in 1996. Since 1996, several thousands of civilians have been killed or mutilated and some 61 000 children abducted and many served as conscripts in LRA units (Lodge, 1999).

3.2.5 Warfare Arising from State Degeneration or State Collapse.

The Liberian, Sierra Leone and Congolese conflicts each developed in countries in which state institutions had been weakened by decades of corrupt and greedy government and elite factionalism. In the case of DRC, progressive state incapacity was signified by the deterioration of the country's communications system. By 1980, the extent of the all-season road network had shrunk to twenty per cent of its 1960 total. Stalled democratization and inflationary currency reform helped to further reduce the moral and coercive authority of the Kinshasa government during the 1990s, as did a series of army mutinies (Lodge, 1999).

By the middle of this decade, effective administration was in the hands of a number of regional groups that had been largely built around the control of smuggling routes by military chiefs. The decisive factor in the ending of Mobutu's dictatorship was the cross-border conflict between Hutu refugee communities and the RPF. Zairian army complicity in Hutu raids prompted Rwandan support for the rebellion led by Laurent Kabila's Alliance of Democratic Forces for the Liberation of Congo (ADFL) and ensured the effective overthrow of Zairian Army (FAZ) resistance in the path of its victorious march to Kinshasa. President Kabila's dependence upon external allies has been underlined by the resurgence of rebellion after his repudiation of the Rwandans in mid-1998 and the subsequent internationalization of the Zairian conflict. Zimbabwe, Angola and Namibia sent soldiers to defend the Kinshasa government against a second Ugandan/Rwandan sponsored invasion (Lodge, 1999).

The Liberian state, as with Zaire, was one of Africa's leading recipients of United States aid during the 1980s, and by 1990 also exhibited a similar degree of state incompetence. Even so, the resilience of the rebellion by Charles Taylor's National Patriotic Front of Liberia (NPFL) from its inception in 1990 to Taylor's eventual electoral victory in 1997 was substantially attributable to support received from regional allies. Particularly important was the ability of the NPFL to export Liberian iron ore, rubber and timber from the zones under its control from neighbouring Cote d'Ivoire. Taylor's main customer was France, for whom the NPFL's 'Greater Liberia' became the third source of tropical hardwood. However, French sympathy for the rebellion was probably more motivated by geopolitical considerations than by commercial gain.

Taylor's rebellion was directed against the government of former army sergeant Samuel Doe, whose 1980 coup had overthrown Africa's oldest political regime, the True Whigs. The True Whig Party was supported by descendants of resettled American slaves who, by the 1970s, had built an administration entirely around three dominant family clusters. Doe had 'civilianized' his administration after an election in which opposition parties rejected the results as fraudulent. The NPFL rebellion was fired by tensions from this period, but also drew support from an increasingly factionalized military (Lodge, 1999).

The Liberian war was complicated, if not contained, by the presence of an ECOWAS peacekeeping force, ECOMOG, mainly of Nigerian composition, that was originally invited into the country by Doe. In 1997 ECOMOG was inclined towards Taylor's movement which, through its control of Monrovia, had succeeded in winning electoral authority. By this stage, the course of the conflict had generated a death toll of 150 000, as well as a series of regionally based warlords jockeying for national predominance through street-fighting in Monrovia.

Liberia's war was extended to Sierra Leone in 1991, with the creation of the Revolutionary United Front (RUF) by Charles Taylor who hoped to discourage the Freetown government from participation in ECOMOG through his sponsorship of a Sierra Leone rebellion. The RUF rebellion against an elected government backed by ECOMOG continued, while the rebels were supported by Liberia and Burkina Faso. Both these countries seek to contest Nigerian hegemonic predominance in the region. The Sierra Leone war is believed to have displaced over two million people, nearly half the country's population (Lodge, 1999).

The fourth major conflict arising from state collapse has endured in Somalia since 1991, when the overthrow of President Siad Barre was followed by warfare between military factions led by General Mohamed Farah Aidid and interim President Ali Mahdi Mohamed. As in Liberia, the organization of state structures around regionally organized patronage networks based on kinship and clan systems, made it especially susceptible to fragmentation with the removal of external support for central authority. Notwithstanding the presence of a UN authorized peacekeeping force, totaling 35 000 soldiers at one stage, intermittent fighting between various clan based military factions has continued. The human cost has been hideous: by the end of 1992, famine attributed to military operations had killed a quarter of all Somali children under the age of five (Lodge, 1999).

3.2.6 Protracted Conflict within Politicized Militaries.

In Congo-Brazzaville, feuding between army militias loyal to rival political leaderships persisted between 1993 and 1997. In 1997, Angolan army intervention ensured the supremacy of troops loyal to President Denis Sassou-Nguesso. The Angolans view the incumbent administration in Brazzaville as an ally in their efforts to contain UNITA, which historically enjoyed support from the contending military faction loyal to former President Pascal Lissouba.

In Lesotho, traditional affinity between the army and the Lesotho National Party helped to ensure hostility between military commanders and the Basotho National Congress government which was elected in 1993, thus intensifying factionalism within command structures. The resulting tensions generated a succession of violent mutinies, the latest of which elicited a violent response from neighbouring South Africa (Lodge, 1999).

3.2.7 Boarder Disputes.

Disputes over the precise location of colonial frontiers assumed a military dimension in the cases of Nigeria and Cameroon, Eritrea and its neighbours, and Botswana and Namibia. Between 1994 and 1996, Cameroon contested Nigeria's garrisoning of the oil-rich Bakassi peninsula before both sides submitted the issue of the region's legal status to international arbitration. Sporadic fighting between Nigerian and Cameroonian soldiers caused an exodus of 5 000 refugees.

In 1993 Namibia and Botswana became involved in a dispute over ownership of the Sedudu Island in the Chobe River. Botswana claimed that its investiture of the island by the Defence force was in response to Namibian poaching activities. National competition for control over the Okavango/Chobe water reserves is probably the main reason for the tension between the two countries. While the status of the island is now under international review, Botswana has begun an ambitious programme of military expansion (Lodge, 1999).

Finally, in the Horn of Africa, the new state of Eritrea has aggressively contested its boundaries with South Yemen and Djibouti, and most recently, with Ethiopia. In May 1998, large-scale tank and artillery battles between Eritrea and Ethiopia followed the Eritrean military occupation of the Yigra triangle, a barren 400-square kilometre region of desert. Subsequently both countries mounted bombing raids on each other's towns. Part of the background to this dispute was Ethiopia's refusal to accept currency parity after Eritrea's launch of the Nafka, the related cessation of Ethiopian purchases from Eritrea's oil refinery, mutual complaints about smuggling, and discrimination against Ethiopians in the Asmara job market (Lodge, 1999).

In a special session of the assembly of the African Union on the consideration and resolution of conflicts in Africa, in August 2009, the chairman of the commission reported that, Africa is host to 8 United Nations operations, including a political mission administered by UNDPKO. It constitutes over 60% of the agenda of the UN Security Council. In 2007, it was estimated that 38% of high intensity conflicts in the world took place in Africa. This bears testimony of the mammoth task that lies ahead in resolving conflicts. The task of resolving protracted conflicts such as Congo, Darfur and Somalia with serious regional and international consequences remains a considerable challenge. Also equally challenging is the task of sustaining transitions from war to peace.

The chairman of the commission (2009) also stated that, early phases of the transition from conflict to peace always show that peace processes remain fragile and the risk of resumption of violence is high. This is because countries emerging from conflicts are characterized by weakened or non-existent capacity at all levels, destroyed institutions and the absence of a democratic culture, good governance, rule of law and respect for human rights. Furthermore,

peace and security challenges on the continent are not limited to large scale armed conflicts. Apart from armed conflicts there are other types of conflicts, which include political violence, boarder disputes, inter-communal strife, targeted attacks and food riots which all indicate the beginning of conflict disasters.

The causes of this worrying situation (conflict) came out clear from the commissions' chairman (2009). He highlighted the causes of conflict as including ethnic and religious extremism, corruption, exclusionary definitions of citizenship, poverty and disease, the illegal exploitation of Africa's renewable and non-renewable natural resources and mercenarism.

To these should be added a host of other factors ranging from competition for land and other resources, misallocation of resources and shortcomings in governance, as well as subversion by outside actors. The situation is aggravated by the illicit proliferation, circulation and trafficking of small arms and light weapons and the scourge of drug trafficking, which poses an ever increasing threat to peace and security in Africa.

“More generally, it is to be noted that once violence erupts, conflict itself may become the main source of its own continuation and protractedness in a process of attack and retaliation, which lead to self perpetuating cycles of violence” (Commission Chairman, 2009:4).

3.2.8 The proliferation of arms of war.

The proliferation of arms is so high in Africa. Most wars fought during the 1990's took place in countries that are poor, too poor to buy weapons, however millions of small arms and light weapons were simply given away by militaries that were downsizing. In some countries there is such an abundance of assault rifles that they are sold for as little as six dollars or can be traded for a goat, chicken, or a bag of clothes (www.rebirth.co.za/armed_conflict_and_war_in_africa.htm)

Another reason small arms are popular, is that they are rugged and remain operational for years. Rifles such as the AK-47 and the M1 6, which soldiers carried in the Vietnam War, are still being used in wars of today. Some rifles used in Africa date back to World War I. Further, guns are easily transported and concealed. A column of horses can carry enough rifles to outfit a small army (www.rebirth.co.za/armed_conflict_and_war_in_africa.htm).

Cheap weapons have not disrupted life in the industrialized world, excluding where drug dealing and political terrorism flourish. The rich states have failed to recognize the horror, suffering and hardship this evil has brought to the less in Africa

Apart from low cost and wide availability, there are other reasons why small weapons are so popular. They are lethal. A single rapid-fire assault rifle can fire hundreds of rounds a minute. They are also easy to use and maintain. A child can be taught to strip and reassemble a typical assault rifle. They can also quickly learn to aim and fire that rifle into a crowd of people (www.rebirth.co.za/armed_conflict_and_war_in_africa.htm).

The global traffic in guns is complex. Huge supplies of guns pass legally from nation to nation. After the Cold War, armies in both the East and the West were reduced, and governments gave or sold excess equipment to friends and allies. According to a writer at the Peace Research Institute in Oslo, Norway, since 1995 the United States alone has given away more than 300,000 rifles, pistols, machine guns, and grenade launchers. It is reasoned that giving weapons away is cheaper than dismantling or storing and guarding them (www.rebirth.co.za/armed_conflict_and_war_in_africa.htm).

Apart from the legal trade of arms, the illegal trade may be much larger. Black-market weapons usually have to be purchased. In some African wars, paramilitary groups have bought hundreds of millions of dollars' worth of small arms and light weapons, not with money, but with diamonds seized from diamond-mining areas.

Behind every illegal diamond that is seized we must have willing buyers, and where do these unscrupulous buyers come from? The irony in this is that a gemstone traded for assault rifles may later be sold in an elegant jewelry boutique as an expensive symbol of eternal love. Weapons thus have become a virtual currency, bartered for minerals (www.rebirth.co.za/armed_conflict_and_war_in_africa.htm).

When wars end, the guns used in them often fall into the hands of criminals. South Africa experienced a shift from politically motivated violence to criminal violence. Political violence took the lives of many people. When that conflict ended, criminal violence soared. Competition

between taxi drivers resulted in “taxi wars,” where thugs are hired to shoot the passengers and drivers of rival companies. Increasingly’, military type assault rifles are used in robberies and other crimes. The knowledge that criminals are armed and dangerous creates fear and insecurity (www.rebirth.co.za/armed_conflict_and_war_in_africa.htm).

An analysis of the above literature clear shows that most of the authorities seem to agree on their analogy on the causes of conflict in Africa. The causes are now there, loud and clear which means that the root causes have been identified. What needs to be done as one of the objectives of this research is to turn these causes to indicators and use them as early warning to disasters and then develop concrete disaster plans or strategies that should be used in conflict prevention and mitigation. The overall aim being to reduce disaster risk, then once the problem of conflict has been eradicated then can other disaster management activities be implemented.

3.3 Measuring root causes of Conflict.

Bobeica, Jean-Paul, Test and Teofile (undated) describe a method for the measurement of root causes of conflicts, as defined in a checklist drawn up by the European Commission’s External Relations Directorate General (DG RELEX) and used for monitoring and early warning. The approach uses Latent Semantic Analysis (LSA) to measure conflict indicators on a corpus composed of news articles extracted from the Europe Media Monitor (EMM) archive.

DG RELEX has defined a methodology for assessing the risks of conflict within a given country and these assessments are known as Country Conflict Assessments (CCAs). They are a valuable source both for detecting long-term trends (improving or worsening situation) and for maintaining a current watch list of countries assessed as being at high risk of conflict. By taking a purely numerical approach to estimating these indicators in news data, they have produced results that avoid manual interpretation. These results can be used as objective input to foreign policy analysis and conflict assessment tasks and could also provide timely alerts to policy-makers and analysts (Bobeica et al, undated).

The corpus used as a basis for the study was extracted from the EMM archive EMM is a media monitoring system for the European Commission, which runs 24/7 scanning about 600 news

websites in 30 languages and 15 news agencies. EMM detects new articles as they are published in the world's media. All open source article texts are analyzed. The alerts they trigger recorded.

The technique used for the measurement of conflict indicators in texts was Latent Semantic Analysis. LSA is a statistical technique based on the analysis of word distributions across a corpus of documents. Each word and each document is represented as a vector within a normalized vector space. The semantics of a document or a word represents a direction within this vector space. Documents or words pointing approximately in the same direction are semantically related. Artificial topics (corresponding to the listed conflict indicators) were created for each conflict indicator (e.g. economic dependence). Each list contains a few hundred words which were themselves derived using LSA in an iterative process (Bobeica et al, undated).

The assumption is that these words represent a semantic direction forth at conflict indicator within the normalized vector space. Using LSA, close to 300000 EMM articles and the 24 artificial topics have been analyzed, in order to calculate the component vectors for each of them. The similarity value between an article and an artificial topic represented the dot product between the normalized vector of a given article and the normalized vector of the conflict indicator. A similarity threshold has been determined, after analyzing the relevancy of the results. For each indicator, the articles were further divided by country alert. Countries mentioned most with respect to a given cause of conflict score higher (Bobeica et al, undated).

Therefore two normalized indicators were calculated: the importance of an indicator for the given countries and the overall reporting level for that country, on any subject. They used a fully-automatic method to process data and the results can be used for cross-country comparisons. As an example, the results concerning some African countries - the Democratic Republic of Congo, Chad, Sudan, Rwanda, Uganda, Burundi, Benin - show that these countries have high scores for geopolitical instability, economic dependence and weak judicial system. These results correspond to the analysis presented in a variety of national and international risk assessment reports concerning these conflict-prone African countries. This analysis assumes that news

reports reflect the real situation in each country, and that the relative importance depends on the relative numbers of articles as a fraction of the total for each category (Bobeica et al, undated).

3.4 Conflict Prevention.

Conflict prevention is not the prevention of conflict but preventing the institutionalisation, polarisation and escalation of conflicts found in every society into armed violent conflict. It is in essence capacity-building to create an enabling environment for governments and citizens to find solutions to disagreements. There is encouragement and strengthening of indigenous capacities to resolve differences and not imposing solutions to end conflicts. Conflict prevention processes serve as an opportunity for engaging conflict prevention and peace-building with the government, civil society and other internal and external actors in society (Michi Ebata, 2001).

3.5 Conflict Research.

Over the past decade, significant international attention has been devoted to conducting research into the links between environmental factors and conflict. To some extent, there has been a mismatch between “northern” emphases and “southern” perspectives on the environment and security debate. Much of the early work in this field originated in northern universities or think tanks and in addressing developing world issues, focused on those aspects which were likely to affect the north – such as the possibility of large-scale movements of environmental refugees, for example. Much attention was also paid to demographic issues related to high population growth rates. Many in the developing world felt that such issues did not represent their key concerns, and that the “environmental security” concept was “a rich country agenda serving rich-country interests of access and control”. More recently, and partly due to conscious efforts to bridge the gap between northern and southern debates, more consensus is emerging around some of the root causes of conflict and the links between the environment, peace and security; however, more remains to be done (Homer-Dixon, 1994).

In particular, an influential strand of research has built upon analysis of “war economies,” originally developed from within the humanitarian literature, and has focused on “conflict resources”. This research conceptualizes natural resources as valuable commodities, used to fund armed groups and, therefore crucial in perpetuating conflict. Nevertheless, it recognizes that

conflict can be motivated by other factors, including ideological differences, but concludes that often, maintaining access to valuable natural resources can become an end in itself, rather than the means to an end. Members and clients of armed groups at all levels, particularly at leadership levels, stand to benefit economically from the control of resources (Nitzschke, 2003).

According to Cutler (2007), the plethora of research into natural resource conflict provides a useful lens through which to view conflicts across Africa. However the analysis, often based around detailed case studies, has not always succeeded in providing effective recommendations for moving forward, resolving conflict, and enhancing post conflict development. For example, awareness that natural resources have fuelled conflict has often resulted in calls for embargoes on particular goods originating in conflict zones.

Unfortunately, there is sometimes insufficient recognition that trade in these resources is essential to local livelihoods, and embargoes on some resources may further undermine local people's abilities to survive. One commentator said, *"The shadow economy has revitalized old markets and created new ones through demands for local goods and all types of services. The trans-boarder networks that support organized violence in one location have encouraged autonomous and resistant processes of actually existing development in other areas"*.

In addition, there is often a simplistic line drawn between "conflict resources" which are seen as illegitimate and resource extraction in a post-conflict scenario, which is assumed to be legitimate. There is often an emphasis on "illegal" resource exploitation, which is identified as the problem. In fact, resource extraction in some countries was unsustainable and exploitative prior to the conflict; and a return to the status quo will simply result in continued marginalization of the poor. As noted by participants at a conference on transforming war economies: *"These economic relationships tend to persist after the formal resolution of active hostilities. In these settings, a main challenge for peace building efforts is to address the dysfunctional elements of the shadow economy, while retaining its socially beneficial aspects"*.

The issue is not to "legalize" trade. Instead, there is a need for an overhaul of the systems and standards in place. A useful strategy, in areas which continue to be characterized by lack of respect for the rule of law, may be to use a combination of disincentives against the use of

violence and incentives for good business practices. This approach may include punitive measures and controls on financial transactions, as well as creating avenues for integration into legal systems for those who accept reform, reject violence and are willing to become more accountable. This pragmatic approach could make some companies and networks more accountable and less violent, while avoiding marginalizing them completely and hence risking a return to conflict (Cutler, 2007).

In recent years, there has been a realization that there is a need to go beyond the “resource war” concept and focus on the potentially positive aspects of the environment. It has been noted that when parties are involved in bitter violent conflict over values and visions, environmental issues can be less divisive than other issues, and can provide practical means for cooperation and local development. Environmental issues may, therefore, represent a platform for dialogue between warring parties and an opportunity for practical cooperation. At the same time, because of the great importance of natural resources at both the local and national levels, environmental issues are the stuff of “high politics”.

Consequently, more attention has been paid to cooperation over potentially contested resource claims – whether at local, national or sub-regional levels. There has been recognition that, in general, there have been few real efforts to identify the specific pathways through which competition over resources can be transformed into cooperation and synergy. Often, competing claims over resources are seen as “zero-sum” struggles where only one actor may win, and all others must logically lose. This is the idea of “resource capture” in which each actor endeavours to take as big a slice of the environmental “pie” as possible. However, through re-conceptualizing the nature of the resource and acknowledging the multiple uses to which it could be put, as well as the relationships between the various actors, the “zero-sum” outcome can potentially be transformed into a “plus-sum” outcome, with enhanced stakeholder confidence and regional security as a major “value-added”. The diversity of cooperation models which are possible could enhance regional stability and result not in a “negative peace”, characterized by the absence of war but the also the absence of trust, but a “positive peace” which opens new doors for collaborative approaches (Auty, 1993).

Another focus has been on conflicts arising in situations of abundance. Despite the great economic value of environmental resources, revenue derived from its use is not always directed towards the public good. Many countries which are rich in oil and minerals, for example, have not managed to develop equitably. This is often dubbed a “resource curse”. This is closely related to economic booms. Booms may be caused either through price increases or new discoveries of natural resources. Export booms cause major distortions in economies through their effect on structure of production and investment, domestic income, savings, government expenditure and prices in different sectors of the economy. Export booms increasing foreign exchange in the sector concerned (and not others), which may lead to an appreciation in the real exchange rate. In turn, this reduces the relative prices of tradable manufactured products to non-tradable goods and services (Auty, 1993).

One study found that countries with a high dependency on oil and mineral exports tend to have high mortality rates for children under five. Although local communities often do not see the benefits of these economic activities, they frequently bear the brunt of the negative environmental and social impacts of natural resource extraction. These may include land expropriation, pollution and immigration of labour from other parts of the country. Changes to the local economy may be associated with increased social breakdown manifested in increases in prostitution, and drug and alcohol abuse, effectively undermining human well-being and entrenching social exclusion. In Nigeria, annual oil revenues were around US\$40,000 million. Despite this, the per capita income was only about US\$290 per year. In oil-producing areas, both environmental and human well-being are directly impacted upon. Oil spills, among other things reduce fish catches undercutting nutrition and income-earning opportunities. The flaring of gas during the extraction process occurs with a far greater frequency in Nigeria than is generally permitted in other countries, and is a major air pollutant. Such impacts, as well as the uneven distribution of benefits, associated with inter-communal rivalry around territorial claims to oil-producing areas, such as access to employment with oil firms, have contributed to the rise of violence. Countries with high levels of inequity tend to be prone to social conflict. In Nigeria, the richest fifth of the population earned 55.7 percent of income while the poorest fifth earned just 4.4 percent and 70 percent of Nigerians lived on less than US\$1 a day (Douglas, Kemedi, Okonta and Watts, 2003).

These patterns of conflict and inequitable development are not inevitable, and can be avoided through astute economic management. Botswana, for example, adopted socially responsible reinvestment systems, reinvesting most of its mineral revenues in accordance with criteria explicitly aimed at sustainability and the development of physical and human capital, guided by a series of six-year National Development Plans (NDPs) and, more recently the objectives of Vision 2016. As a result, the country accumulated a substantial portfolio of international financial assets, valued at \$6,300 million, or approximately 130 percent of GDP, at the end of 2000. This ability to transform one form of wealth – non-renewable minerals – into other forms of productive wealth is the key to successful economic development of resource-rich economies (Lange, and Wright, 2002).

3.6 Conflict Indicators.

Conflict indicators refer to structural and proximate conditions that cause conflict as well as the institutions, mechanisms, procedures and values that manage cooperation and accommodation, competition and conflict in all societies, which enable the transformation from conflict to violent conflict. They identify patterns of change. The purpose is to identify when and how institutions, rules and mechanisms designed to resolve conflicts in society begin to break down. They give an indication of and changes in attitudes and values towards violence. Conflict indicators should indicate to what extent the ‘rules of the game’ constitute a system of rules that is regular, ordered and sustained. The degree to which such mechanisms are not institutionalised and ordered indicates a precondition for conflict (Michi Ebata 2001).

3.7 The purpose of conflict indicators.

Violent conflict is neither inevitable nor does it appear spontaneously without warning. Armed conflict evolves over time from conflicts found in society. There are conflicts in all societies but this evolution occurs only when there are conditions and processes that facilitate it and no effective action is taken to reverse the process. These structural and permissive conditions and the process by which they escalate towards violence are variables that can be monitored by appropriate indicators. The purpose of compiling conflict indicators is not explicitly to predict the likelihood of a violent conflict or the imminent outbreak of violence. Indicator frameworks seek to identify conflicts found in society at their earliest stage and their potential to escalate towards violence in order to monitor the development of conflict to armed violent conflict.

Conflict-specific indicators measure or monitor conflict, in terms of whether there are conditions for conflict, the likelihood of conflict becoming violent through process variables and whether a conflict crisis exists and the form it takes (Michi Ebata 2001).

At the same time, conflict indicators are useful for the conflict managers. They provide criteria for evaluating conflict, that is feasible and that is easily updated without adding an additional burden. The purpose of a conflict indicator framework is to strengthen the ability of the conflict managers to discern patterns and trends in the development of conflict and to understand the implications in order to be able to act upon that analysis (Michi Ebata 2001).

3.8 The Content of Indicators.

Conflict-specific indicators are based on information and data that are not easily measured and are more qualitative than quantitative. Unlike poverty indicators where progress moves in one direction, conflict indicators cannot be linear because there is no clear end point called peace as there is with income. Understanding the context and conflict environment of a country situation is broad in both scope and depth. While indicators are guides for interventions designed to prevent conflict, they do not presuppose conflict prevention measures (Michi Ebata 2001).

Conflict indicators must identify more than just risk factors. They also need to take into account what holds society together and keeps it from falling apart. It is important to have a separate category of ameliorating factors because it suggests that conflict prevention is a separate category of activities. Every society has the potential to breakdown, every society is faced with problems, pressures and crises; many do not break down but evolve from the experience of keeping the system working. It is important to identify these positive capacities in order to strengthen them. Moreover, there may be areas that are not likely to cause conflict but could integrate peace-building measures (Michi Ebata 2001).

Conflict factors refer to:

Structural and proximate conditions that cause conflict. Structural conditions are deep-rooted and systemic features that structure the relations between people and thus are not fluid and amenable to quick or easy change. Proximate conditions are near-term or specific events found in the process of escalation to violence.

Institutions, mechanisms, procedures and values that manage cooperation and accommodation, competition and conflict in all societies, which enable the transformation from conflict to violent conflict. Institutions, procedures and values that manage conflicts are found in every society but they may or may not function or function well. When these conflict management mechanisms begin to break down or are unable to cope, the process of escalation towards violent conflict begins.

Dynamic variables that refer to processes of transformation from conflict to violent conflict. The dynamic variables need to explain the features of this process from awareness to mobilisation, institutionalisation, polarisation and intensification. In order to reflect the dynamic but long term nature of conflict it is important that such indicators reflect different stages of conflict development from its earliest inception to post-conflict conditions for renewed violence (Michi Ebata 2001).

These structural and dynamic conditions of conflict are rooted in how societies themselves are structured. Societies are structured by three components: the state, its society and their external environment. The state comprises the political, legal and security apparatuses that structure the rules of the game. Society refers to physical, social, and economic conditions. The external environment refers to the international system, the regional context and the specific policies, actions and interventions by outside actors. These structural conditions are not immutable, they emerged over time meaning they have historical legacies. It is important to understand not only each component, but how all three dimensions interact, overlap and converge in a country's development which identify points of pressure, and thus entry points and obstacles for conflict prevention. This enables an understanding of conflict that is rooted in society and not isolated as a separate phenomenon (Michi Ebata 2001).

3.9 Categories of conflict indicators.

According to website www.conflictsensitivity.org/resource , In order to understand a given conflict context it is fundamental to identify potential and existing conflict causes. Conflict

causes can be defined as those factors which contribute to people's grievances, and they are categorized as Structural (root) causes, Proximate (Dynamic or Accelerator) causes and Triggers.

(a) Structural/Root Causes of Conflict

Structural causes are pervasive factors that have become built into the policies, structures and fabric of a society and may create the pre-conditions for violent conflict. The structural causes of conflict may be for example illegitimate government, lack of political participation, lack of equal economic and social opportunities, inequitable access to natural resources, and poor governance (www.conflictsensitivity.org/resource).

Some authorities also state that Structural factors, such as ethnic or religious diversity, colonial history, natural resources or land distribution, are mostly static and change slowly over time. These factors alone do not cause violent conflict, but can be manipulated, by powerful political figures for example, in such a way as to exacerbate growing tensions (<http://beforeproject.org/publications>)

(b) Proximate Causes of Conflict

Proximate causes are factors contributing to a climate conducive to violent conflict or its further escalation, sometimes apparently symptomatic of a deeper problem. Violent conflicts can also be through interplay of structural factors. They are not static, and can change over time (<http://beforeproject.org/publications>). The following issues can be considered as proximate causes of conflict: uncontrolled security sector, light weapons proliferation, human rights abuses, destabilizing role of neighbouring countries, government type and increase in poverty level (www.conflictsensitivity.org/resource).

(c) Conflict Triggers

Conflict triggers are concrete single events that unleash violence or their anticipation that will set off or escalate violent conflict. Depending on the context, any event can be a trigger like the sudden death of a president, the incarceration of important figures of the opposition, or the announcement of a rise in prices of foods or gasoline. The following triggers can also contribute to the outbreak or further escalation of conflict, elections, drought, sudden collapse of local

currency, military coup, rapid change in unemployment, flood, increased price/scarcity of basic commodities, capital flight (www.conflictsensitivity.org/resource)

Protracted conflicts also tend to generate new causes (e.g. weapons circulation, war economy, culture of violence), which help to prolong them further. The following new factors contribute to prolonging conflict dynamics, e.g. radicalization of conflict parties, establishment of paramilitaries, development of a war economy, increased human rights violations, weapons availability and development of a culture of fear (www.conflictsensitivity.org/resource).

As the main causes and factors contributing to conflict are identified, it is important to acknowledge that conflicts are multi-dimensional and multi-causal phenomena and that there is no single cause of conflict. It is also essential to establish linkages and synergies between causes and factors, in order to identify potential priority areas for intervention (www.conflictsensitivity.org/resource).

3.10 Conflict analysis.

Conflict analysis provides a snap-shot of a highly fluid situation. It is therefore important to combine an in-depth analysis with more dynamic and continuous forms of monitoring to provide up-to-date information from which to measure the interaction between the context and the intervention. Indicators are useful in this respect, as they help reduce a complex reality to a few concrete dimensions and represent valuable pointers to monitor change. The conflict analysis will have looked at the relationship between specific actors, causes and profile, in order to gain an understanding of the conflict dynamics. Indicators can then be developed in order to reflect these relationships and how they evolve over time. It is important to have a mix of perception-based and objective indicators, each of which should reflect qualitative and quantitative elements. Good indicators reflect a variety of perspectives on the context. It is good practice to involve communities and other actors in identifying the indicators; not only should this produce better indicators but it is also an important opportunity to build a common understanding of the context, to ascertain joint priorities and to agree on benchmarks of progress (www.conflictsensitivity.org/resource).

Since each conflict is unique, there is no standard list of indicators applicable to all contexts. The following table provides some examples of sample perception-based and objective indicators for the four key elements.

Table 1: Sample of conflict analysis indicators

Key element	Example	Sample Indicators
		(a)objective and (b) perception-based
Profile	Geographic mobilization around natural resources	(a) What is the price of timber? How has it evolved over time? (b) (In the view of the respondent) How has conflict intensity changed around this particular area?
Causes	Human rights abuses	(a) Has the number of political prisoners risen or fallen? (b) To what extent can you/others openly criticize the government?
Actors	Diaspora	(a) Have overseas remittances increased or decreased? (b) To what extent does the Diaspora support or undermine the peace process?
Dynamics	Increased commitment to resolve conflicts	(a) Has the frequency of negotiations increased or decreased among conflict parties? (b) Do you believe that party X is committed to the peace process?

Note: the examples in Table 1 relate to each specific key element only (e.g. sample indicators for profile have no relation to the example or sample indicators for causes).

Adapted from (www.conflictsensitivity.org/resource).

3.11 Stages of conflict.

Jongman 1994 cited by Verstegen (1999) identified the following as stages of a conflict, characteristics and signals.

1. Stable social system.

This is characterised by a high degree of political stability and regime legitimacy. The signals are comprised of:

- (a) Functioning democracy, with minority rights protection.
- (b) Regular peaceful transitions of power between government and opposition (no coups d'état).
- (c) Independent judiciary.
- (d) Free press.
- (e) Social revolutionary and ethno-secessionist groups without mass support.
- (f) No abrupt deterioration of political condition due to (Para-) military.
- (g) No abrupt deterioration in economic condition.

2. Political tension situation.

This is characterised by growing levels of systematic frustration and increasing social and political cleavages along sectarian identities. The indicators are comprised of:

- (a) New political parties try to mobilise people around polarizing political or sectarian issues.
- (b) Elections heatedly contested.
- (c) Court rules seen as politically charged.
- (d) Freedom of the press under stress as a result of growing polarization of opinion within the society.
- (e) Non violent protests and violence against property and national symbols by radicals.
- (f) Political protests by students, labour unions, sectarian groups.
- (g) Rising unemployment, and little economic growth

3. **Serious dispute stage.**

This is characterised by erosion of political legitimacy of the national government and rising acceptance of sectarian politics. The indicators are comprised of:

- (a) Increasing use of inflammatory rhetoric by political elites and sectarian leaders.
- (b) Election time violence and charges of fraud.
- (c) Increasing use of courts for political purpose by government.
- (d) Freedom of the press threatened by threats from militant groups and by government pressure.
- (e) Sporadic violence against individual political figures or members of ideological or ethnic groups.
- (f) Terrorist and vigilante and (Para-) military groups appear on the scene.
- (g) Economy under stress: high unemployment and high inflation.

4. **Lower intensity conflict.**

At this stage there is open hostility and armed conflict among factional groups, regime repression and insurgency. The signs for this are:

- (a) Increase of power among non democratic forces.
- (b) Civilian rule threatened by military role in politics.
- (c) Rule of law seriously impaired.
- (d) Freedom of the press seriously as a result of sanctions by militant groups and emergency measures of (military) regime.
- (e) Intermittent armed conflict between government and opposition forces or sectors of the population.
- (f) State of emergency, security forces violate human rights systematically.
- (g) Capital flight, disinvestment.

5. **High intensity conflict.**

This is characterised by open warfare among rival groups. This is signalled by:

- (a) Breakdown of civil society, disintegration of central government.
- (b) Multiple claims of political sovereignty.

- (c) Rule of law abolished, political justice.
- (d) Media as propaganda instruments of regime.
- (e) Open warfare among rival groups with military taking sides or splitting apart along group lines.
- (f) Military or emergency rule.
- (g) Black market economy dominant, falling production.
- (h) Deteriorating health situation, decreasing life expectancy.
- (i) Growing dependence on food imports.

3.12 African Union Commission 2008, Generic Indicators.

The African Union thought of operationalising early warning system by identifying conflict indicators that are common in Africa. The indicators fall under some objectives of the Union towards conflict resolution. The framework of generic conflict indicators and objectives as proposed by the African union in 2008 is as follows:

Objective 1:

Prevention and reduction of intra and interstate conflicts

Generic early warning Indicators

Horizontal (intra-state) or vertical (inter-state) escalation of violent conflict.

Increase in human rights violations in a polity.

Secessionist agendas.

Proliferation of small arms and light weapons.

Armed insurrections.

Territorial disputes.

Boarder conflict.

Cross boarder movements of small arms and light weapons.

Border skirmishes.

Occasional cross boarder raids.

Preparation of an insurgency from a neighbouring country.

Expulsions of identity groups.

Objective 2.

Constitutional democracy, Including periodic political competition and opportunity for choice, the rule of law, citizen rights and supremacy of the Constitution.

Generic early warning Indicators

Gross human rights violations by state or non-state actors.

Coup d'états suspension of a constitution.

Limitation of constitutional rights.

Cancellation or rigging of elections.

Public or private hate talk in or by the media.

Objective 3.

Promotion and protection of economic, social and cultural rights, civil and political rights as enshrined in African and international human rights instruments.

Generic early warning Indicators

Restrictions of individual or collective economic, social and cultural rights by the state or non-state actors.

Policies of economic, social and cultural exclusion.

Gross human rights violations.

Major changes of the ecological balance.

Environmental stress (e.g. through natural disaster or climate change).

Objective 4.

Uphold the separation of powers, including the protection of the independence of the judiciary and of an effective legislature.

Generic early warning Indicators

Violations of the separation of powers.

Passing over the judiciary.

Intruding into parliament's rights.

Objective 5.

Ensure accountable, efficient and effective public office holders and civil servants.

Generic early warning Indicators

Active steps to prevent accountability.

Widespread corruption in the public service.

Objective 6.

Fighting corruption in the political sphere.

Generic early warning Indicator s

Wide spread corruption among the political class.

Misappropriation of funds.

Objective 7.

Promotion and protection of the rights of women.

Generic early warning Indicators

Violations of women's rights.

Objective 8.

Promotion and protection of the rights of children and young persons.

Generic early warning Indicators

Violations of children's and young person's rights.

Objective 9.

Promotion and protection of the rights of vulnerable groups including internally displaced persons and refugees.

Generic early warning Indicator

Violations of the rights of IDPs and refugees forced displacement (IDPs and refugees). (African Union Commission, 2008)

3.13 The SIPRI Project 2002.

In 2002 an organization called SIPRI conducted a Pilot project for early warning. Their working paper presented the preliminary findings from the pilot-project 'Early Warning Indicators for Preventive Policy' at the Stockholm International Peace Research Institute which was launched in late 2002. The pilot phase of the project will run for twelve months. The project combined a monthly survey that retrieved events data from experts with country framework data and Internet technology. They processed both survey and statistical data using a well-designed statistical conflict forecasting model that allows for the creation of indexes that reflect negative national and regional developments in the social, political and economic sectors. They intended to make results available on the Internet in the form of country-specific and regional reports, with the possibility for users to customize the system for their own needs (Stockholm International Peace Research Institute (SIPRI), March 2003)

3.13.1 Early Warning Indicators for Preventive Policy.

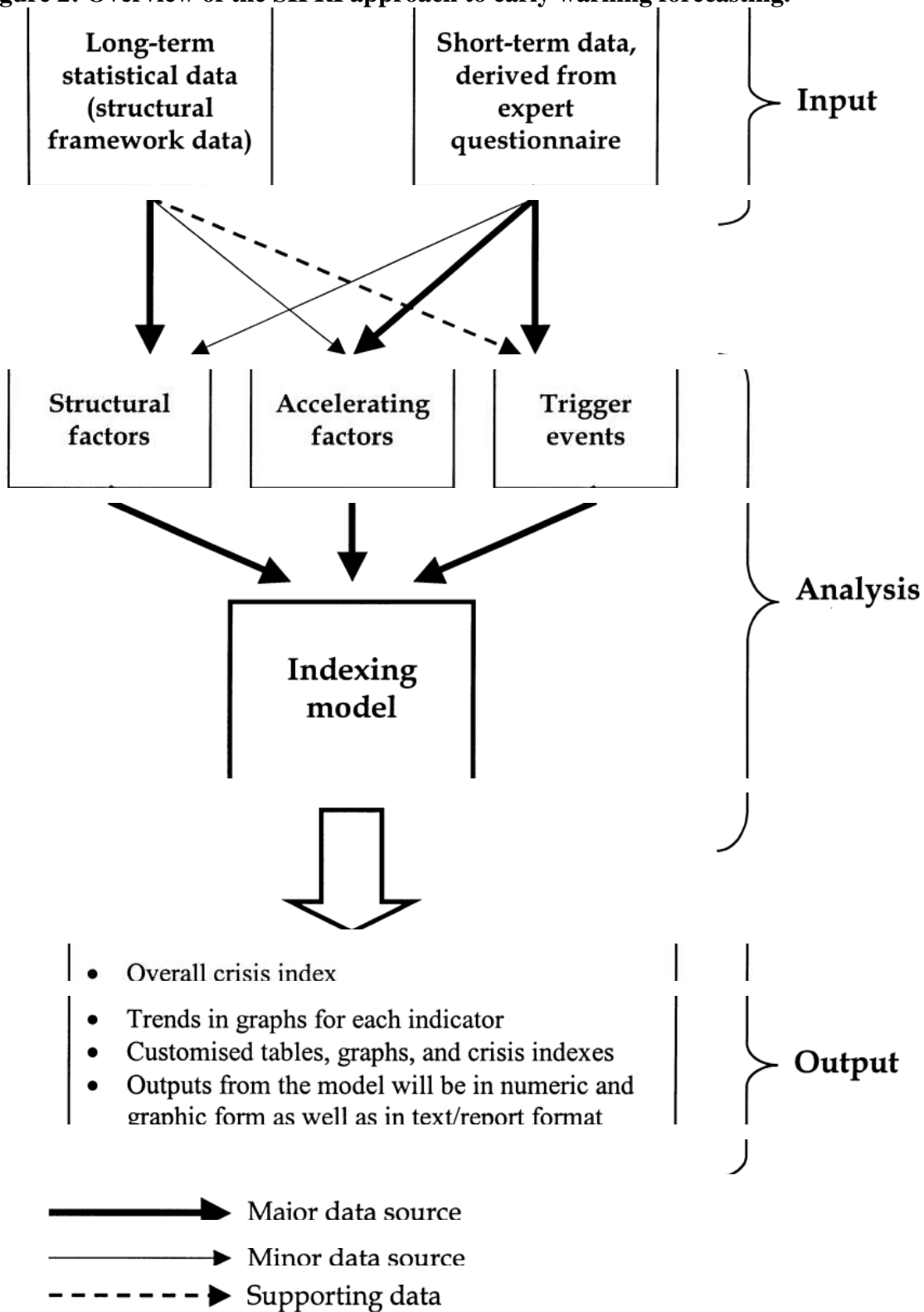
.The research team comprising of Gerd Hagemeyer-Gaverus is a Project Leader and Head of the Information Technology department at SIPRI and Mikael Weissmann is a Research Assistant at SIPRI were guided by a hypothesis that, there was no generalized global monitoring mechanism to allow for the early identification of negative developments within countries or regions. Some commercial systems existed, but these had a limited geographical coverage. The systems offered little transparency about their applied methodologies, and their rate of success in predicting conflict varied. They also observed that Media reporting usually focused on crisis situations, times when developments had already gone off course. This was an ineffective way to keep track of negative developments. New information sources and methods needed to be applied to fill the gap and provide a basis for policy making which allowed an early counteracting of negative developments (Stockholm International Peace Research Institute (SIPRI), March 2003)

Traditionally, three methods or models were generally used to monitor and forecast developments in countries and in crisis regions: First, there is the database model based on statistical indicators, often time series data, provided on an annual basis by international organisations such as the World Bank and the United Nations. Secondly, there are models that use expert knowledge to forecast trends. The expert model bases its information on questionnaires and interviews, thus creating a separate set of indicators. Expert models usually obtain information from a wide range of informants. Information sources include research institutes, embassies, non-governmental organizations (NGOs), 'fact-finding missions' and local networks. Thirdly, there are a number of news-wire monitoring/analysis systems that assess the risk of conflict through systematic machine coded coverage of news services such as Reuters (Stockholm International Peace Research Institute (SIPRI), March 2003).

3.13.2 The SIPRI forecasting model.

SIPRI's new approach (figure 2 below) combines the database and the expert model, thus increasing the accuracy of forecasts by including both short- and long-term data in the analysis. The statistical long-term data are to a great extent drawn from the SIPRI Internet portal 'Facts on International Relations and Security Trends (FIRST)', which provides immediate access to high-quality statistical data from a wide range of sources. For an extended forecasting model, however, short-term development data are essential. Such data cannot be obtained from country statistics, but only through observation of daily political, economic, and other events. This information was collected through a regular internet-based questionnaire. Each month the questionnaire was answered by selected local experts.³ Its design is crucial, and in-depth research has been undertaken in order to select those short-term indicators that are best suited to measure changes in areas such as political and economic performance, ethnic issues, and human rights. The questionnaire was kept short and consisted of about 30 questions. All but one question is quantitative, using a scale from 1 to 9. The one qualitative question was of a general nature and reflected the respondent's overall judgement of the local situation (Stockholm International Peace Research Institute (SIPRI), March 2003).

Figure 2: Overview of the SIPRI approach to early warning forecasting.



Adopted from: Source: Stockholm International Peace Research Institute (SIPRI), March 2003.

The project compiled a preliminary list of over 1200 potential early warning indicators comprising of nine main indicator categories and 35 sub-categories. This database was the main tool in the operationalisation process of both the indexing model and the questionnaire, a process which was carried over in close cooperation with local experts in order to secure local input at all levels of the model and questionnaire development. The categories and sub-categories of the framework were used for all three types of conflict indicators presented below. The collected data will be used in the forecasting model as follows (Illustrated in figure 1): Most structural indicators are derived from the framework data, with limited support from the questionnaire. The questionnaire is the main source of information for accelerators; framework data are sparsely used in this area. Data on trigger events are obtained solely from the questionnaire, although framework data is important for assessing the impact of these events (Stockholm International Peace Research Institute (SIPRI), March 2003).

3.13.3 Preliminary indicator categories.

1. Main category.

Justice and human rights

Sub-category.

Justice and the rule of law

Human rights

Civil society and media

Intervening variables

2. Main category.

Socio-cultural factors

Sub-category.

Ethnic tension and division

Political exploitation of ethnic, cultural and identity differences

Structural and historical factors

3. Main category.

Internal security setting

Sub-category.

Demographic/population pressure

Non-economic social development and regional inequalities

Criminalization

Violence, cohesion, and internally displaced people/refugees

History of armed conflict and structural instability

Lack of tools and institutions of conflict prevention, management, and resolution.

Regime type and media

4. Main category.

Geopolitical setting

Sub-category.

Regional and international setting

International linkage

External (territorial) disputes

External support and intervention

(Stockholm International Peace Research Institute (SIPRI), March 2003).

5. Main category.

Military and security

Sub-category.

Arms, small arms

Military expenditure

Military forces and control

Non-state controlled armed forces

6. Main category.

Environment and resource management

Sub-category.

Environmental disaster and general scarcity of natural resources

Resource management
Problematic resources (oil, diamonds, and gold)
Competition over (scarce) resources (water)

7. Main category

Governance and political stability

Sub-category.

State/regime legitimacy
Governance
Political stability, opposition- and elite groups
Regime type
Corruption

8. Main category.

Socio-economic factors

Sub-category.

Social development and equality
Economic performance and wealth
Economic stability and performance

9. Main category.

Regional and country specific variables

(Stockholm International Peace Research Institute (SIPRI), March 2003).

3.13.4 Data analysis model.

Successful processing of information rest on three pillars. The first is relevance, which the SIPRI model helps to ensure through a well-designed questionnaire and carefully selected indicators. The second is timing. Using Internet technology in combination with an electronic questionnaire and immediately storing the retrieved information in a database made it possible to process large amounts of information almost instantly. The third pillar was the use of appropriate analytical tools. The project's approach to this component was to use a sophisticated conflict index model.

This model included three different types of conflict factors: Structural factors (pre-conditions for conflict), accelerating factors (factors that increase the significance of the structural factors, and other changes that increase the likelihood of conflict), and trigger events (immediate events that have the potential to move a high risk situation into active conflict or crisis). Structural factors work as the foundation on which accelerating factors are strongly dependent. Trigger events are in turn dependent on accelerating factors. They are dependent on structural factors only to a limited extent (Stockholm International Peace Research Institute (SIPRI), March 2003).

For each of these factors, a division was made between general and specific indicators. General indicators are conflict indicators that have a general applicability in all regions and all sorts of setting, such as ethnic oppression, violation of fundamental rights, and major income disparities. Specific indicators are those that have a relatively higher importance in a specific regional or country setting, for example colonial heritage and customs based on local culture and religious beliefs which have a different impact on the risk of conflict in different settings. When calculating the level of structural risk, the model accounted for intervening variables that have a preventive effect. With regard to accelerating factors, a number of de-accelerating factors were identified and accounted for. When assessing the impact of trigger events the structural preconditions both in regard to structural and accelerating factors were taken into account. Depending on the setting, particular trigger events can have varied impact. The results can range from a disturbance to a violent conflict. To arrive at the total regional/country indexes the sum of all weighted composite indicators, one for each sub-category (table 1), was calculated (Stockholm International Peace Research Institute (SIPRI), March 2003).

In a simplified way the model can be explained by the following relationship:

$$\text{INDEX total} = (\sum SFa * wa) - (\sum IVb * wb) + (\sum ACc * wc) - (\sum DAd * wd) + (\sum TRe * we)$$

a to *e* = represents the number of composite indicators.

w = weighting of the specific composite indicator

SF = Structural Factor

IV = Intervening variable

AC = Accelerating factor

DA = De-accelerator (Stockholm International Peace Research Institute (SIPRI), March 2003).

3.13.5 Result presentation.

All output was to be published on the Internet and considerable effort was to be put into making the output user-friendly. The goal being to provide as much customization of the results as possible. It should be emphasized that all input data will instantly be included not only in the indexing database but also in the output. Trends for each indicator and indicator category will be shown in graphs, and it will be simple to compare different indicators and/or countries or regions. An overall 'conflict index' will be available for both regions and countries. It will be possible for the user to redesign the weighting and selection of indicators according to his or her own needs and instantly obtain customized output. It will be possible to obtain the output in numeric and in graphic form as well as in text/report format. The latter will be created automatically in accordance with a set of templates, so no human input will be needed. All answers to the qualitative question in the questionnaires will also be made available. In-depth reports based on the findings of the system will be published on the Internet (Stockholm International Peace Research Institute (SIPRI), March 2003).

3.14 Early warning systems.

The first important step towards disaster mitigation is to correctly analyze the potential risk and identify measures that can prevent and reduce their impact. ICT can play a significant role in highlighting risk areas, vulnerabilities and potentially affected populations by producing geographically referenced analysis through, for example, a geographic information system (GIS). The importance of timely disaster warning in mitigating negative impacts can never be underestimated. For example, although damage to property cannot be avoided, developed countries have been able to reduce loss of life due to disasters much more effectively than their counterparts in the developing world. A key reason for this is the implementation of effective disaster warning systems and evacuation procedures used by the developed countries, and the absence of such measures in the developing world.

A warning can be defined as the communication of information about a hazard or threat to a population at risk, in order for them to take appropriate actions to mitigate any potentially negative impacts on themselves, those in their care and their property (Samarajiva et al., 2005).

The occurrence of a hazard does not necessarily result in a disaster. While hazards cannot be avoided, their negative impacts can be mitigated. The goal of early public warning is to ensure that the hazard does not become a disaster. Such warnings must be unambiguous, communicate the risks clearly and provide the necessary guidance.

The success of a warning can be measured by the actions people take, such as evacuation or avoiding at-risk areas. In a disaster situation, timely warnings allow people to take actions that save lives, reduce damage to property and minimize human suffering. To facilitate an effective warning system, there is need for better coordination among the early warning providers, those handling logistics and raising awareness about disaster preparedness and management.

While disaster warnings are meant to be a public good, they are most effectively delivered through both private and public owned communication networks and devices. There are many new communication technologies that allow warning providers not only to reach the people at risk but also to personalize their warning message to a particular situation. Opportunities are now available to improve disaster warning systems so as to reduce loss of life and potential economic hardship. It is important to note that a disaster warning is indeed a system, not a singular technology, constituting the identification, detection and risk assessment of the hazard, the accurate identification of the vulnerability of a population at risk, and finally, the communication of information about the threat to the vulnerable population in sufficient time and clarity so that they can take action to avert negative consequences. This final component underscores the importance of education and creating awareness in the population so that they may respond with the appropriate actions (Samarajiva et al., 2005).

According to a website (<http://beforeproject.org/publications>) early warning is the first step in successful conflict prevention. The goal of early warning is not to predict whether or not violent conflict will occur, but to facilitate prevention by calling attention to potential dangers.

One of the core objectives of the African Union is the promotion of peace, security, and stability on the Continent, as spelt out in article 3 (f) of the AU Constitutive Act. To strengthen the African Union's capacity in the prevention, management and resolution of conflicts, Member States adopted, in July 2002, in Durban, South Africa, the Protocol Relating to the Establishment of the Peace and Security Council (PSC), which entered into force in December 2003. The Protocol, in article 2 (1), defines the PSC as "a collective security and early-warning arrangement to facilitate timely and efficient response to conflict and crisis situations in Africa" (African Union Commission, 2008)

Article 12 of the PSC Protocol provides for the establishment of a Continental Early Warning System (CEWS), in order to facilitate the anticipation and prevention of conflicts in Africa. As stipulated in article 12 (2) of the Protocol, the CEWS shall consist of:

(i) an observation and monitoring centre, to be known as "the Situation Room", which is located at the Conflict Management Division of the African Union and is responsible for data collection and analysis; and(ii) the observation and monitoring units of the Regional Mechanisms for Conflict Prevention, Management and Resolution (hereunder the regional Mechanisms),which shall be linked directly through appropriate means of communication to the Situation Room and which shall collect and process data at their level and transmit the same to the Situation Room (African Union Commission, 2008)

In addition, article 12 (3) of the Protocol requires the Commission to also collaborate with the United Nations and its agencies, other relevant international organizations, research centres, academic institutions and Non-Governmental Organizations (NGOs), to facilitate the effective functioning of the CEWS, while article 12 (4) calls for the development of an early warning module based on clearly defined and accepted political, economic, social, military and humanitarian indicators, which shall be used to analyze developments within the continent and to recommend the best course of action.

Finally, article 12 (7)stipulates that the Chairperson of the Commission, in consultation with Member States, the Regional Mechanisms, the United Nations and other relevant institutions, shall work towards the Operationalization of the AU CEWS. Proposal for an Indicators Module

outline the practical details for the establishment of the CEWS and take all the steps required for its effective functioning (African Union Commission, 2008)

On the basis of the above, in particular article 12 (4) of the PSC Protocol, AU provided elements and a methodological framework that could form the basis of the common indicators module referred to in the PSC Protocol, taking into account the Organization of African Unity / African Union's initiatives that are relevant in indicator development. The objective was to enable Member States to agree on the key steps that should be taken to ensure strategic analysis of the data collected, through an appropriate CEWS indicators module (African Union Commission, 2008)

3.14.1 How Early Warning Works.

According to Before, an organization that helps prevent the devastation of violent conflict in fragile states, they are guided in preventing violent conflict by asking the following questions: Who do we warn, when, of what and how? The answers to these questions lead them to conflict indicators. Conflict indicators help people understand what causes conflict and whether or not conflict is likely to break out into armed violence (<http://beforeproject.org/publications>)

3.14.2 Key Early Warning Factors.

The Organization identified seven key factors that provide reliable early warnings of violent conflict. They are as follows:

1. Socio-Economic Conditions
2. State and Institution Strength/Weakness
3. Regional/International Consequences
4. National Security
5. Public discourse, ideological factors and elite behaviour
6. Human Rights and Civil Liberties
7. Political Actors

(<http://beforeproject.org/publications>)

3.15 Channels Used for Disaster Warning.

The following are some of the media, both traditional and new, that can be effectively used for disaster warning purposes. Some may be more effective than the rest, depending on the nature of the disaster, the regions affected, the socio-economic status of the affected communities and their political architecture. However, it is not a question of one medium against another. All are means to a common goal of passing along disaster warnings as quickly and as accurately as possible. Any one or combination of the following media can be used for that purpose.

3.15.1 Radio and Television.

Considered the most traditional electronic media used for disaster warning, radio and television have a valid use. The effectiveness of these two media is high because even in developing countries and rural environments where the density is relatively low, they can be used to spread a warning quickly to a broad population. The only possible drawback of these two media is that their effectiveness is significantly reduced at night, when they are normally switched off.

A study on media, perception and disaster-related behavior in Bangladesh revealed that early, easily understandable and language-appropriate warning dissemination through the radio can reduce the potential death toll of catastrophic cyclone and tidal bore. The study, conducted by the Forum for Development, Journalism and Communication Studies, recommended that relevant authorities develop innovative warning signal systems and take necessary steps to disseminate the warning in easily understood language through radio at least two days before a cyclone hits, hence mitigating the loss of lives and property every year in Bangladesh. In 2003 Mohammad Sahid Ullah, the Chittagong University professor who led the study, suggests that part of the process is increasing public confidence in broadcast media since self-evacuation and the poor quality of shelters are the major causes of death (Dunnette, 2006).

After the Indian Ocean tsunami of 2004, many radio manufacturers considered introducing new digital radio alert systems that react even if the set is switched off. In order to trigger this alarm, a special flag integrated into the received signal from a terrestrial transmitter or a satellite would be used and the set would automatically tune to the emergency broadcast channel. The only disadvantage of this system is that to introduce a new generation of receivers in analogue

environment generally takes 5 to 10 years. With digital receivers, this would be somewhat easier (Dunnette, 2006).

3.15.2 Telephone (Fixed and Mobile).

Telephones can play an important role in warning communities about the impending danger of a disaster. There were many examples of how simple phone warnings saved many lives in South Asian countries during the 2004 tsunami. Perhaps the most famous was an incident that occurred in one small coastal village of Nallavadu in Pondicherry, India. A timely telephone call, warning about the impending tsunami, was said to have saved the village's entire population of 3,600 inhabitants, as well as those of three neighbouring villages. Villagers of Nallavadu were involved in the M.S. Swaminathan Research Foundation's Information Village Research Project. Vijayakumar, a former project volunteer, was working in Singapore and heard a tsunami alert issued there. He immediately phoned the research centre in Nallavadu, which issued an alert. His quick thinking, followed by swift and coordinated action, led to the evacuation of the four villages before the tsunami hit the coast (Subramanian, 2005).

In some countries, mechanisms called 'telephone trees' are used to warn communities of impending dangers. An individual represents a 'node' in a telephone tree. When that individual receives a warning message (either through phone or by other means), s/he is supposed to make a pre-determined number of phone calls (usually four or five) to others in a pre-prepared list. This arrangement not only ensures the timely delivery of the warning message, but also ensures the minimum duplication of efforts. However, there are two drawbacks to using telephones for disaster warning. Telephone penetration in many areas is still not satisfactory – particularly in rural and coastal areas most at risk. Even with the exponential increase in the number of phones that has occurred in recent years, there are still many regions, where a telephone is considered a luxury. The other drawback is the congestion and the breakdown of phone lines that usually occurs immediately before and during a disaster, resulting in many phone calls in that vital period that cannot be done or completed (Subramanian, 2005).

3.15.3 Short Message Service.

Short message service (SMS) is a service available on most digital mobile phones that permits the sending of short messages (also known as ‘text messages’, ‘SMSes’, ‘texts’ or ‘txts’) between mobile phones, other handheld devices and even landline telephones. During the 2005 Hurricane Katrina disaster in the US, many residents of affected coastal areas were unable to make contact with relatives and friends using traditional landline phones. However, they could communicate with each other via SMS more easily when the network was functional. This is because SMS works on a different band and can be sent or received even when phone lines are congested. SMS also has another advantage over voice calls in that one message can be sent to a group simultaneously (Subramanian, 2005).

3.15.4 Cell Broadcasting.

Most of today's wireless systems support a feature called cell broadcasting. A public warning message in text can be sent to the screens of all mobile devices with such capability in any group of cells of any size, ranging from one single cell (about 8 kilometres across) to the whole country if necessary. CDMA, D-AMPS, GSM and UMTS phones have this capability (Clothier, 2005).

. There are four important points to recall about the use of cell broadcasting for emergency purposes:

- There is no additional cost to implement cell broadcasting. It is already resident in most network infrastructure and in the phones, so there is no need to build any towers, lay any cable, write any software or replace handsets.
- It is not affected by traffic load, therefore it will be of use during a disaster, when load spikes tend to crash networks. Also, cell broadcasting does not cause any significant load of its own, so it would not add to congestion.
- Cell broadcasting is geo-scalable, so a message can reach hundreds of millions of people across continents within a minute.
- It is geo-specific, so that government disaster managers can avoid panic and road jamming by telling each neighbourhood specifically if they should evacuate or stay put.

The only possible disadvantage to cell broadcasting is that not every user may be able to read a text message when they receive it. In many Asia-Pacific countries, a sizeable population of the phone users cannot read and understand a message sent in English. Thus, it is essential to send warning messages in local languages. However, these messages would still be inaccessible to those who cannot read, even in their own language. The Dutch Government plans to start using cell broadcasting for emergency warnings. The infrastructure is already in operation with the operators KPN, Telfort and Vodafone. It is believed to be the first multi-operator warning system in the world, based on cell broadcasting with government use (Clothier, 2005).

3.15.5 Satellite Radio.

A satellite radio or subscription radio is a digital radio that receives signals broadcast by communications satellite, which covers a much wider geographical range than terrestrial radio signals. Satellite radio functions where there is line of sight between the antenna and the satellite, given there are no major obstructions such as tunnels or buildings. Satellite radio audiences can follow a single channel regardless of location within a given range. Satellite radio can play a key role during both disaster warning and disaster recovery phases. Its key advantage is the ability to work even outside of areas not covered by normal radio channels. Satellite radios can also be of help when the transmission towers of the normal radio station are damaged in a disaster (Clothier, 2005).

3.15.6 Internet/Email.

The role Internet, email and instant messages can play in disaster warning entirely depends on their penetration within a community and usage by professionals such as first responders, coordinating bodies, etc. While these media can play a prominent role in a developed country, where nearly half of all homes and almost all offices have Internet connections, this is not the case in the developing world. In many developing countries, less than 5 percent of the population used the Internet and even those who are users did not use it on a regular basis. In such a situation, it is difficult to expect Internet and email to play any critical role. In spite of that drawback, many disaster-related activities are already underway within the Internet community. For example, a new proposal for using the Internet to quickly warn large numbers of people of

impending emergencies was being drafted by the Internet Engineering Task Force (Putnam, 2002).

At a 1997 international conference on ‘Harnessing the Internet for Disasters and Epidemics’, participants raised issues affecting their ability to use the Internet for improving crisis management. Concerns included the high cost of technology, a lack of content in local languages, and governmental controls on information exchange. “The most significant obstacle impeding widespread Internet usage was the widening gap between those with unlimited access and those, whose access to information and a new technology was restricted by economic, linguistic, cultural or administrative constraints”. Without direct communication between decision makers and without a free flow of reliable information among all involved, effective contingency planning and emergency response are at risk (Putnam, 2002)

3.15.7 Amateur and Community Radio.

For almost a century, amateur radio (also known as ‘ham radio’) operators have assisted their communities and countries during disasters by providing reliable communications to disaster relief organizations at a moment’s notice, especially when traditional communications infrastructure breaks down. In such a situation, amateur radio operators transmit emergency messages on voice mode about the well-being of survivors and information on casualties to friends and relatives. As was evident during the Indian Ocean tsunami that destroyed electricity and communications infrastructure in the Andaman and Nicobar Islands, amateur radio operators were the critical link between the islands and the Indian mainland and helped in the coordination of rescue and relief operations (Acharya, 2005).

Besides disseminating voice-based messages, some amateur radio operators can also transmit in digital modes that include technologies such as radio teletype, tele-printing over radio, packet radio transmission and Phase Shift Keying, 31 Baud, a type of modulation. Amateur radio broadcasters are authorized to communicate on high frequency (HF), very high frequency (VHF), ultra high frequency (UHF) or all three bands of the radio spectrum. They require a license from the licensing authority to ensure that only competent operators use their skills. However, depending on the country, obtaining a license can be a long process.

Messages can be disseminated using one or more of the available bands. HF waves travel long distances, while VHF and UHF waves travel very short distances as these are line-of-sight propagation. However, repeaters increase the communications range and temporary repeaters can be set up in an emergency so that messages can reach the nearest town or city (Acharya, 2005).

There are no well-known case studies where community radio has been successfully used for disaster warning purposes. The main reason can be because this is not a widespread media channel in many countries. Even where there are community radio systems, they operate within limited areas. Nevertheless, community radio is a medium that can be very effectively used for disaster warning purposes. The effectiveness of this medium is being tested through a disaster warning system implemented by Sarvodaya, the most widespread NGO in Sri Lanka (Daily News, 2006).

3.16 Conclusion.

This Chapter looked at the methodologies involved in identifying, classifying, measuring and prioritizing conflicts and conflict indicators. The evolution, causes of conflict, conflict research and early warning models were also highlighted.

The next chapter looks at data presentation, analysis and interpretation

Chapter Four

Data Presentation, Analysis and Interpretation.

4. Introduction.

This chapter will present the conflict data, analyze and interpret it. Data will be presented analyzed and interpreted according and in relation to the research objectives. Presentation will be by pie charts and maps. The analysis covers conflict and indicators for the period January 2007 to April 2009. To begin with a conflict analysis on the continent will be given.

4.1. Conflict analysis.

In this paper, the writer only focused on conflict as one of the disasters haunting Africa. It is his perception that disaster hazards are varied. Some are poverty, illness, hunger, droughts and so many others. It would be arguable and unsubstantiated to state that there are countries that are disaster free in Africa. Some have conflicts, some other disasters and some even have both conflict and other disasters.

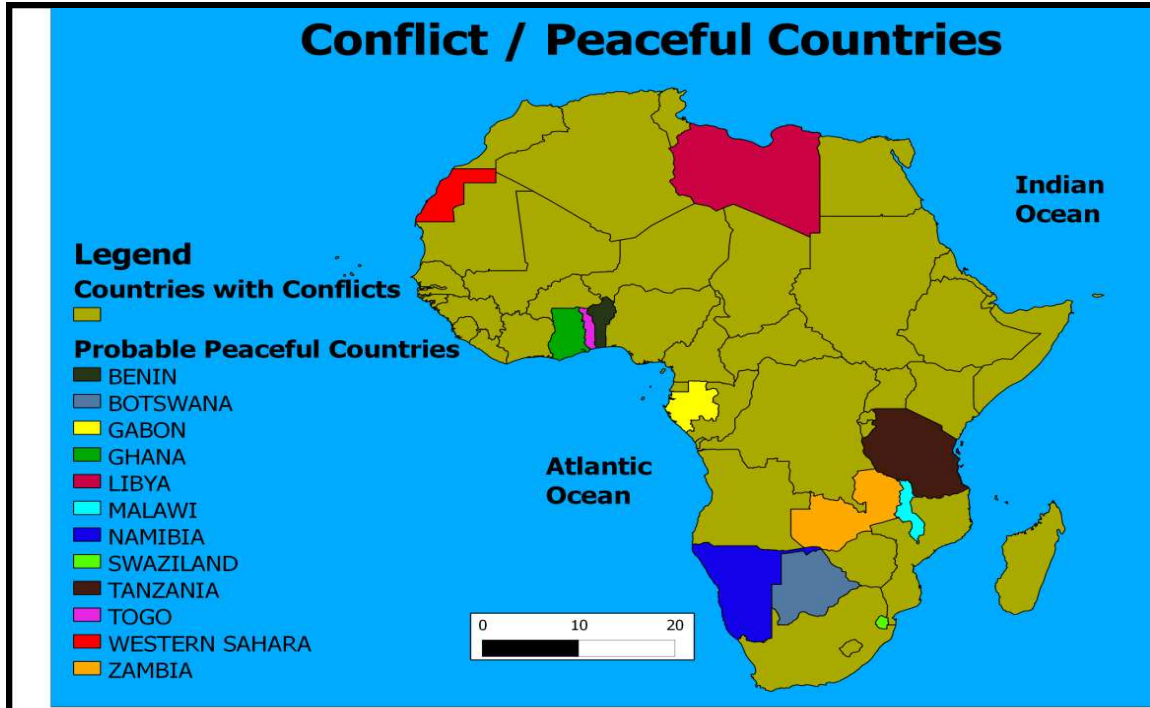


Figure 3: Map showing countries that were at conflict and probably peaceful.

It is clear from the map above that, more than three quarters of the continent is engulfed in conflicts. This makes conflict one of the most serious threats to human kind in Africa. Out of a population of fifty two countries, forty countries (77%) had conflicts and twelve countries representing 23% of the continent were assumed to be peaceful as presented in Figure 1 above and 2 below. However this does not mean that the peaceful countries do not have conflicts. The countries at peace might be resolving their conflicts peacefully or they might be having some conflicts which are not part of and were not identified by this study.

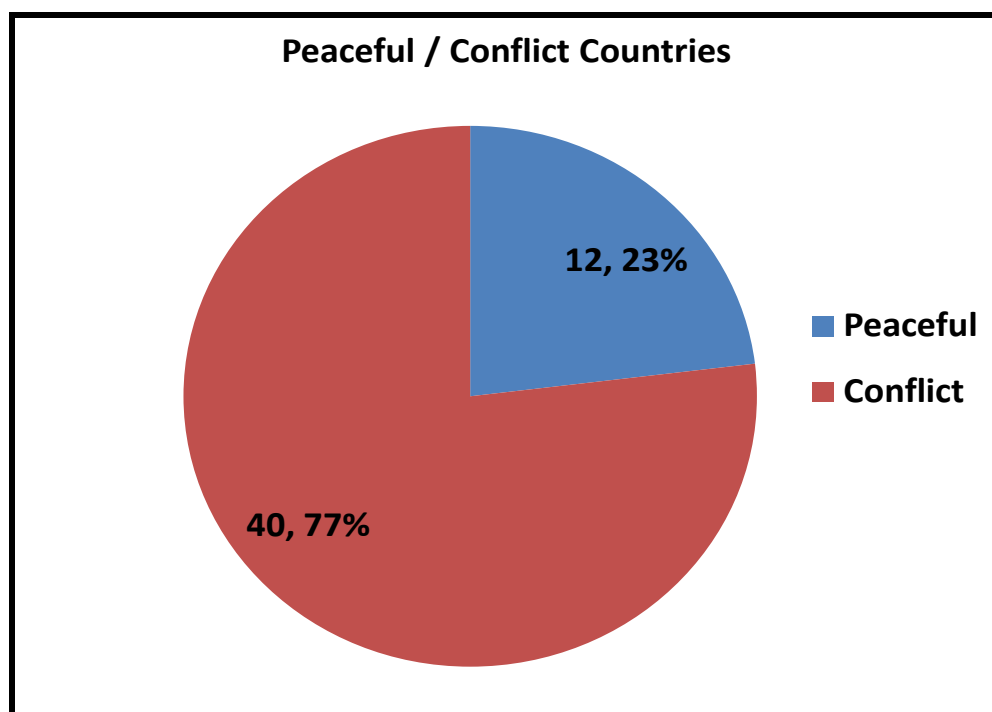


Figure 4: Pie-Chart showing extent of conflicts in Africa.

Analyzing the above statistics, the writer is of the view that the number of African countries affected by conflict is very high. Some of these conflicts might be reduced if the issue of poverty is dealt with seriously. It is also the issue of hunger, (the stomach needs) that makes mankind angry, violent and emotional thereby triggering conflicts. Even if the issue of conflict is dealt with in isolation to the other hazards, like illness and hunger, disasters will always recur. What this means for a disaster manager is to identify each and every hazard in any country, conduct

thorough hazard assessments, determine the people's vulnerability and coping capacity. Then one has to identify and prioritize the risks that threaten them, make disaster plans taking into consideration the resources available.

4.2 Objective 1: To identify the main types of conflicts in Africa.

For the purpose of this study, six conflict types were identified and these are armed conflicts, boarder disputes, food riots, targeted attacks, political violence and inter-communal strife. The number of countries affected by each of them is as indicated by the pie chart on figure 3 below. The figures on the pie chart show the number of countries and the percentage value. For example the figure 10, 18% on food riots means 10 countries affected representing 18% of the population. Analysis and interpretation was done on all these conflict types.

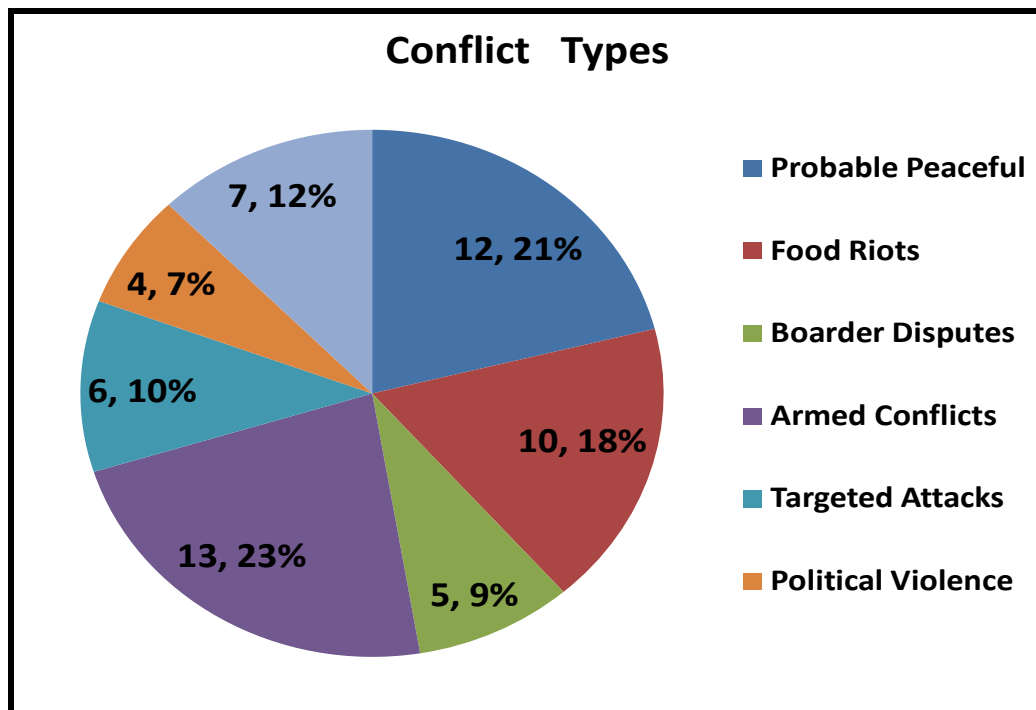


Figure 5: Pie-Chart showing Types of Conflict.

4.2.1 Food riots.

An analysis of the map in figure two below shows that ten countries had food riots. This number represents almost 18 % or a fifth of countries in the continent that had this problem. This figure

is high and the fact that there were no protests from the other countries does not mean they did not have such a problem. Most of the countries that experienced food riots were in North Africa. This indicates that there was one common cause, which was experienced at the same time, which triggered a wave of these riots. These countries experienced the same problems of food shortages and food prices. The violence that wracked in these states where there were demonstrations over

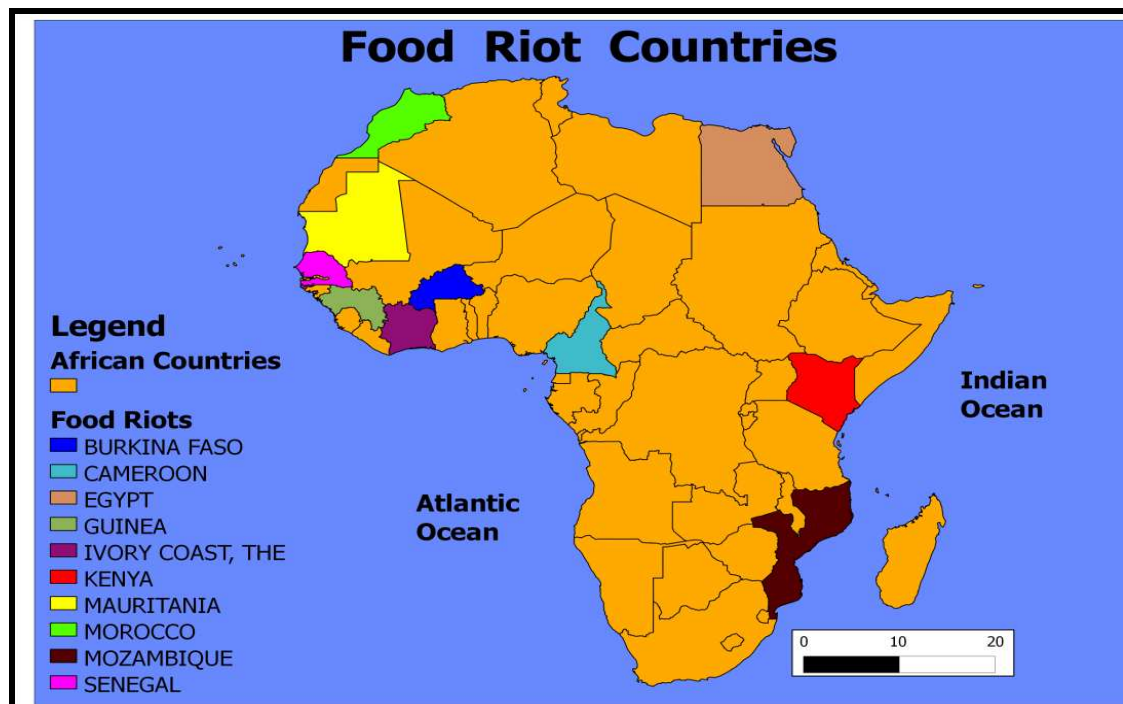


Figure 6: Map showing countries affected by food riots.

rising food prices led to looting and clashes with the police.

In Cameroon, 24 people were killed; over 1600 people were arrested and over 200 were tried and given jail sentences of up to three years. The events in Cameroon were preceded by riots in several towns in Burkina Faso. The governments of both Burkina Faso and Niger reduced and eliminated tariffs and duties on food imports in an attempt to combat the effect of the price hikes. To deal with riots, in Cameroon, President Paul Biya's government slashed duties on imports of food imports, and increased wages for public sector employees by 15% (www.bicusa.org/en/article)

In Mogadishu, Somalia, troops opened fire and killed at least two people as tens of thousands of people rioted over high food prices in Somalia's capital. Several people were injured. Prices of some staple foods had increased more than 50 percent in a matter of weeks.

(www.msnbc.msn.com).

This shows that Africa is moving towards a food crisis that is causing riots and wars. Many people in Africa are starving and many are becoming hungrier and angrier. Millions more are impoverished daily. Many of these are poor mothers and children. (www.bicusa.org/en/article).

Food riots were caused by rising prices, food scarcity and soaring energy costs, population growth, the increasing use of food crops like maize for agro-fuels, the financial crisis rooted in the U.S. mortgage markets causing tightening of credit worldwide and super inflation now biting across the continent (www.bicusa.org/en/article).

Further to that, food prices are also contributing to malnutrition, one of the "forgotten" Millennium Development Goals. Hunger is making people desperate as they now look for survival strategies. Prostitution is becoming rife increasing the risk of AIDS. Hunger makes it easy to mobilize most of the rural and uneducated masses to be involved in acts of destabilization like banditry and guerrilla warfare. This is exactly what is happening in the great lakes region. The war lords are using arms of war and money to attract the unemployed and uneducated youths. No wonder why Africa has endless armed conflicts. (www.ireport.com/ir-topic-stories).

In contrast, people living in the developed world are struggling with the high cost of fuel to run their cars, while poor people in developing states of Africa struggle to feed themselves. This shows the difference between the two worlds that needs to be addressed, not just as an immediate emergency but for medium and long term development. Food is becoming, sadly, a preserve of the rich. In reaction to this retail price controls and other measures were creeping back to forestall social and political unrest, which impacted negatively on foreign direct investment in the continent (www.ireport.com/ir-topic-stories).

4.2.2 Inter Communal Strife.

The issue of inter-communal strife is also of concern as indicated in the pie-chart figure 7 and map on figure 8 below. Seven countries were affected by this conflict. The conflict involves internal clashes by groups or organizations over religion, ethnics, minerals, politics, land, livestock, nomadic and xenophobia. This is where most of the conflicts in Africa are rooted. These occur in a back drop where people are fighting many social issues affecting them. The issues are also the common ones of poverty, hunger, and disease.

Further analysis of this conflict shows that the issue of election results is very prominent. It's now becoming common that, election results are now a matter of dispute and at times erupt into political violence involving the state itself. This must be a matter of serious humanitarian concern in Africa. It's difficult to clearly say whether elections are being rigged or not without any scientific evidence. But on the face of it, African leaders don't usually want to step down willingly, after they have tested power and served for their mandated terms. Rather, they always want to extend (Chairman of Commission, 2009).

More analysis shows that ethnic clashes are also very serious in Africa. They have attributed to the Rwanda Genocide and the war that has ravaged the Great Lakes region for some time. The roots of the conflict are purely ethnic. This is usually triggered by the political leaders who perpetrate hate speech on their opponents based on ethnic grounds. This triggers serious ethnic animosity. The ethnic groups will fight and kill each other using any weapon that comes their way (http://en.wikipedia.org/wiki/Rwanda_Genocide).

Religion can also be analyzed has and be seen as a serious hazard. People died in countries like Nigeria and Sudan as people from different religious groups killed each other over power and influence. This forced the government in Nigeria to involve its police force. This degenerated into a war where police stations were attacked and many police officers killed. If such a situation reaches such a height it becomes very difficult to protect the civilian opponents from such onslaught. They become very vulnerable to the conflict and other disasters (<http://allafrica.com/stories>).

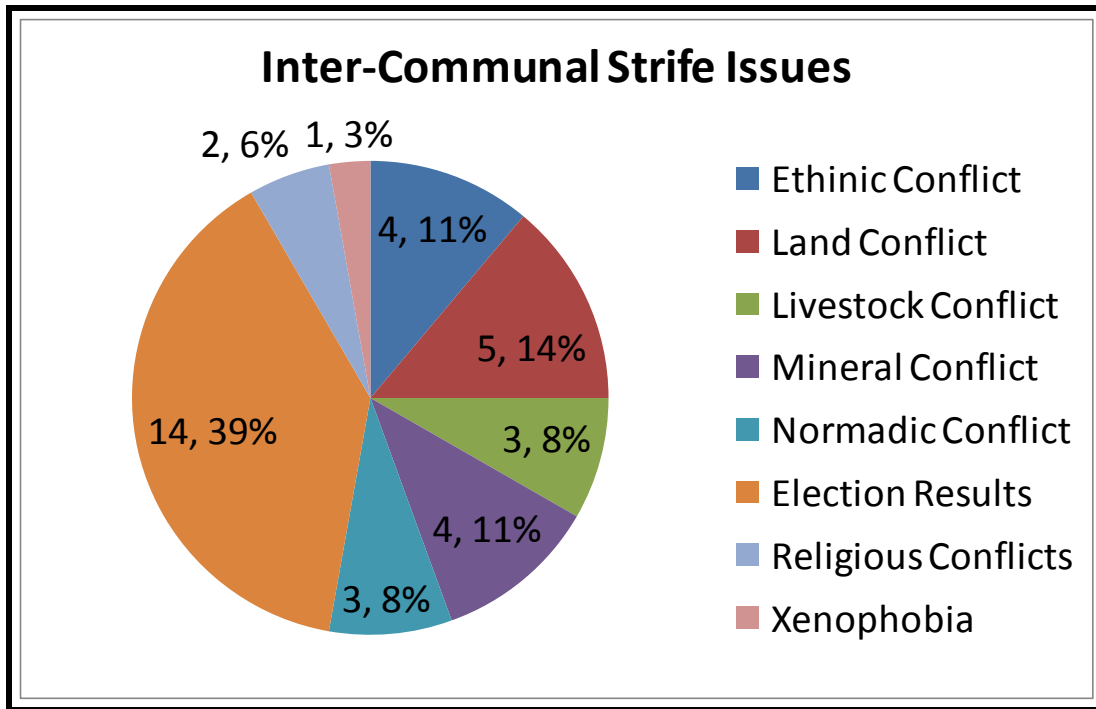


Figure 7: Pie – Chart showing Inter-Communal strife issues.

In countries like Kenya, there was and has been conflict for land between farmers and nomadic herders. The herders' claim that the farmers occupied land that belongs to them for cattle grazing. This has created a lot of feud whereby the nomads graze their cattle in planted fields of farmers, destroying their crops. Such confrontations have been fatal and they did not start now. They have been there for some time and continue unabated (Opala, 2006).

The issue of land was also serious in Zimbabwe as the government feels that it has to dress land imbalances. Many land owners have lost their lives or have been seriously injured if they ever resisted this endeavor. Land redistribution is an exercise supported by the government and has raised a lot of governance and democracy issues hence Zimbabwe's isolation from and the sanctions imposed by the west. It is also believed that land redistribution or the occupation of white owned farms, has also negatively affected Zimbabwe's agricultural production. Food at one time became critically short as the country is failing to produce food.



Figure 8: Map showing Inter-Communal Strife countries.

An analysis of attacks on foreign nationals was also done. Xenophobia is isolated and occurred only in South Africa. South Africa's growing economy continues to be a magnet for economic and political refugees from poorer neighboring countries such as the DRC, Mozambique, Zimbabwe, and Malawi and many other Countries in Central and Northern Africa who swell the ranks of South Africa's informal sector. This has had an effect of making the provision of labour by foreigners cheap in sectors like mining, construction and agriculture. Unfortunately this has provoked the South Africans who have lost their jobs or cannot be offered employment because they demand a better or high salary than that offered to foreigners. They have reacted violently by attacking foreigners (www.worldsocialism.org/spgb/may01/xeno/html).

4.2.3 Armed Conflict.

This is an area where there is a serious disaster in Africa as indicated on the maps from figure 9 up to 13. Thirteen countries experienced intra-armed conflict. The areas mostly affected were the Democratic Republic of Congo, Somalia, Sudan, Chad and Ethiopia. On the same note, it must

be realized that, it is not only armed conflict that is making people vulnerable. Issues of poverty, hunger, and sickness are also exposing and making them very weak to cope with the disasters.

The United Nations and The African Union have set up Peace Missions in some countries notably Sudan, Somalia and the Democratic Republic of Congo (figure 10). These missions are meant to stop the conflicts and enforce peace processes and agreements between the warring parties. When such missions are despatched it's a sign that the international community has become concerned and that internal peace building processes of negotiations, mediation, arbitration and adjudication will have failed, thereby resorting to the use of force as the last resort.

What is surprising about the whole senerio is that, peace missions are failing to stop and control the conflicts in the DRC, Sudan and Somalia. At the end of the day one has to question whether peace enforcement works or whether there are hidden agendas by the countries involved. There seems to be lack of commitment by those involved or that to them conflict is beneficial. The writer's opinion on this issue is that the more they benefit from armed conflict the more armed conflict will continue in these areas.



Figure 9: Map showing areas affected by Armed Conflict.

People in Africa are also being made vulnerable by the fact that most of them become internally displaced or they become refugees making them susceptible to hunger, disease, rape and child abuse (child soldiers). When they leave their homes they become unproductive. They have left their jobs or they cannot produce on their land.

If one analyses the map, figure 9 above, what you figure out is that all the armed conflicts were in the middle belt of the continent between the tropics. There was no armed conflict in northern Africa and Southern Africa. What it means is that there is a big problem in that part of the continent and this triggers a need for a thorough research on this issue. Further to that, one does not have to look at armed conflict in isolation to other disasters.

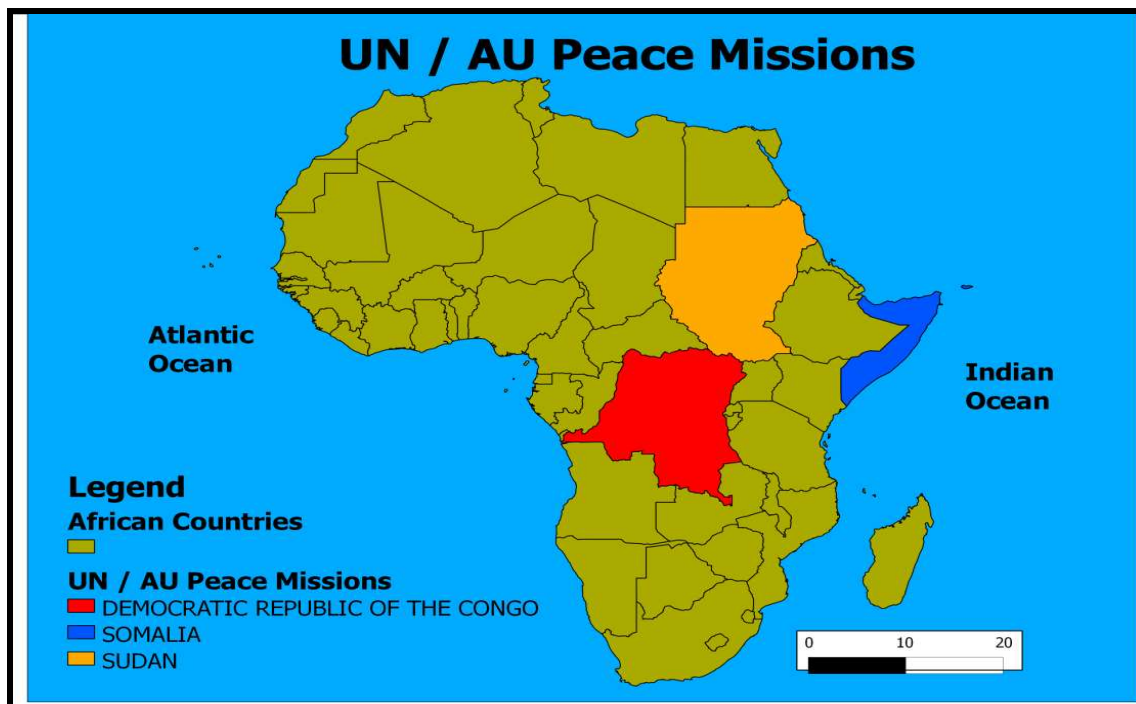


Figure 10: Map showing countries with UN / AU peace missions.

What this entails is that a comprehensive approach to disaster management is required to deal with the war together with the poverty, hunger and the sickness the people are faced with. If only war is managed at the expense of others, then disaster management is not being done holistically. Disasters will never stop and will continuously recur.

Several centres that study conflicts, including the University of Uppsala, define high intensity armed conflict or war as “an incompatibility involving a government and/or territory where force is used between two or more parties, at least one of which is the government or a State, and which provokes at least 1,000 deaths over the course of a year”. The emphasis is placed on the virulence of armed conflict, setting a scale of intensity based on the number of deaths produced by the armed conflict over a given period of time. The difference between the definitions of intermediate armed conflict is that in the latter, the number of victims is between 25 and 1,000 deaths per year (<http://isanet.ccit.arizona.edu/archive/npg.html>).

Armed conflicts in this study were divided into three ranging from major armed, intermediate armed and minor armed as indicated on the maps below. The classification was according to the number of deaths in each category and adopted from the University of Uppsala definition. Major armed conflicts were with more than 1000 conflict related deaths per year. Intermediate conflicts had at least 25 conflict related deaths per year but with an accumulated total of at least 1000 deaths. Minor conflicts had at least 25 conflict related deaths per year but fewer than 1000 accumulated deaths during the course of the conflict.

4.2.4 Major armed Conflicts.

The results of the research show that the major armed conflicts were in five countries namely the DRC, Sudan, Somalia, Chad and Ethiopia. These represent a tenth of the continent. The figure is very high considering that these conflicts have been there for over a decade. Some of the reasons proffered by authorities might be that the wars are being sponsored, there are weak governance structures, ethnicity, lack of political will and a high proliferation of arms because of arms and mineral trading. It is in these countries where there is child abuse and rape of women and men by the rebels, government forces, and even the UN peace keeping forces. It is against these weaknesses that proper risk reduction strategies must be built to deal with conflict in Africa.

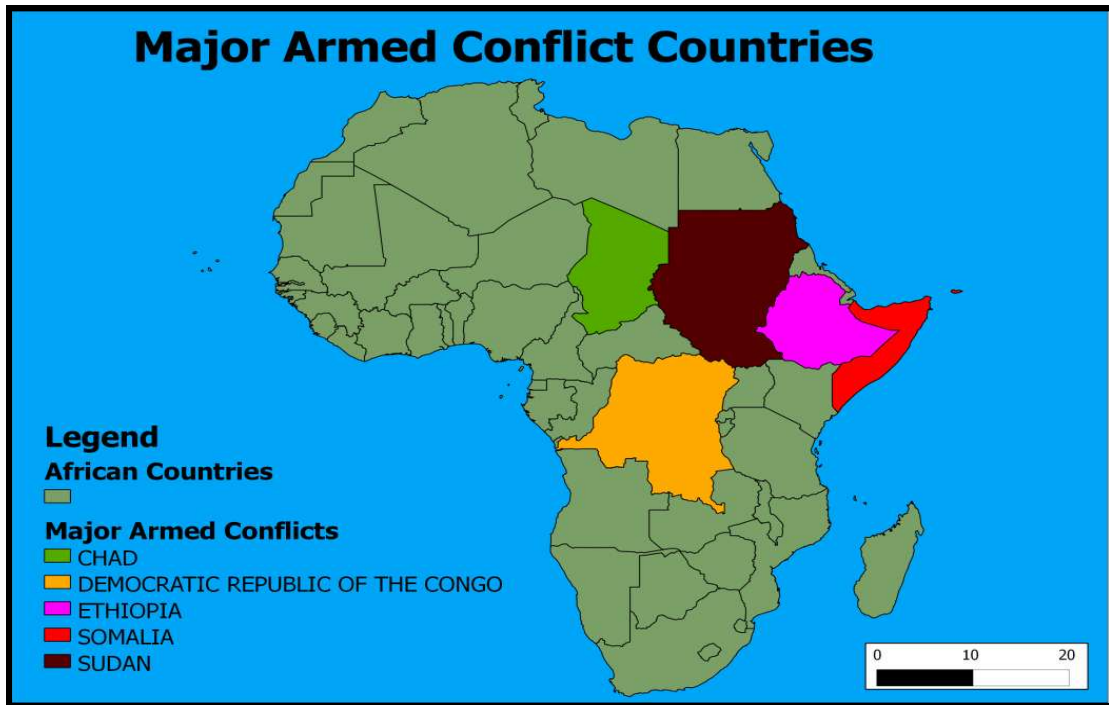


Figure 11: Map showing areas with Major Armed Conflicts.

4.2.5 Intermediate conflicts.

As already alluded to, this was a conflict with at least 25 conflict related deaths per year but with an accumulated total of at least 1000 deaths. Only three countries had intermediate armed conflicts and these are in the Great Lakes Region. The countries are Burundi, the Central African Republic and Uganda (figure 12). In these countries the issue of rebels plays centre stage. Their mode of operation is that they make their bases in neighbouring countries where they have their kith and keen. They are also mobilised on ethnic grounds.

Due to the high rate of unemployment and illiteracy, it is so easy to motivate the idle youths or boy children who are recruited in rebel or government armies. The abuse of children is so rife and these children are also nurtured into militant and aggressive people. This triggers a situation where they have to be rehabilitated into society after the conflicts.

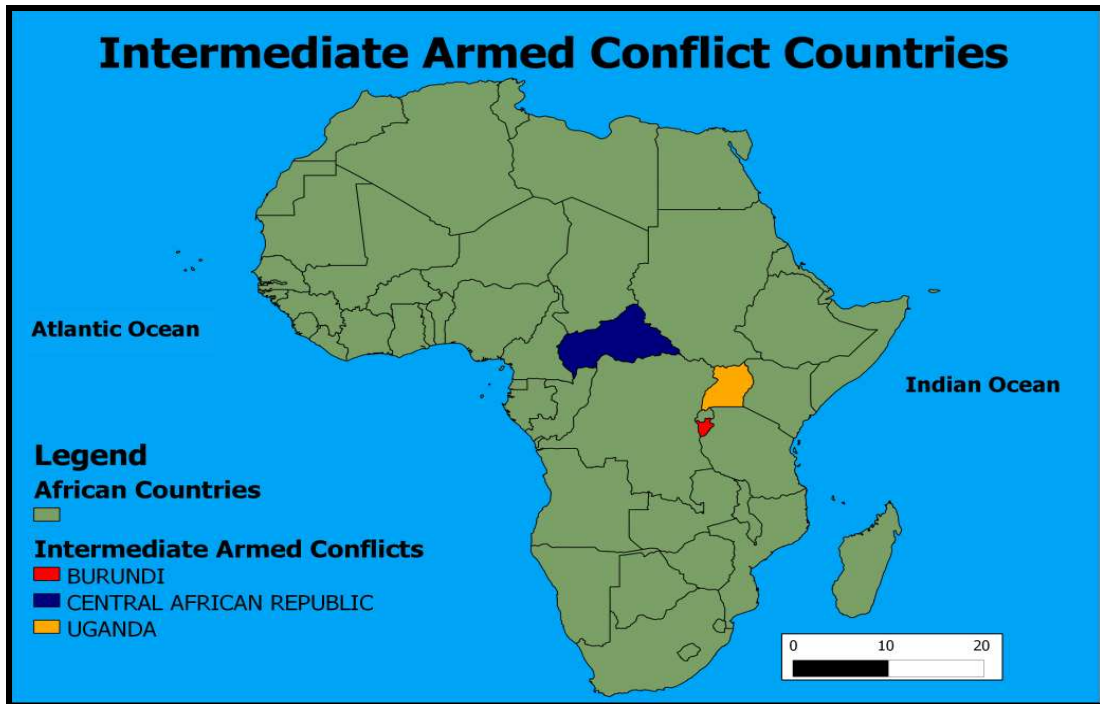


Figure 12: Map showing countries with Intermediate Armed Conflicts.

4.2.6 Minor conflicts.

Minor conflict had at least 25 conflict related deaths per year but fewer than 1000 accumulated deaths during the course of the conflict. Only five countries were involved in minor armed conflicts. These were Angola, Mali, Niger, Nigeria and Senegal. Closer look shows that these minor armed conflicts were in North Africa and the countries involved are neighbours. Unfortunately there is no explanation for this. However the conflicts were intra-conflicts.

These conflicts are retarding the gains of development. Instead of building and developing our nations, resources are being wasted to finance these wars. There is need to knock sense in people's heads by stakeholders so that it's understood that some armed conflicts are not beneficial. Instead they bring more suffering to the masses, who are caught in crossfires between the warring parties. Indicators of early warning to armed conflicts need to be used to suppress armed conflicts.



Figure 13: Map showing areas with Minor Armed Conflicts.

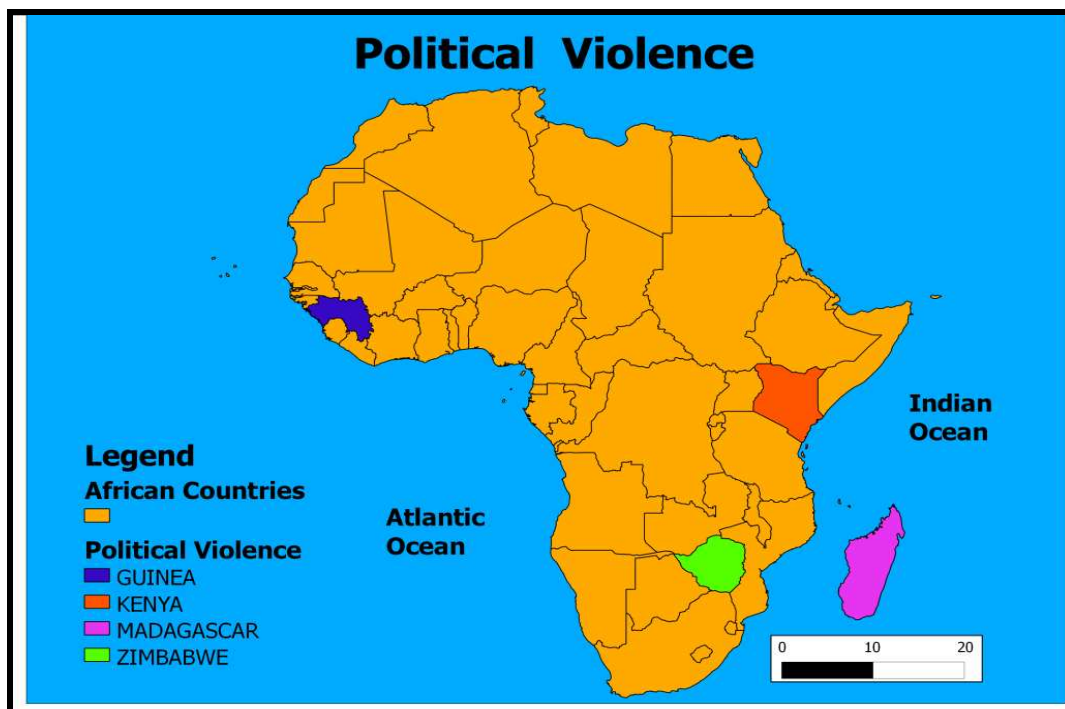


Figure 14: Map showing countries affected by Political Violence.

4.2.7 Political violence.

Political violence is also a very big problem in Africa. Of concern and as indicated on the map on Figure 14 were the four countries Zimbabwe, Kenya, Guinea and Madagascar. They represent 7% of the continent. Political problems ranging from alleged rigged election results in Kenya and Zimbabwe, civil protests against the governments in Guinea and an alleged coup in Madagascar, triggered election violence which killed thousands of people. The violence in Kenya also had an ethnic dimension and there are efforts to bring the perpetrators of this violence before the International Criminal Court.

This shows another type of problem that is faced in Africa. Most of the leaders are power hungry and will do anything within their means to remain in power. One scholar referring to African leaders said that “it would be strange for an African leader to lose elections, how can one lose an election if they are the ones organizing them”.

Political violence as a disaster presents a scenario where people apart from the violence, are also vulnerable to issues like hunger, illness and others. The Zimbabwe situation was a very clear case that illustrates the need for an integrated approach to disaster management. Soon after the March 2008 elections, there was political violence. It was mostly directed towards opposition members who would at times retaliate. This problem was made more serious with the cholera epidemic which caused a lot of havoc for some time before it was put under control. Also taking its toll in the country was the issue of hunger, there was no food in the country. This was a situation where there was political violence on people who were hungry, sick and suffering from cholera. This meant that all the issues needed to be dealt with at one time. These are the sort of scenarios that are faced by many African countries where many hazards strike at the same time making people extra vulnerable and complicating disaster management.

In this age of globalization there is a need for African countries to satisfy certain benchmarks that qualify them to be considered democratic. This includes issues of governance, conducting free and fair elections, the rule of law, human rights and other qualities. Most African countries seem to be very far from adopting these benchmarks. The country leaders just talk the walk but do not walk the talk (The African Union Commission, 2008).

The writer has an opinion that people in many African countries have also become very educated and enlightened about these political issues. There is no more room for oppressing them. They now know their rights and will always voice their concerns and act whether legally or illegally. Democracy has also become one of the tickets for peace to get financial aid from organizations like the World Bank and the International Monetary Fund. Without democracy people will always make noise, there will be conflict and no financial support from the rich countries.

It also the writer's view that issues of democracy be must respected. Resources (finance) are scarce. Democracy is the only way the western developed countries will assist African to get funding for Disaster management projects. Governments have to be sensitive to this. No wonder why disasters in the western world are funded differently from those in Africa. It is because of some of these issues. Without democracy you are forgotten and left to crumble.

According to the African Union Commission, (2008). It is also important to pay attention to the emerging trend of election-related conflicts and violence. While elections have become a core ingredient of popular participation in the governance process, since the new wave of democratization in Africa in the early 1990s, they have also spawned conflicts and violence and scrambled ethnic and regional alliances that sometimes threaten the social order, economic development, and efforts to strengthen regional integration. This situation signals weaknesses in the governance of elections, the rules of orderly political competition, and lack of impartial judiciaries to interpret and adjudicate electoral disputes, as much as it reflects the transitional teething problems associated with managing elections and building institutions of competition that are widely accepted by winners and losers.

On a related point, it is important to emphasize the need of respect by Member States of their constitutions, especially when it comes to introducing constitutional reforms. As stressed by the African Charter on Democracy, Elections and Governance, in the African Union, respect of constitutions is an important component of efforts to strengthen democratic processes on the continent and, more generally, to promote peace, security and stability. Failure to observe these

provisions is leading to situations of tension which, in turn, precipitate political crisis and undermine the countries concerned, while at the same time sowing the seeds of instability detrimental to their development and even to that of entire regions of the continent. Indicators of Political violence need to be taken as an early warning to address these situations.

4.2.8 Boarder disputes.

Another source of concern relates to boarder disputes. There was a boarder dispute between Nigeria and Cameroon. This was a problem over boarder demarcations in the Bakassi peninsula which is an area rich in oil. There was also a problem between Ethiopia and Eritrea and Eritrea and Somalia. This issue points out boarder disputes as one of the problems that cause conflicts in Africa. 9% of countries in the continent were involved in boarder disputes and the contention was on three boarders. This has influenced a lot of cross boarder attacks and killings. See figure 15 below.

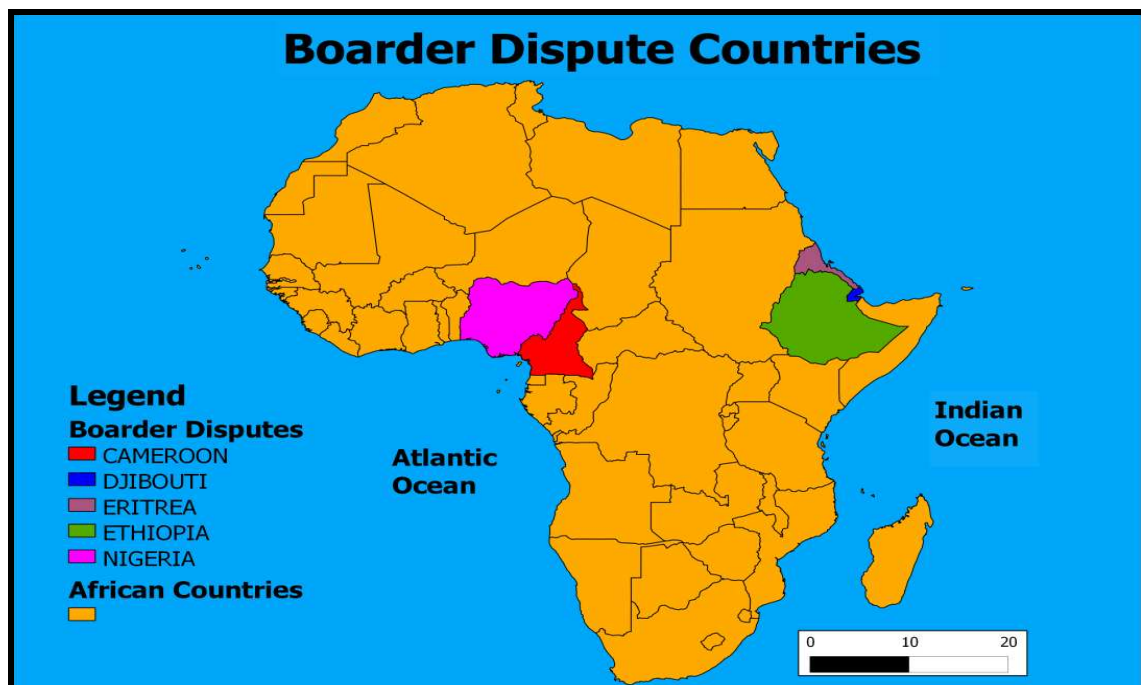


Figure 15: Map showing areas affected by boarder disputes.

According to the African Union Commission, (2008), since African countries gained independence, the boarders which were drawn during the colonial period have been a recurrent source of conflicts and disputes in the continent. Nearly half a century after the political

liberation of the continent, the delimitation and demarcation of the borders inherited from colonization still face major technical and financial problems. This situation gives rise to “undefined zones” within which the application of national sovereignty poses problems. In these zones, a local dispute between two communities can rapidly escalate and lead to inter-state tensions. When these zones have natural resources, their management can prove to be difficult and be a source of misunderstanding. Indicators for this conflict also need to be taken as early warning to disasters.

4.2.9 Targeted attacks.

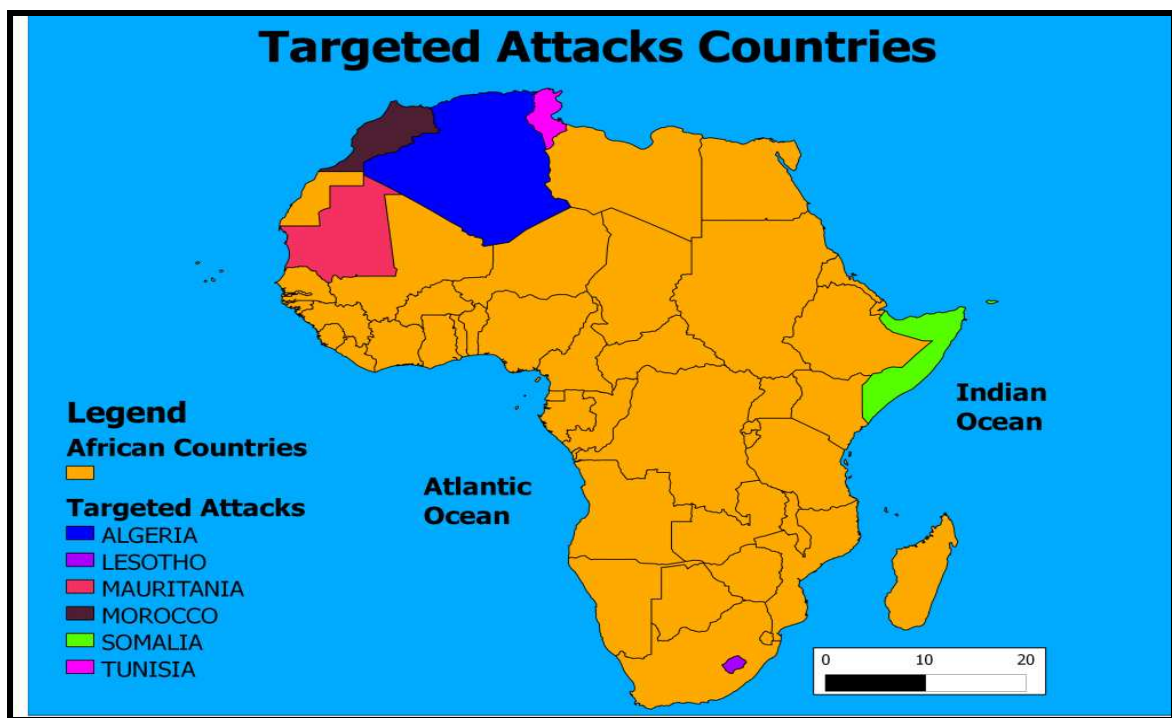


Figure 16: Map showing areas that had targeted attacks.

Six countries representing about 10% of the continent were victim to acts of terrorism, banditry or sabotage. Targeted kidnappings, ambushes and bomb attacks against civilians, foreign nationals, and government targets attributed to Al Qaeda were experienced in Algeria, Mauritania, Morocco, Tunisia, and Somalia. There was also an assassination attempted on the life of the Lesotho Prime Minister in April 2009. A group of armed personnel attacked the home of the Prime Minister but were thwarted in their attempted by armed military guards. Figure 16 above shows the countries affected. Terrorism is becoming a big problem to peace and security

in the world and fighting terrorism is a priority of America and other countries of the world. The September 11, bombings of the Pentagon in America was a wake up call for disasters that targeted attacks can cause. Africa is not spared. Most of the targeted attack seems to be taking place in the North of the continent where we have Muslims and Islam religions who do not like Americans. There is need to sensitise people of the need of peace and live as one people despite our origins and colour. The conflict indicators also need to be taken as early warning for disaster.

4.3 Objective 2: To establish the trend of the indicators in relation to each Country.

The degree of conflict is also different per each country as shown in the diagram below. More than half of Africa countries have one conflict indicator. The indicators vary. Those with two and three conflict indicators each are few. From the analysis it was discovered that the maximum number of conflicts per country was three. These also vary per county as indicated in Figure 17, 18, 19 and 20 below.

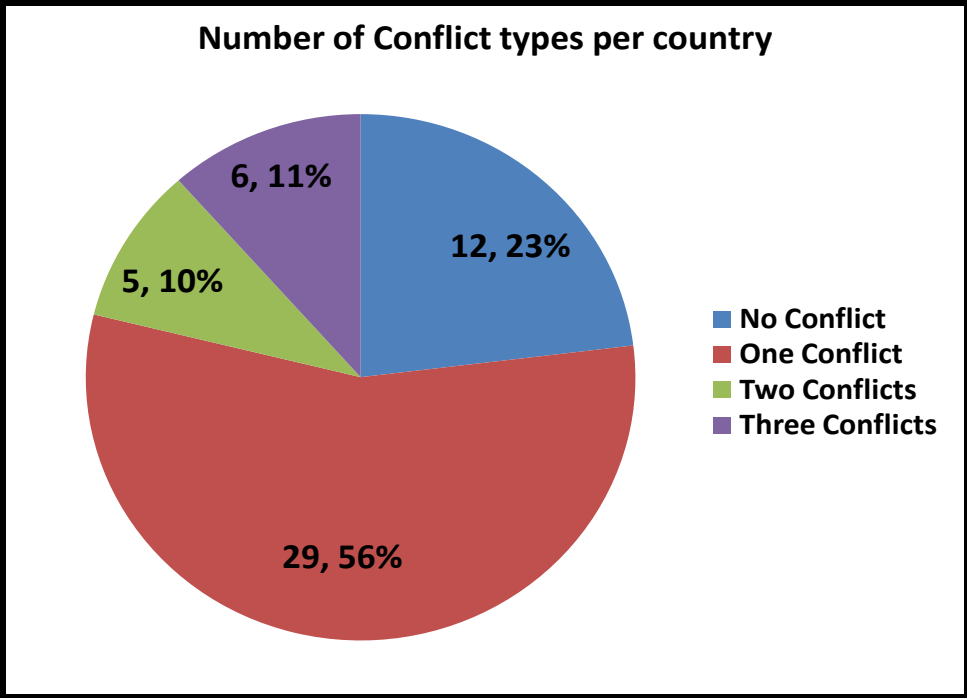


Figure 17: Pie-chart showing number of Conflict types per Country.

What this means is that there will be different approaches or disaster plans per each country. Each plan would be country specific. The problem brought by this is a very wide range of disasters plans, making the whole process of disaster management complicated. It also makes the issue of sharing resources difficult. Each and every country would require specific resources to deal with its own types of disasters. Even though the issue of resources might be an excuse for failure by countries to manage disasters, the most important thing is that, as long as countries put in place integrated plans to disaster management that would be a very good starting point. What is important is to have a plan in place. There is also need to reduce the number of conflicts in countries with more than one and better still to reduce to zero, in those countries with one conflict.



Figure 18: Map showing high conflict countries.

Countries like Sudan, Nigeria, Somalia, Kenya, Ethiopia and the D.R. Congo have high number of conflicts. With the exception of Nigeria and Kenya the other four countries are the ones that are also having unresolved and unabated serious armed conflicts in Africa. They are also the focus of the international world and peace keepers both from the United Nations and the African

Union have been seconded and have been working in these countries for some time. This means that these countries are of serious concern and that managing their situation must be given the seriousness it deserves and all things equal, solving problems in these countries must be a priority.



Figure 19: Map showing medium conflict areas.

The rest of the countries have two or one conflict indicator each as shown on the maps figure 19 and 20. The number of conflicts per country may also be used as early warning to disasters. Too many conflicts complicate the management of disasters. The fewer they are the better to manage.



Figure 20: Map showing some low conflict areas.

4.4 Objective 3: To identify conflicts prevalent and their priorities.

Resources (finance) are scarce. If resource were in abundance there would be no need to prioritise as all these conflict indicators are equally important. It is from food riots, boarder disputes, political violence that we end up with armed conflicts. But however due to the limitations posed by resource constraints, there is need to discriminate and prioritize in search of what has to be done first. There is no mathematical formula for this, and there are many approaches to it depending on what is important to a particular group or person. What is important is to give some reasonable justification especially when prioritizing using the qualitative approach. It has to be borne in mind that all the conflict types are important and must be taken on an equal footing. They is also an overlap into by them.

One might be encouraged or persuaded to use the quantitative or the qualitative approach or even use both approaches to arrive at a decision. In this instance the researcher used both approaches to prioritize.

4.4.1 Qualitative approach.

Table 2: Table showing Conflict priority ranking using the qualitative approach.

Conflict Priority Ranking		
Conflict indicator	Number of countries Affected	Priority rate
Armed Conflict	13	1
Probable Peace	12	2
Food Riots	10	1
Inter-Communal strife	07	1
Targeted Attacks	06	2
Boarder Disputes	05	2
Political Violence	04	1
Peace Missions	03	1

Priority One.

- Armed conflict kills, injures, destroys infrastructure, causes internal displacements, triggers refugees and there is social disintegration. According to the information on the table, it also affected the most number of countries. All development activities are retarded and the higher the number means the multiplications of deaths and injuries. Armed conflict is also catalyst in the transmission and spread of HIV/AIDS. It's exposing people to unnecessary risk, which can be prevented.
- Peace Missions are a sign of serious problems in a country. It shows that to stop armed conflicts there is need for a third continental or international force to intervene. Either to enforce peace agreements or to stop the conflicts. In such scenarios there are usually serious human right infringements.

Priority two.

- Food riots are a serious problem caused by food shortages, inflation, high food prices and global warming. People will turn against the government and the government will turn against its people. It becomes a very serious crisis characterized by destruction of property and looting.
- Inter-Communal strife is also a very serious issue in many African countries. Most long standing armed conflicts are based on ethnic, racial and religious differences.
- Political Violence is a a serious threat to internal peace and security in Africa. This has been attributed mostly to issues to do with the conduct of election, democracy, governance, rule of law and human rights issues. Non-Compliance with these has attracted punitive action from the developed world countries, who have at times withdrawn there financial support to countries not adhering to them.
- Targeted attacks are situations that can be very fatal looking at how they were used at the Pentagon in New York on September 11, 2001. They range from suicide bombing to targeting specific persons or leaders, targeted kidnappings, ambushes and bomb attacks against civilians, foreign nationals, and government. The attacks are attributed to Al Qaeda. This is a terrorist movement that is very anti-American.
- Boarder Disputes are problems that have been carried over from colonial times. Although some of them have been solved at international courts, those who lost are still not happy about the decisions and they are at times making it a case of contention. They may cause inter-nation wars.

Priority Three.

- Probable peace is a situation countries were being assumed that they do not have conflicts as there was no information found to the contrary. The fact that there were no conflicts did not bring a permanent scenario of peace. Constant checks and contingency plans need to be developed in case conflicts erupt.

4.4.2 Quantitative Approach.

This approach is easy and it's a matter of using the rule of numbers. The number with more or less in terms of quantity than the others may be the first priority. In this endeavour the writer took the type of conflict that affects the most number of countries

Table 3: Table showing Conflict priority ranking using quantitative approach.

Conflict Priority Ranking		
Conflict indicator	Number of countries Affected	Priority rate
Armed Conflict	13	1
Probable Peace	12	
Food Riots	10	2
Inter-Communal strife	07	3
Targeted Attacks	06	4
Boarder Disputes	05	5
Political Violence	04	6
Peace Missions	03	

From the two methods used armed conflict came out to be the number one priority in the management of conflicts. What this means is that countries have to first deal with armed conflict first. War needs to be stopped and then, the other issues have to be talked over. A lot has been said about the negative effects of armed conflict and many people would agree with the writer that, with resource challenges, it makes sense to stop war and then resolve other issues. War complicates disaster management activities.

4.5 Objective 4: To identify the indicators for these conflicts?

The following are the conflict indicators or signs for the six conflicts identified in this study. Some of the indicators overlap.

Table 4: Table with showing some food riot indicators.

4.5.1 Food Riot Indicators.
Frequent food price increases.
Drought.
Famine.
Food shortages.
Development of a dominant black market economy.
Growing dependency on food imports.

Once the indicators or signs of conflict in table 4 arise or manifest themselves they signal the probability of food riots. It is these that have to be managed or resolved before they turn into anything serious. At the same time these indicators and some not identified in this paper, must be used as early warning to conflict especially food riots. Conflicts need to be negotiated, mediated or arbitrated during the conflict indicator phase.

Table 5: Table showing some boarder dispute indicators.

4.5.2 Boarder Dispute Indicators.
Boarder skirmishes between local people.
Claims over resources.
Cross boarder raids.

Once these indicators or signs of conflict in table 5 arise or manifest themselves they signal the probability of boarder disputes. It is these that have to be managed or resolved before they turn

into anything serious. At the same time these indicators and some not identified in this paper, must be used as early warning to conflict especially boarder disputes. Conflicts need to be negotiated, mediated or arbitrated during the conflict indicator phase.

Table 6: Table showing some armed conflict indicators.

4.5.3 Armed Conflict Indicators.
Mobilization of the army.
Buying of weapons of war.
High military expenditure.
Declaration of a State of emergency.
Violation of human rights by state agents.
No rule of law.
Threat of civilian rule by military politics.
Disinvestment.
Capital flight.
Proliferation of small arms and light weapons.
Rigging of elections.
Theft of weapons from military armouries.
Threats to make military attacks.
Tightening security for individuals groups or structures.
Use of child soldiers.

Once these indicators or signs of conflict in table 6 arise or manifest themselves they signal the probability of armed conflicts. It is these that have to be managed or resolved before they turn into anything serious. At the same time these indicators and some not identified in this paper, must be used as early warning to conflict especially armed conflicts. Conflicts need to be negotiated, mediated or arbitrated during the conflict indicator phase.

Table 7: table showing some targeted attack indicators.

4.5.4 Targeted attack Indicators.
Hate speech by individuals or groups.
Tightening security for individuals groups or structures.
Kidnappings.

Once these indicators or signs of conflict in table 7 arise or manifest themselves they signal the probability of targeted attacks. It is these that have to be managed or resolved before they turn into anything serious. At the same time these indicators and some not identified in this paper, must be used as early warning to conflict especially terrorism, banditry, or sabotage. Conflicts need to be negotiated, mediated or arbitrated during the conflict indicator phase.

Table 8: Table showing some political violence indicators.

4.5.5. Political violence Indicators.
Controversial Government Appointments.
Kidnappings.
Freedom of the press threatened by government and militant groups.
Systematic frustration amongst the masses especially the elites.

Corruption.
Poor governance.
Questioning of state legitimacy.
Elections heatedly contested.
Non recognition of election results.
Political protests by students, labour and sectarian groups.
Internal displacement of people.
Arrest and harassment of opposition political party members.
Media propaganda.
Rule of law abolished.
Formation of vigilante and Para-military groups.
Tightening security for individuals groups or structures.
Sporadic threats and violence against individual political figures or members.
Use of inflammatory rhetoric by political elites.

Once these indicators or signs of conflict in table 8 arise or manifest themselves they signal the probability of political violence. It is these that have to be managed or resolved before they turn into anything serious. At the same time these indicators and some not identified in this paper, must be used as early warning to conflict especially political violence. Conflicts need to be negotiated, mediated or arbitrated during the conflict indicator phase.

Table 9: Table showing some inter-communal strife indicators.

4.5.6 Inter-Communal Strife indicators.
Brain gain.
Brain drain.
Deterioration of health and educational standards.
Corruption in the public service.
Misappropriation of funds and resources by senior government officials.
Dominant black market economy.
Corruption among politicians and senior government officials.
Rising unemployment.
High inflation rate.
Systematic frustration amongst the people especially the elites.
Poor economic performance.
High refugee influx.
Cross boarder raids.
Land invasions.
Service delivery protests.
Employee labour strikes.

Once these indicators or signs of conflict in table 9 arise or manifest themselves they signal the probability of inter-communal strife. It is these that have to be managed or resolved before they turn into anything serious. At the same time these indicators and some not identified in this

paper, must be used as early warning to conflict especially inter-communal strife. Conflicts need to be negotiated, mediated or arbitrated during the conflict indicator phase.

4.6 Objective 5: To explain the role of conflict indicators in Disasters.

The purpose of identifying conflict indicators was a way of identify signs of conflict so that action can be taken to defuse the conflict situation before it turned in to something serious. These indicators are usually the beginnings of serious conflicts where people end up killing each other as there is usually failure to take care of them during there infancy stages of conflict. Disaster managers need to look more and get involved in conflict resolution processes, to reduce the effects of Conflicts. Conflict indicators play a very important role in disasters as they can be used as early warning. These have to be identified and once done people need to engage into some talks.

4.7 Objective 6: to indicate how conflict is undermining disaster management activities.

This section relied on information got from review of related literature in the form of published works, research done and from information about the events that were occurring in Africa during the period under review.

Conflict slows down the management of disasters as it influences or makes other related disaster more serious. Conflict brings along with it hunger and illness there by making the disaster situation very complicated. The other issue that makes it complicated is that some conflicts are sponsored. That is why we have conflicts in countries like the Democratic republic of Congo, Sudan and Chad unending. There is a school of thought which is of the opinion that some countries, organizations, individuals and even governments are benefiting from armed conflicts. This is as a result of the existence of some mineral resources in these countries that range from, gold, diamonds and oil that are traded for weapons through both legal and illegal trade.

Some countries and organizations are bringing weapons that they sell especially to rebel leaders who are in control of mineral rich areas in some countries. This trade with weapons is in exchange with diamonds, gold or oil. This means that no matter how much the rebels are defeated by the government forces and weapons confiscated, there is continuous supply and wars are continuing.

Another school of thought is of the opinion that it is the political commitment or will to end these wars that is lacking. There are deliberate acts by governments to escalate or perpetuate the wars, and it's believed that some are also benefiting from the natural resource and arms of war scandals.

Armed conflicts in Africa kill thousands of people every year, not only combatants but also civilians. In actual fact, more people, especially women and children, die from the consequences of conflict than die from direct conflict-related violence. In addition, many other people are injured as a result of violence, suffering often from permanent disabilities. Civilian displacement as a result of armed conflict is considerable. Africa has the largest number of victims of forced displacement in the world.

The issue of refugees also strains resources in the host countries. Instead of using country budgets for the well being of their people, the host countries have to divert or create other budgets for refugees. This factor short changes and delays the provision of service delivery to their people. This also creates animosity as was seen in South Africa, where service delivery protests against the municipalities were then diverted to foreign nationals who were accused of benefiting from the services at the expense of the locals.

People were killed and this created an internal crisis, where foreigners were put in refugee camps. The creation of these camps also opened up avenues of other problems and the main one being financing such projects. What this meant is that developmental issues had to be set aside to manage, the xenophobia and the refugee camps.

Peace and security are threatened in general. This disrupts the social order as it becomes a situation where the fittest person survives. There is usually lawlessness and misrule of law. Humanitarian workers are at times kidnapped or killed, aid is stolen or looted. At times aid is also suspended impinging hardly on those in need. People might get starved to death due to hunger. Due to easy access to arms in conflict situations a lot of people get engaged in criminal activities as a survival strategy.

Conflict besides being a hazard by itself it becomes the root cause or Catalyst of other disasters like the illness and hunger. It worsens disasters. Where there is conflict there is social and economic disruption. People are disturbed from their economic activities of growing food on their land as they are displaced. Accessing food from shops also becomes impossible as shops are looted, closed or destroyed. This brings about hunger.

Infrastructure like hospitals and clinics are also destroyed. People fail to get or access health care. Children fail to get immunised from various viral problems. The fact that people also become concentrated in one place or areas like refugee camps also cause illness from fungal, bacterial and many viral diseases.

Women are raped. The vulnerability of women increases drastically when the traditional protection afforded to them by their families and communities is disrupted or unavailable owing to displacement or separation. In such circumstances, women especially girls are all too often exposed to threats or acts of violence by parties to armed conflicts, be they military forces, armed groups or the police. At times, their personal safety is also threatened by members of peacekeeping forces, humanitarian workers or private individuals.

Children are abused. The military use of children takes three distinct forms: children can take direct part in hostilities (Child soldiers), or they can be used in support roles such as porters, spies, messengers, look outs, and sexual slaves; or they can be used for political advantage either as human shields or in propaganda.

Reduced economic activity due to insecurity is also an effect of conflict. Many companies, industries become non functional or scale down operations during conflict periods. Some relocate to peaceful countries. This causes loss of investor confidence and business potential. Due to lack of production in the affected countries, trade becomes limited and some countries are even slapped with economic sanctions. This also has the effect that people lose their jobs thereby affecting their economic power to look after their families well. Human activity is reduced because of conditions like curfews that might be imposed to restrict the movement of people in certain areas at particular times of the days. Human activity might also be due to reduced workforce as some people get killed, run away from the conflicts or even brain drain.

Direct costs become a problem. A lot of money is diverted from developmental projects to fund military or law enforcements projects to deal with conflict situations. The presence of United Nations or African Union missions shows that extra budgets are being created to manage such ventures at the expense of essential services. There is also an effect on medical costs. A lot of people, the military, rebels and civilians get injured especially during armed conflicts. This means they have to be hospitalised or need drugs for treatment. During such emergencies most medical costs are sponsored by the cash strapped governments.

There is loss of developmental aid as war is destructive. Organizations or even governments that want to be sponsor or be involved in developmental aid will withhold or withdraw aid. They can not invest their money where the degree of losing it due to structural damage or destruction is obvious.

There are spill over effects as violence might spill into neighbouring countries or people will escape into other countries and become refuges. This also becomes a burden to the host country especially on its resources. As already alluded to, this might be one of the causes of xenophobia in South Africa

Brain drain or human capital flight is very prevalent. Individuals with technical skills or knowledge, usually leave their countries due to conflict, political instability, or security risks. Brain drain is usually regarded as an economic cost, since emigrants usually take with them the fraction of value of their training sponsored by the government. Political instability, civil strife, economic and social deterioration characterized by working and living conditions in countries of origin are also some of the causes.

Former South African President Thabo Mbeki had this to say in his 1998 'African Renaissance' speech:

"In our world in which the generation of new knowledge and its application to change the human condition is the engine which moves human society further away from barbarism, do we not have need to recall Africa's hundreds of thousands of intellectuals back from their places of

emigration in Western Europe and North America, to rejoin those who remain still within our shores! I dream of the day when these, the African mathematicians and computer specialists in Washington and New York, the African physicists, engineers, doctors, business managers and economists, will return from London and Manchester and Paris and Brussels to add to the African pool of brain power, to enquire into and find solutions to Africa's problems and challenges, to open the African door to the world of knowledge, to elevate Africa's place within the universe of research the information of new knowledge, education and information."

Brain drain can be stopped by providing individuals who have expertise with career opportunities and giving them opportunities to prove their capabilities. However given a conducive political and economic environment at home, many Africans would be prepared to return to their countries for a variety of reasons ranging from family ties, scholarship obligations to the need of jobs that better suit their qualifications or even establish their own self employment ventures. Conflict seems to be the root cause of disaster problems in Africa

4.8 Conclusion.

This chapter presented the conflict data, analyzed and interpreted it. Data was presented analyzed and interpreted according and in relation to the research objectives. Presentation was through pie charts and maps, for easy reading and understanding. The analysis covered conflict for the period January 2007 to April 2009. The next chapter looks at the research summary, conclusions and recommendations

Chapter Five.

Summary, Conclusions and Recommendations.

5. Introduction.

This chapter looks at the summary of the study, summary of findings, the conclusion and recommendation.

5.1 Summary of the study.

The study identified the main conflicts and their indicators as a means of early warning to disaster. It further highlighted the trend of the indicators, established the critical one and identified the challenges posed by conflict in disaster management.

5.1.1 Objectives of the study.

The main objective of the study was:

To identify the main types of conflicts, their indicators, the role played by these indicators and how conflict undermines Disaster Management activities in the continent.

5.1.2 Research questions.

- (1) What are the main types of conflict in Africa?
- (2) What is their trend in relation to each country?
- (3) What are the most prevalent types of conflicts and their priority?
- (4) What are the indicators for these conflicts?
- (5) What is the role of conflict indicators in disaster management?
- (6) How is conflict undermining disaster management activities?

5.1.3 Research objectives.

- (1) To identify the main types of conflict in Africa.
- (2) To establish their trend in relation to each Country.
- (3) To identify the most prevalent conflict types and prioritise.
- (4) To identify the indicators for these conflicts.
- (5) To explain the role of conflict indicators in Disaster Management.

(6) To explain how conflict is undermining disaster management activities.

Chapter one gave an introduction to the study looking at the background, statement of the problem, research questions, research objectives, research hypothesis, assumptions of the study, scope of the study, limitations of the study, significance of the study, definition of conflict, the research methodology and ethical considerations.

Chapter two reviewed literature from published books, articles and the internet on disasters in general and some disaster theories or frameworks.

Chapter three reviewed literature from published books, articles and the internet on conflicts, conflict indicators and early warning systems.

Chapter four looked at data presentation, analysis and interpretation.

5.2 Summary of findings.

The following summary is made in line with each research objective:

(a) The study identified six main conflict types namely boarder disputes, food riots, political violence, armed conflict, inter-communal strife and armed conflicts.

(b) The conflict type and number varied in each and every country. They varied from zero to three per country. Some countries had no conflict identified.

(c) The conflict indicators were prioritized in terms of seriousness and armed conflict was identified as the first priorities due to its serious devastating effects.

(d) The conflict indicators for the various types of conflicts were identified. They are many and are as stated under each conflict type on the relevant research objective in chapter four.

(e) The role of conflict indicators was identified as that of early warning to disasters. These must be used as a sign of early warning to disasters. These indicators are the roots of conflicts and a starting point in disaster management activities. In management it's said that the first step towards problem solving is identifying the root cause of problems. Conflict indicators are the signs and symptoms of probable conflict disasters.

(f) Conflict is undermining disaster management activities as it increases the vulnerability of society towards all other hazards. It seriously impedes on governance capacity increasing vulnerability. It is assumed that its being sponsored no wonder there is no end to it in some countries. There is lack of political will amongst governments involved. Conflict has serious consequences that include brain drain, threatens peace and security, exacerbate gender-based atrocities like rape and mutilation, destroys infrastructure, brings illness and hunger, discourages investments and may others.

5.3 Conclusion.

Conflict is causing havoc in Africa and is also a carrier of other disaster hazards like illness and hunger. It makes the management of disaster difficult. Some of it like armed conflict is presumed sponsored. The conflict indicators are many and varied depending on the conflict type. Some indicators also overlap.

5.4 Recommendations.

The following recommendations were made:

- (a) There must be proper Disaster risk assessment in Africa and conflict must be the first.
- (b) Conflict management must be a precursor to all disaster and developmental activities in Africa
- (c) Conflict must be managed together with all other disaster hazards and not in isolation vice-versa.
- (d) All stakeholders to conflicts must seriously make efforts to end conflicts. This calls for political will and serious engagement in conflict resolution.
- (e) Sponsors of conflict must be identified and exposed to the international community.

- (f) Conflict sponsorship must be brought to a halt through national, regional and international actions.
- (g) There must be punitive measures at all levels that deal with all those found wanting.
- (h) There must be continuous identification and assessment of conflict indicators over time and use these as early warning to parties involved. This is meant to be a mitigation measure in disaster management
- (i) There must be continuous monitoring and evaluation of trends and changes to keep updates and put in place punitive measures to those found wanting.
- (j) There is need for cooperation and coordination of efforts by all stakeholders.
- (k) There must be serious educational and awareness campaigns to sensitise people and the whole world on the disastrous effects of conflicts in Africa.
- (l) Conflict which is a man-made hazard can be prevented and must be stopped
- (m) People must put aside their political, tribal, ethnic, religious and racial differences and work as one people.
- (n) Countries that are donating their weapons to Africa must destroy their weapons when down sizing.
- (o) Countries must channel more resources to conflict prevention and resolution than building up strong armies.
- (p) There must be endeavours to strengthen institutional capacities of the continental or regional organisations to address the challenge of peace and security.
- (q) Focus by the bodies must be now on intrastate conflicts which have increased dramatically than on inter state conflicts.
- (r) Conflict prevention and resolution studies must be introduced and made compulsory from primary education.

- (s) Countries and institutions must build and strengthen the effectiveness of conflict early warning centres.
- (t) The continental regional and national bodies must be established, always meet to identify and resolve conflicts in their countries, regions or the continent. The frequency of the meetings has to be agreed.
- (u) The search for peace and security requires the mobilization, coordination and cooperation of all states, Non-governmental organisations, civil society, community leaders, the community and others to participate in efforts of promoting peace, security and stability in Africa.
- (v) African countries need to seriously adopt instruments relating to human rights, rule of law, governance, democratisation as these represent a consolidated framework of commonly accepted norms and principles, whose observance would considerably reduce the risk of conflicts.
- (w) The continent through the continental and regional bodies must put into effect legislation prohibiting the use of children in armed conflicts,
- (x) More research needs to be done in the same area to refine the grey areas that were not explored by this research.

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