Technological Advancement in Conflict Assessment:
A Case Study of the Fund for Peace's Universal Network of Local Knowledge in Liberia

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A Thesis submitted to

The Faculty of
The Elliott School of International Affairs
of The George Washington University
in partial fulfillment of the requirements
for the degree of Master of Arts

May 20, 2012

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Dedication

The author wishes to dedicate this thesis to the staff, funders, and participants of organizations that conduct conflict assessment around the world, particularly the Fund for Peace's Universal Network of Local Knowledge (UNLocK) project, and to promoters of peace in Liberia.

Acknowledgments

The author wishes to acknowledge the following people for their invaluable assistance with the completion of this thesis: Professor Paul D. Williams, for his guidance, mentorship, and humor; Professor Steven Livingston, for his time and insight; Professor Holger Schmidt, for supporting the beginnings of this research; and, especially, the staff at the Fund for Peace, particularly Nate Haken, Joelle Burbank, and Kendall Lawrence, for sharing their thoughts and experiences.

The author also wishes to thank her parents, Joseph and Bonni Knight, for encouragement and patience (and edits – thanks Mom!); Alicia van der Veen, co-President of the Lonely Hearts Thesis Club, for many days at the library; and the following colleagues, for advice and inspiration: Elise Connor, Sarah Carroll, Pam Franko, Andrew Hartsig, Erin McEntee, Dan McCarthy, Mark Antoniewicz, Melissa Beazer, Brian O'Donnell, and G.F.R.

Abstract of Thesis

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This research explores the ways in which technological advancements have impacted the methodology of non-state actors that conduct conflict assessment by using the Fund for Peace's Universal Network of Local Knowledge (UNLocK) project in Liberia as a case study. Through a comparison of content analysis and mobile reporting, as well as a participant questionnaire, this thesis finds that advances in technology have had a marginal impact to Fund for Peace's UNLocK in Liberia. Despite the incorporation of a crisis-mapping platform and increased mobile phone diffusion, reports actually decreased significantly between 2010 and 2011. The research demonstrates that Liberia suffers from extremely low levels of development and access to technology. However, most UNLocK participants do use mobile phones to report incidents, and mobile phone growth is on the rise in Liberia.

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List of Acronyms

AFP	Agence France Presse
CAST	Conflict Assessment Software Tool
CCPDC	Carnegie Commission on Preventing Deadly Conflict
Centcom	United States Central Command
CPA	Comprehensive Peace Agreement
DARPA	Defense Advanced Research Projects Agency
DDRR	Disarmament, Demobilization, Rehabilitation, and Reintegration
ECOMIL	ECOWAS Mission in Liberia
ECOMOG	ECOWAS Monitoring Group
ECOWARN	ECOWAS Early Warning and Response Network
ECOWAS	Economic Community of West African States
GDP	Gross domestic product
GoL	Government of Liberia
GPS	Global Positioning System
HIPC	Highly indebted poor countries
ICEWS	Integrated Crisis Early Warning System
ICT	Information and Communication Technology
KEDS	Kansas Event Data System
LERN	Liberia Emergency-Response Network
LDW	Liberia Democracy Watch
LURD	Liberians United for Reconciliation and Democracy
MODEL	Movement for Democracy in Liberia
NGO	Non-governmental organization
NPFL	National Patriotic Front of Liberia
NTGL	National Transitional Government in Liberia
OECD	Organization for Economic Co-operation and Development
PITF	Political Instability Task Force
SMS	Short Message Service
UN	United Nations
UNLOCK	Universal Network of Local Knowledge
UNMIL	United Nations Mission in Liberia
USAID	United States Agency for International Development
USG	United States Government
WANEP	West African Network for Peacebuilding

Chapter 1: Introduction

1. INTRODUCTION

In response to large-scale mass atrocities, such as the genocide in Rwanda in 1994 that killed approximately 800,000 people, governments and non-state actors have emphasized a need for anticipating when and where violent conflicts may break out.[1] This has produced a rise in what this thesis refers to as "conflict assessment:" the process of monitoring social, political, and/or economic factors for potential outbreak, escalation, and resurgence of violent conflict.[2] Limited governmental resources and a lack of political will have motivated a number of non-governmental organizations (NGOs) to enter the field of conflict assessment.

NGOs perform a number of activities related to conflict assessment, either explicitly or implicitly. In response to the rapidly changing nature of conflict-prone regions, much of the program development of these organizations is ad hoc, meaning it arises where needs are perceived, and is not necessarily strategically planned in advance. Since these organizations vary significantly in their missions and resources, they each employ different methodologies to achieve their conflict assessment goals. For example, to conduct conflict assessment in Sudan, in conjunction with local informants, Amnesty

[1] For example, the Carnegie Commission on Preventing Deadly Conflict (CCPDC) (1997), in its final report "Preventing Deadly Conflict" cite the impact of the Rwandan genocide on the need to pay attention to potential conflict escalation:"for the international community, the chief legacy of Rwanda is the knowledge that mass violence rarely happens without warning…" (1997, p. 4). Additionally, according to the OECD, "the failure to respond to the Rwandan genocide in 1994 and the experiences of the Balkans conflicts were major spurs to the development of better conflict early warning and response; they led to several major policy initiatives in governmental, inter-governmental and non-governmental sectors." (2009, p. 13).

[2] Adapted from the OECD's definition of conflict early warning according to "Preventing Violence, War and State Collapse: The Future of Conflict Early Warning and Response," 2009, OECD Publishing: Paris,

International's Eyes On Darfur project used satellite images to create irrefutable evidence of mass atrocities (notably burnt villages and mass graves), whereas the West African Network for Peacebuilding (WANEP) conducts conflict assessment by working with national networks of small civil society organizations, such as women's groups, as well as governments.

Non-state actors who conduct conflict assessment often gather information by working with individuals living in the conflict zone. Partnerships with local civil society organizations and networks of non-governmental organizations, governments, or inter-governmental groups allow organizations that conduct conflict assessment to obtain more diverse interpretations of the situation on the ground as it unfolds, rather than basing their assessments on reports from journalists or formal government channels.

1.1 Introduction to Research

The final report of the Carnegie Commission on Preventing Deadly Conflict (1997: 44) concluded that "because dangerous circumstances rarely degenerate without warning into violence, what is needed is not simply more information, but rather the right kind of information and a reliable interpretation of its meaning." This highlights the need to find effective methodologies of conflict assessment.

Conflict assessment methodologies can be influenced by a broad array of issues, including, but not limited to, resources, affiliations, cultural differences, and even physical infrastructure or language. Recent advancements in technology, particularly the increased dissemination of mobile phones and the development of social media platforms, have

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France. A greater exploration of the definitions of conflict assessment and early warning is discussed in chapter 2.

caused a seismic shift in the conflict assessment capabilities available to NGOs. The penetration of mobile phones into states with low levels of development has rapidly improved the ability of NGOs to share information internally as well as with other non-state actors abroad. To explore the impact of technology on the methodology of non-state actors conducting conflict assessment, the specific methodology of the Fund for Peace's Universal Network of Local Knowledge (UNLocK) in Liberia is described and analyzed as a case study.

The second section of this chapter introduces the theoretical and practical problems related to conflict assessment methodology and technology. The third part of this chapter describes the purpose of, and need for, this study, as well as the academic and practical significance it brings to the field and the benefits for participants. The fourth part introduces the research question and a description of the study, including relevant definitions, a justification for the use of the case study methodology, and key limitations of this research. The final section outlines the structure of this thesis and provides a brief introduction to each subsequent chapter.

2. STATEMENT OF THE PROBLEM

This section provides a brief overview of the main concerns regarding conflict assessment that will be addressed at length in chapter 2. This begins with a discussion of theoretical and definitional problems related to conflict assessment: what is conflict assessment, why is it conducted, and where does it belong in conflict literature and theory? Second, this research discusses the practical problems related to conflict assessment: how is

conflict assessment conducted? More specifically, what techniques are employed, how do these techniques use technology, and what challenges do these techniques face?

2.1 Conflict Assessment: Theoretical Concerns

To understand how and why non-state actors conduct conflict assessment, it is first necessary to understand conflict. An explanation and diagram of the conflict cycle illustrates that conflict assessment is used as both a preventative measure and a peacebuilding tool. Additionally, chapter 2 discusses the definition of conflict assessment, its relationship with conflict early warning, and several of its central criticisms. As explored in chapter 2, the relationship between the conflict cycle and the question of the impact of technology on conflict assessment methodology is an important one. The stage of the conflict influences relevant conflict resolution theories (in this case, prevention or peacebuilding) and recent advancements in technology have improved the ability of non-state actors in conflict zones to share information with each other. Rapid communication that may not have existed until recently in conflict or post-war zones, or may have existed mostly in the hands of rebel leaders, government officials, or foreign NGOs, is now increasingly available to civil society organizations, which improves their ability to conduct conflict assessment for prevention or peacebuilding purposes.

2.2 Conflict Assessment: Practical Concerns

In addition to existing theoretical concerns regarding conflict assessment, there are a number of important practical concerns that impact methodologies. A non-state actor can use a variety of techniques to conduct conflict assessment, and this thesis will focus on three: content analysis, mobile reporting, and satellite technology. Each technique is associated with a number of challenges, including media freedom, mobile phone

penetration, government and service provider manipulation, state sovereignty, validity, anonymity, reliability, cultural differences, financial constraints, and much more.

Which methodology an organization chooses to use to conduct conflict assessment is motivated by a number of factors. Understanding a broad range of technology and conflict assessment methodologies, as well as their associated challenges, illustrates why an organization may benefit from using a specific technology in a certain way. If advances in technology make certain elements of conflict assessment easier (for example, low cost mobile technology promotes greater participation) or more difficult (for example, increased reliance on crisis-mapping drives an organization towards a methodology that requires a computer, internet connection, and training), it may impact organizations in different ways, encouraging or requiring them to adapt their methodology.

3. PURPOSE OF THE STUDY

The purpose of this thesis is to explore how technology has changed the methodologies that non-state actors use to conduct conflict assessment. This will help researchers and students of conflict assessment to better understand the benefits and challenges of technological development to a non-state actor's conflict assessment methodology and how methodologies have changed as a result of technological development. To illustrate these changes, this paper will focus on the Fund for Peace's Universal Network of Local Knowledge (UNLocK) project in Liberia in 2011.

3.1 Need for the Study

There are many needs for a study that explores and compares various methods of conflict assessment. A primary consideration is that any attempt to identify successful methods of conflict assessment, or potential areas of improvement, may serve to shift the behavior and activities of practitioners towards more effective methods.

Tangentially, significant resources are spent each year by non-profit organizations, as well as governmental and inter-governmental bodies, to better anticipate and understand changes in the dynamics of various conflicts. Funding designated for international development projects has decreased since 1990, making already limited resources increasingly scarce.[3] If more effective methods can be isolated, it could allow these organizations to use their resources more efficiently for maximum impact.

3.2 Significance to the Field

This thesis has the potential to benefit both scholars and practitioners of conflict assessment. Research indicates that the conflict assessment tools available to practitioners are advanced and that the tools and techniques continue to improve.[4] Yet not as much scholarly research has been done to explore the different methodologies these organizations employ, and how their assessment varies based on their methodology. Significant work is underway that explores the impact of the increased dissemination of mobile technology throughout the developing world, yet it focuses predominantly on economic and financial issues (such as mobile banking and informal private business), political issues (such as corruption reporting and election fraud), and development issues (such as public health campaigns and agricultural information sharing). These studies contribute significantly to

[3] Menkhaus, (2004) p.420

understanding the impact of technology on developing, and even post-war, regions, but more research is needed to understand the relationship between these technological advancements and their impact on conflict assessment. By applying research on conflict resolution, technological advancement, and social organizing in the developing world, this research can provide a unique contribution to existing literature on conflict assessment. This study also has the potential to benefit conflict assessment practitioners. By exploring the various uses of technology in conflict assessment, what challenges and benefits are associated with different methodologies, and what external factors affect the ability of these organizations to assess conflict, this research will identify potential tools, pitfalls, and opportunities for collaboration for all types of conflict assessment practitioners. This research will also (hopefully) be beneficial for the participants in the case study, namely, the Fund for Peace, and its partner Ushahidi. Combining research on conflict assessment methodology, technology and civil society in developing states, and the motivations and behaviors of UNLocK stakeholders will highlight connections that will provide the Fund for Peace with helpful information about their methodology.

4. RESEARCH QUESTION

As previously mentioned, significant technological advancements have been made in the field of communications technology and social networking, and these advances have transformed the manner in which many civil society organizations obtain, share, and

[4] See, for example, Menkhaus, 2004, or OECD, 2009.

analyze information. This thesis explores how these technological advancements have changed conflict assessment methodologies used by non-state actors. First, this section introduces the specific research question, including definitions of key terms. This is followed by a description of the study, including an explanation of the methods used to collect information, a justification for the use of the case study methodology, and key limitations of this research.

4.1 Research question

This thesis addresses two questions: First, how have advances in technology affected the methodologies of non-state actors doing conflict assessment? Second, if these advances have caused a change in methodology, have they improved the quality of the assessment?

As noted above, this thesis uses an adaptation of the OECD's[5] definition of early warning as the starting point for its understanding of conflict assessment: conflict assessment is thus the process of monitoring social, political, and/or economic factors for potential outbreak, escalation, and resurgence of violent conflict. The definition of conflict assessment and related terms is discussed in more depth in chapter 2. Additionally, this thesis focuses on the conflict assessment activities of non-state actors, or, entities that have the potential to influence international affairs while existing outside of the formal state structure. This definition encompasses actors as broad as private businesses, media outlets, diaspora communities, religious institutions, and many more. The term non-state actor includes non-governmental organizations (NGOs), which also exist outside the state structure and may affect transnational issues, but does not include private for-profit

[5] Adapted from OECD, "Preventing Violence, War and State Collapse: The Future of Conflict Early Warning and Response," 2009, OECD Publishing: Paris, France.

businesses. This distinction is important to the study because as this research explores the methodologies of non-state actors, it may include the conflict assessment activities of private companies. An example of this may be an oil company monitoring social and political activity in a region as a type of political risk analysis to determine if it should suspend its operations.

With regard to the second research question – "have technological advancements improved the quality of the conflict assessment?" – it is necessary to define quality. Since all organizations, non-state or otherwise, have different missions, methodologies, and outputs, each measures the quality of their conflict assessment by different standards. The quality of the assessment may hold a unique significance for each organization involved. Several ways in which technological advancements may have improved the quality of the conflict assessment include: increased speed of information, increased diversification and quantity of reports, improved access to underdeveloped areas, and a greater number of first-hand accounts. The impact of technology on these effects is discussed in chapter 2.

4.2 Description of the study

To inform the analysis, this research used several data collection methods, including personal interviews, questionnaire review, and data analysis of field reports and content analysis. Personal interviews with staff and participants of organizations that conduct conflict assessment were particularly useful. Aggregate data relating to number, type, and location of event reports on UNLocK in Liberia and Ushahidi Liberia are both available publicly. In addition to academic literature, several blog posts provided anecdotal insight that contributed significantly to this analysis.

Since the use of new technologies in the field of conflict assessment is a fairly recent development and many of these technologies are still being experimented with, employing the case study methodology for the research design will provide the opportunity to examine the phenomenon in considerable detail. Johnson and Reynolds (2008: 150) argue that the case study methodology is most useful for research in political science that seeks to answer a "how" or "why" question.[6] The research undertaken in this paper essentially addresses two "how" questions: *how* has technology affected the methodologies of non-state actors doing conflict assessment, and *how* has technology affected the quality of the assessment? Furthermore, qualitative study is appropriate for small-N research design such as this, since the sample size of non-state actors conducting conflict assessment activities with a well-defined methodology that leverage new technologies in 2011 is not large. Additionally, the research question addresses social dynamics and therefore a qualitative methodology is more useful.

4.3 Case study selection

As stated previously, this research addresses the role of non-state actors in conflict assessment. A deliberate decision was taken to exclude government and inter-governmental entities, which provide some of the most extensive, accurate, and well-funded conflict assessment efforts in the world.[7] This was made particularly clear during the release of official United States Government (USG) cables through Wikileaks in 2011. Among cables from the U.S. Embassy in Monrovia, the capital of Liberia, are several that

[6] For contribution to this concept, Johnson and Reynolds (2008) cite Robert K. Yin, Case Study Research: Design and Methods, rev. ed (Beverly Hills, Calif: Sage Publications, 1989), 47.

[7] According to the CCPDC, "Every major government maintains an active watch over the world's 'hotspots' and many have developed capabilities to track and predict developing trends" (1997, 44)

point to conflict assessment activities, including USG representatives visiting rural communities to inquire about ethnic conflict in villages (May 24, 2007) and representatives meeting with former warlords to ask, among other political issues, about the likelihood of a return to civil war (February 25, 2010). Despite conducting conflict assessment activities, many government-linked entities retain their analysis for internal use only (as evidenced by Wikileaks' publication of these cables). To address this lack of public information sharing, many non-state actors that engage in conflict assessment activities are committed to open information access. Furthermore, as discussed in chapter 2, government engagement in conflict assessment can come with costs, as individuals may be more or less inclined to speak honestly when meeting with a government representative. Another reason for focusing this study on the methodologies of non-state actors is that much research has already been conducted on the methodologies of conflict assessment initiatives in regional and global inter-governmental organizations, governments, and the United Nations.[8]

There are numerous reasons why the Fund for Peace's UNLocK project was selected for this case study. The Fund for Peace's UNLocK project, as described at length in chapter 4, combines several unique technologies. The methodology involves participant reporting via mobile device, website, and email, and a collaboration with Ushahidi, a crisis-mapping organization. The methodology also relies on twelve indicators that the Fund for Peace has developed as a framework for understanding conflict assessment, which they

[8] For examples of research that analyzes the methodologies of governmental and inter-governmental conflict assessment and early warning see "Systemic Disconnects: Why Regional Organizations Fail to Use Early Warning and Response Mechanisms" Wulf and Debiel, 2010; OECD "Preventing Violence, War and State Collapse," 2009, for the United Nations, see "Early warning and prevention of violent conflict: The role of multifunctional observer missions," Last in *Conflict Prevention* (2003) or "Early warning analysis and policy planning in UN preventive action," Cockell in *Conflict Prevention* (2003).

also use for content analysis with their Conflict Assessment Software Tool (CAST), an electronic conflict assessment mechanism described in chapter 2.

Although the Fund for Peace's UNLocK project also operates in Nigeria and Uganda, the Liberian project is the only one to work with Ushahidi at this point. This is primarily due to the request of UNLocK Liberia's funder, Humanity United.[9] The UNLocK project also relies heavily on collaboration with a number of Liberian NGOs, primarily through the assistance of Liberia Democracy Watch (LDW). Furthermore, it is interesting to note that the Liberian workshops occur throughout the country. This is different from the Nigerian workshops, which occur primarily in the southern part of the country to capture instability in the Niger Delta region, and the Ugandan workshops, which include a significant number of participants in the northern part of the country to assess activity related to the Lord's Resistance Army and border problems with South Sudan and Kenya. Additionally, Liberia's unique historic relationship with the United States and use of the English language make it the site for significant international participation. Another reason for studying Liberia is that according to a 2010 report by CIVICUS, an organization that measures and compares civil societies throughout the developing world, Liberians have an advanced level of engagement with civil society.[10] The UNLocK project in Nigeria is focused primarily in the Niger Delta region, which poses difficulties when comparing it to aggregate state-level data. By choosing the Fund for Peace's UNLocK project in Liberia, this study is able to explore a unique combination of technological tools for conflict

[9] UNLocK Nigeria is funded by the National Endowment for Democracy, and UNLocK Uganda is funded primarily by the Carnegie Corporation of New York.

[10] The CIVICUS (2010) study, which is analyzed in greater detail in Chapter 3, states that "civic engagement recorded a score of 55.9%, indicating a high level of citizen engagement in political and social affairs in

assessment, and the methodologies of several different organizations, in an environment that encourages civic engagement.

A number of limitations exist with employing the case study methodology as a research design for this thesis. There is an issue of generalization. Since Liberia offers a unique environment (Anglophone population, historic ties to the US, a relatively receptive political environment for civil society etc.), can trends or relationships here be extrapolated to other conflict-ridden or post-war states? Furthermore, utilizing a single case study exposes the research to concerns about how valid a causal inference may be. If a causal relationship is identified, should we assume that UNLocK Liberia is the norm when in fact it may be the exception? To mitigate these concerns, the methodologies of several organizations will be explained throughout the research, and compared to UNLocK Liberia. Additionally, this thesis identifies situations that may be unique to the Liberian context, and articulates ways in which Liberian society, culture, politics, or development level, for example, may have a significant impact on conflict assessment methodology.

Practical limitations exist as well. Due to funding and time constraints, in-person observation of UNLocK Liberia participants was not possible. To address this limitation, this thesis analyzes incident reports, interviews with UNLocK staff in Washington, D.C., and participant surveys.

5. ASSESSMENT

Liberia" (p. 7).

This chapter has introduced the focus of this thesis: to explore the impact of advances in technology on the methodology of non-state actors conducting conflict assessment, and how these changes have affected the quality of the assessment. It has also introduced the theoretical, practical challenges inherent in the study; the purpose and significance of the thesis; and the case study of the Fund for Peace's UNLocK project in Liberia, as well as its associated limitations. Chapter 2 delves deeper into the theoretical and practical challenges associated with exploring the methodologies of non-state actors conducting conflict assessment. Chapter 3 provides a brief introduction to Liberia, beginning with an overview of the country's history and an analysis of current patterns of violence. It includes a discussion of the strength of Liberian civil society, as well as current development and infrastructure challenges, as they have a tremendous impact on the ability of organizations to conduct conflict assessment. Chapter 4 provides a detailed discussion of the Fund for Peace's UNLocK operations, the organization's specific uses of technology, and a data analysis of UNLocK incident reports with content analysis software. Chapter 5 discusses the finding that despite increase in mobile phone use, a preference for SMS among participants, and a partnership with a crisis-mapping organization, there were significantly fewer incident reports in 2011 than 2010.

Chapter 2: Literature Review

1. INTRODUCTION

This chapter analyzes and critiques the literature on conflict assessment. The goal is to provide a greater understanding of why organizations engage in conflict assessment, how conflict assessment is conducted, and what impacts the ability of organizations to conduct conflict assessment and the quality of the assessment itself. To explore these questions clearly, the analysis of the literature is divided into two parts: theoretical considerations and practical considerations.

The first part reviews the relevant literature on conflict theory, outlines several definitional problems related to conflict assessment, and identifies prominent critiques of conflict assessment. Once both the concept of conflict assessment and the context in which it exists in the literature on conflict theory are better understood, the second part of this chapter then describes and analyzes three conflict assessment techniques that many non-state actors incorporate in their methodology: content analysis, mobile reporting, and satellite technology. The analysis of each technique is accompanied by relevant social, economic, and political constraints and challenges.

Naturally, most of the substantial research on relevant conflict and communications theories appears in the form of peer-reviewed academic journal articles. However, some of the most valuable and relevant, not to mention current, insights on field-based conflict analysis come from blog posts, websites, and individual reports.[1] Additionally, since this

[1] See, for example: iRevolution, by Patrick Meier or Ushahidi's blog, http://blog.ushahidi.com.

research focuses on the activities of non-state actors, these organizations' communications, including annual reports, websites, analysis, and briefings, also provide important information about their techniques, methodologies, and initiatives. Therefore, this chapter includes analysis generated by both academics and field-based practitioners.

2. THEORETICAL CONSIDERATIONS

Part one of this chapter explores the academic research related to conflict assessment methodology in three parts. The first section provides an overview of the evolution of conflict assessment, the relationship between conflict assessment and the conflict cycle, and the difference between structural and operational conflict prevention. The second section of this chapter explores the definition of conflict assessment and how it relates to conflict early warning, and the third section describes three prominent critiques and challenges of conflict assessment: the magnitude of information collected, the inability of analysts to predict the trajectory of small events, and the gap between warning and response.

2.1 Evolution

Although much conflict research during the post Cold-War period focused on superpower nuclear proliferation, significant strides were made in the study of protracted conflicts, or those conflicts where international and domestic conflict drivers combine.[2] Acknowledging the relationship between domestic and international political-security

issues is instrumental to understanding more specific issues that affect conflict assessment, such as the increased complexity to respond to early warnings, questions of sovereignty, and the various motives, strengths, and weaknesses of working with government officials and non-governmental organizations. It also has significant application for the case study of Liberia, as conflict in West Africa has been rife with blending between international and domestic allegiances and interference.

Key developments in the field include identification of the stages of conflict, as well as various methods of conflict resolution, as will be discussed in the next section. A number of social and political changes occurred during this period that sparked the need for, and feasibility of, conflict assessment activities to emerge, including the development of more robust civil societies around the world. The increased practice of conflict assessment (by non-governmental organizations, governments, and inter-governmental organizations) led to a proliferation of literature on the subject in the last two decades. Furthermore, Ramsbotham et al. allude to a future generation of conflict research; a time period marked by advancements in globalization, information and communication technology (ICT), and military capabilities, many of which have direct impacts on the process of conflict assessment.[3]

Following the end of the Cold War, the Western powers and highly developed states were able to refocus their attention from the two superpowers and instead analyze smaller conflicts. Society and scholars turned their attention to the legacies and remnants

[2] Ramsbotham et al. (2011:50):"'deep-rooted conflicts' (Burton, 1987), 'intractable conflicts' (Kriesberg et al., eds, 1989) or 'protracted social conflicts' (Azar, 1990) in which the distinction of between international and domestic level causes was seen to be elided".

[3] Ramsbotham et al. (2011).

of Cold War proxy wars. Additionally, the period following the end of the Cold War saw significant violent intrastate conflicts around the world, in places like Bosnia, East Timor, Rwanda, and Somalia.

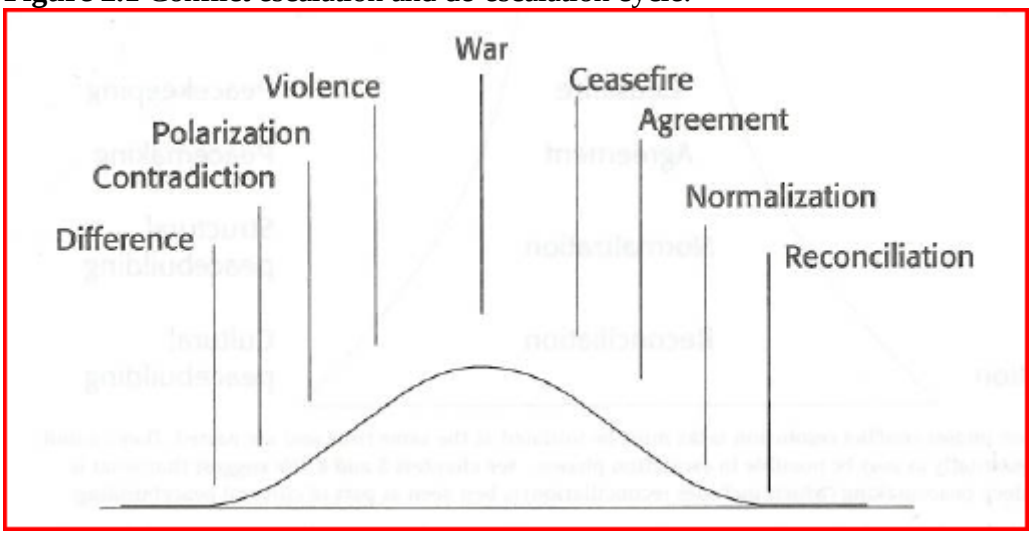
With the increase in intrastate conflicts[4] and improved global political climate for cooperation, governments and scholars began to focus on the potential for conflict prevention. Other key reasons for the growth of attention on prevention during the post-Cold War era include the lack of effectiveness in belated peacekeeping missions, the globalization of media and information technology, and the growth of organized pressure from international non-governmental organizations.[5] Although scholarship on conflict varies widely on what constitutes prevention, conflict assessment occurs in both instances of early prevention and peacebuilding, opposite ends of the conflict spectrum.

Contemporary conflict research has identified a number of stages throughout the life cycle of a conflict as the intensity and level of violence escalates and de-escalates. Using Ramsbotham et al.'s simple delineation, conflict escalates and de-escalates through nine sequential phases, none of which are necessarily equal in time, as conflict is unpredictable and can move quickly or slowly. Nor is it necessary for a conflict to transition through every phase on the conflict cycle; it may shift back and forth between several phases, for example, the violence may de-escalate before the war phase is reached. The first four stages: difference, contradiction, polarization, and violence, represent the escalation period, culminating in war, the fifth stage. The de-escalation period is identified as the four stages that follow war, measuring a decrease in the intensity of violence:

[4] It it important to note that the intrastate conflicts dramatically declined after 1992, (Fearon, 2010).

ceasefire, agreement, normalization, and finally, reconciliation. See figure 2.1 for a graphic representation.)

Figure 2.1 Conflict escalation and de-escalation cycle.

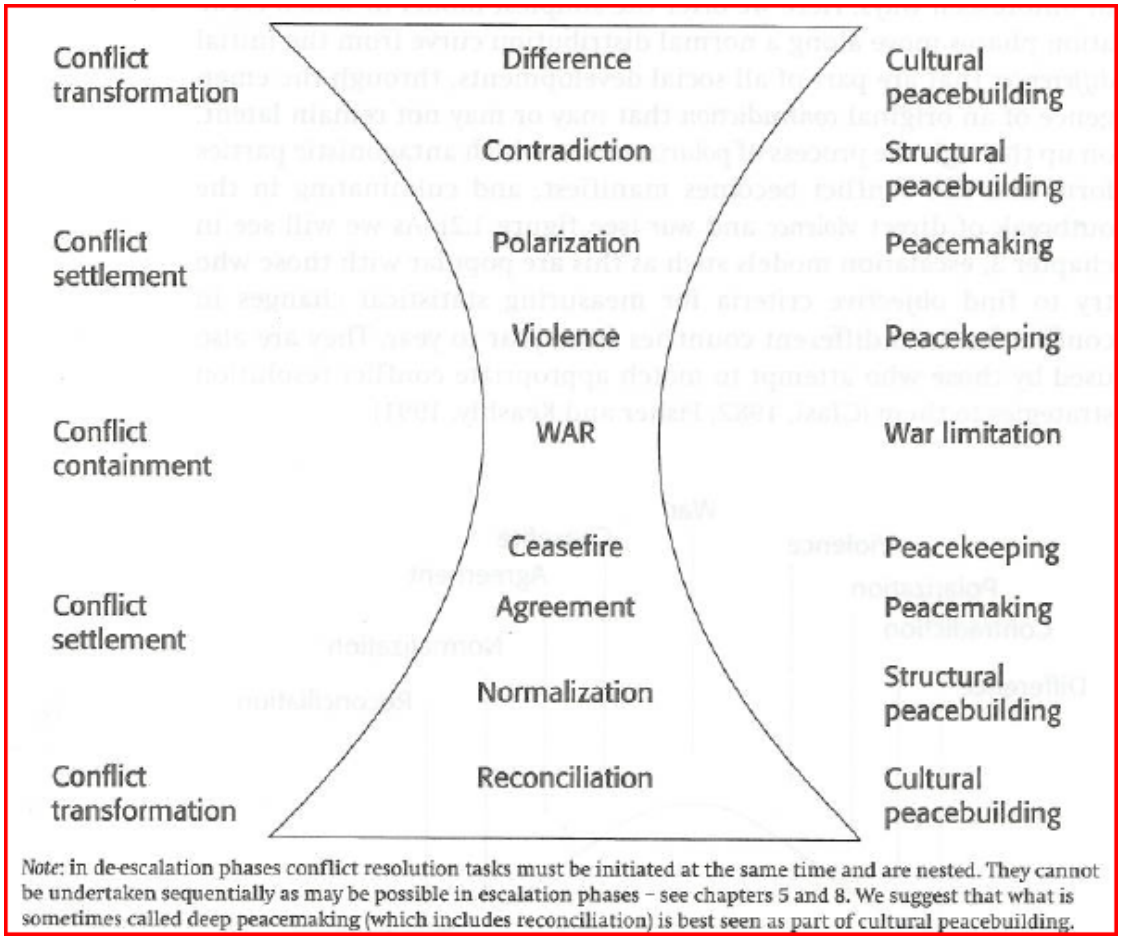


Source: Ramsbotham et al., 2011 p. 13.

Each of these stages corresponds to a conflict resolution approach that attempts to maximize the opportunity for conflict de-escalation. Ramsbotham et al. identify four sequential conflict resolution strategies that promote specific techniques with each escalation of conflict. The stages develop as: cultural peacebuilding, structural peacebuilding, elite peacemaking, and finally peacekeeping. If these strategies prove insufficient, Ramsbotham et al. cite war limitation as the best strategic response, corresponding with the war stage of conflict. As the conflict de-escalates, the strategies reverse to meet each phase in the conflict de-escalation process, culminating in structural peacebuilding and cultural peacebuilding for the normalization and reconciliation stages, respectively. (See figure 2.2 for a graphic representation.)

[5] Menkhaus, 2004

Figure 2.2 The hourglass model of conflict resolution: conflict containment, conflict settlement, and conflict transformation.



Note: in de-escalation phases conflict resolution tasks must be initiated at the same time and are nested. They cannot be undertaken sequentially as may be possible in escalation phases – see chapters 5 and 8. We suggest that what is sometimes called deep peacemaking (which includes reconciliation) is best seen as part of cultural peacebuilding.

Source: Rambsotham et al., 2011, p. 14.

This figure illustrates the utility of employing many of the same conflict resolution strategies, in this case, conflict assessment, at both the initial and final stages of the conflict. It is important to note that conflict assessment is not in and of itself a conflict resolution strategy, as it does not seek violence mitigation, nor is it associated with a response mechanism. It is, however, generally conducted as part of a broader program that focuses on prevention or peacebuilding activities, and often as a prerequisite for other conflict resolution strategies to better understand conflict dynamics.

The relationship between conflict assessment and what stage a conflict is at along the conflict cycle is also important for methodology. As Last (2003:159) describes, "different sorts of information are necessary at different stages in the escalation or de-escalation of a conflict." Organizations may find certain types of analysis more valuable at various stages of conflict, depending on the particular dynamics of the conflict itself.

Many definitions of conflict prevention differentiate between conducting what is alternately referred to as structural, upstream, or long-term activities, which address the root causes of a conflict, with operational, downstream, or short-term activities, which include more reactive engagement to mitigate or resolve tensions before they escalate.[6] Scholars and practitioners that analyze or engage in structural prevention initiatives will focus on those preventative measures that address underlying causes of violence, often ones that have been institutionalized or that promote economic and political inequality. Analysts and activists who engage in operational preventative measures focus on initiatives related to the threat of imminent violence, which can include activities such as crisis diplomacy.

According to these definitions, conflict assessment would most appropriately be described as an operationally preventative measure: it does not typically address underlying causes of conflict (i.e. mobile reporting encourages incident reports of specific violent or political acts, in favor of those related to structural long-term challenges. For example, a report of rape, murder, or theft is significantly more common than a report of poverty or economic exclusion.) And it does encourage initiatives related to the threat of imminent

[6] For structural prevention versus operational prevention, see Carnegie Commission on Preventing Deadly Conflict, 1997, p. 40, 69). For upstream prevention versus downstream prevention, see the Krusenberg Seminar on Preventing Violent Conflict, in Menkhaus 2004. For long-term versus short-term, see Stockholm International Peace Research Institute (SIPRI) 2000. *Preventing Deadly Conflict: The Search for Political Will, Strategies, and Effective Tools*. SIPRI, Stockholm, Sweden.

violence (as a prevention mechanism, many types of conflict assessment encourage real-time analysis and information-sharing to support immediate violence de-escalation).[7]

However, this is not an accurate assumption. As chapter 4 demonstrates, several organizations that conduct conflict assessment focus on instances of structural violence. The Fund for Peace, for example, values structural reporting, such as reports of an individual moving to an urban area for greater economic opportunity, reports of an individual who feels they did not get a job because of his/her ethnicity, or reports of institutionalized exclusion from educational opportunities or political participation for certain groups. Furthermore, conflict assessment activities are often aligned to development projects with social and economic development goals.

Tangential to the distinction between structural and operational prevention is the contrast between early prevention, which occurs as conflict issues arise, and late prevention, which occurs at the time directly preceding armed conflict. However, to both Evans and Menkhaus, even early prevention first requires an early warning alert.[8] This further suggests that conflict assessment should be considered a structural preventative measure. Menkhaus fails to incorporate conflict assessment and early warning effectively when he outlines his five distinct types of prevention. His definition of *structural prevention* as "those efforts targeting issues of economic development, human rights, arms trafficking and governance, and of building international regimes or a 'culture of

[7] For examples of conflict assessment of imminent violence that produced a response evocative of operational prevention, see Livingston, 2011. While discussing an effort at information gathering for violence prevention in Kenya, Livingston writes "…a vigilante group planned a reprisal attack on residents of a rival ethnic identity. Once the nerve center learned of this, it mobilized a 'peace committee' who persuaded the young members of the vigilante group to disband and go home."(2011:21).

[8] Evans 1993, Menkhaus 2004

prevention' at the international level" does not mention conflict assessment or early warning whatsoever.[9] Yet his next distinct type of prevention, *early prevention*, identifies early warning as a prerequisite. This inconsistency further illustrates the definitional challenges of where conflict assessment activities occur in the conflict spectrum.

2.2 Definitional Challenges

As previously stated, this thesis defines conflict assessment as the process of monitoring social, political, and/or economic factors for potential outbreak, escalation, and resurgence of violent conflict. This is adapted from the Organization for Economic Co-operation and Development's (OECD) definition of conflict early warning in *Preventing Violence, War and State Collapse: The Future of Conflict Early Warning and Response*. The OECD (2009:22) defines conflict early warning as "a process that *(a)* alerts decision makers to the potential outbreak, escalation and resurgence of violent conflict; and *(b)* promotes an understanding among decision makers of the nature and impact of violent conflict (adapted from FEWER in Schmid, 1998)."

Definitions of conflict early warning vary, but three common elements include data collection,[10] prediction,[11] and an alert mechanism for political decision makers.[12] To be clear, an alert mechanism does not entail a response to the warning. For the purposes of this thesis, the term conflict assessment is used because although it includes data collection, it does not necessarily include prediction or an alert mechanism for decision makers.

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[9] Menkhaus 2004 (p. 429)

[10] Van Walraven, 1998; OECD (2009: 22) mentions "early warning systems involve regular and organised collection and analysis of information", Last, 2003; Sutterlin, 1998;

[11] Van Walraven, 1998;

[12] Van Walraven, 1998; Sutterlin, 1998; OECD, 2009.

The concept of prediction and early warning are closely linked. A focus on anticipating violence before it escalates further is a key component of many types of early warning systems. But how early is necessary? This thesis uses the term conflict assessment because it encompasses those activities that operate in real-time, and not necessarily in a predictive or early capacity.

A key element of conflict assessment and early warning is data collection, and, once analyzed, this information is shared with vaguely-defined "decision makers." In practice, this means that early warning systems often notify Western government representatives, and possibly regional policy makers.[13] However, this "warning" system has been criticized for being too vertical—local level reporting is sent to Western governments and NGOs who then share the information with other elites without bringing the analysis back to the affected community.[14] Thus, when using the term conflict assessment, the resulting analysis may be shared with audiences that differ from that of an early warning system. For example, an oil company may conduct a conflict assessment of an area before deciding to suspend operations, or a network of civil society organizations may conduct on-going conflict assessment, and share the information internally, rather than focusing on alerting government representatives. Since this thesis focuses on methodologies, it uses the term conflict assessment as this allows for inclusion of a greater variety of organizations.

2.2 Critiques of Conflict Assessment

[13] This may be in part because of conflict early warning's development from the intelligence community (Adelman, 1998).

[14] Barrs, 2006.

The act of conflict assessment itself is open to many critiques. From a preventative perspective, why spend resources analyzing a region or situation that could potentially erupt in conflict when other parts of the world are already experiencing conflict of a greater intensity? Furthermore, as previously mentioned, how early is enough? If conflict assessment predicts a war in a certain state, does that justify a physical response?

These criticisms are outside the scope of this research. As the focus of this thesis is on methodology, it engages only those criticisms relevant to conflict assessment techniques, namely: the magnitude of information collected, the inability of analysts to predict the trajectory of small events, and the gap between warning and response.

Several analysts assert that in the process of conducting conflict assessment, there is an opportunity for too much information to be gathered, making the analysis cumbersome, and increasing the likelihood of missing an important event. This is a similar critique for the intelligence community as well. Often, after an unanticipated event, for example, a coup that degenerated into a widespread conflict, critics point to the availability of previous knowledge of the event, but the failure to isolate the key variables out of all the others. As Menkhaus (2004:436) states, "the fact that the revolution in information technology has dramatically increased the flow of information to analysts only complicates the task of distinguishing bad data and analysis from good." The proliferation of mobile devices has increased not only the amount of information, but also the number of venues through which information is provided, further contributing to the excess of information, and complicating the determination of which sources are most valuable to analysis.

Perhaps the most prominent critique of conflict assessment is that the presentation of analysis is often incapable of producing a response. This warning-response gap occurs

when decision makers are provided with conflict assessment that indicates impending violence escalation, and they fail to act on this analysis in a meaningful way to mitigate the situation. Although there are a number of explanations for the warning-response gap, a lack of political will seems to be most prominent throughout the literature.[15] A deficiency of political will to respond to a conflict assessment alert may be the result of multiple factors: a lack of financial resources, an unwillingness to challenge the sovereignty of another state, a reluctance to engage in an international commitment of unknown length, a rejection of the analysis as untrustworthy or inaccurate, or even a situation of poor timing, potentially related to an impending election or additional international commitments and relationships. Cockell (2003:185) writes, "in short, the warning-response gap is most often characterized by the research community as one of receptivity, credibility, and/or knowledge." Cockell explains this as the receptivity of the decision makers to the alert, the perceived credibility of the conflict assessment, and the knowledge of the range of potential responses to the alert.

The magnitude of available information is directly related to the second key critique of early warning, the failure of analysts to predict the trajectory of small level events. If, after digesting all the available information, conflict assessment identifies a key event or situation that may catalyze an escalation in violence, analysts are still challenged to predict how the occurrence will impact the greater community. Last (2003:175) describes this well when he writes,

[15] For examples in the literature that point to a lack of political will as a cause of the warning-response gap, see Cockell (2003), Wallensteen (1998), and Menkhaus (2003:453) who writes "the overwhelming majority of studies cite a lack of political will as the major cause of failed prevention."

> "in the larger picture, there are situations that are the aggregate of many small incidents like this, and there are larger events that originate in the strategic designs of the parties to the conflict, or players outside the affected country. One of the most important roles for systematic analysis is to attempt to identify chains of causality, trends and actions that might lead to violence, and those which are susceptible to external influence."

The Final Report of the Carnegie Commission on Preventing Deadly Conflict (1997) asserts that big events are often triggered by small incidents and Menkhaus (2004) contends that the existing literature is weak on understanding catalytic factors and their potential. Both the magnitude of available information, the challenges to processing it and extracting relevant events, and the ability to interpret how those events may cause conditions for violence escalation, are challenges that organizations conducting conflict assessment must consider.

Where does methodology fit in to these criticisms? As this study explores various methodologies of conflict assessment, it will address techniques that attempt to mitigate these critiques. Challenges related to the magnitude of information, the difficulty of discerning the trajectory of trigger events, and the gap between warning of and response to potential conflict escalation, have, to varying degrees, influenced the way many organizations shape their conflict assessment methodology.

3. Practical Considerations

Following the analysis of the academic literature on conflict assessment, it becomes necessary to provide a greater understanding of the practical debates and critiques surrounding conflict assessment. To that end, this section will introduce various conflict assessment techniques and will organize them into three broadly defined categories: content analysis, mobile reporting, and satellite technology. Content analysis refers to

conflict assessment that uses statistical analysis of news reports, either with predictive goals, or real-time monitoring, to assess fluctuations in conflict intensity. Mobile reporting involves the use of mobile technology, namely cellular telephones, to conduct individual reporting of specific events. Satellite technology has provided non-state actors with two ways to conduct conflict assessment: crisis-mapping and photogrammetry. Crisis-mapping refers to the visual representation of data to illustrate the spatial dimension of the information. In conflict assessment, this often refers to the combination of global positioning system (GPS) satellites and cellular telephones to create maps that identify the geographic coordinates of the location of the cellular phone report. Photogrammetry is the use of satellite imagery (aerial photographs) to provide geometric information about an area. It is important to note that non-state actors that conduct conflict assessment can, and often do, combine and incorporate any of these techniques into their methodology. An analysis of each technique is followed by challenges related to that technique.

3.1 Technique: Content Analysis

This section introduces the techniques of content analysis and automated event coding, an application of content analysis, and how they contribute to the field of conflict assessment. An understanding of these two content analysis techniques is important both to appreciate the evolution of conflict assessment and the ways in which media and technology can be leveraged to gain information, and also to understand the foundation of the Fund for Peace's Conflict Assessment System Tool (CAST), to be further discussed in the chapter 4 case study.

Several models, such as Harff's (2003) attempts to assess risks related to genocide and mass murder, analyze decades of past conflicts to isolate potential variables that

contribute to conflict development, in Harff's case since 1955. Fearon and Laitin's "Ethnicity, insurgency, and civil war" (2003), and Collier and Hoeffler's "Greed and grievance" (2004), are other examples of large-n empirical analyses that have isolated several statistically significant factors in conflict prediction (civil war in the case of these two models). Although these models have the potential to identify statistically significant factors in conflict escalation, they have been criticized for their failure to improve the ability to predict civil war or violence.[16]

Other methods of conflict assessment, such as the Political Instability Task Force (PITF), attempt to improve on this by focusing on making actual predictions. Like the aforementioned models, the PITF also utilizes aggregate national-level data to make its calculations. The PITF model uses just five factors; institutional consistency, economic openness, infant mortality rates, militarization, and neighborhood security, to develop predictions.[17] This information is used to predict a political instability event two years in advance and both United States Central Command (Centcom) and the OECD have incorporated elements of the methodology to be used in fragile states response planning.[18] One criticism of these models is that they use data that are aggregated annually and

[16] For an example of such criticism, see Ward et al. (2010).

[17] Goldston, Jack A., Robert H. Bates, David L. Epstein, Ted Robert Gurr, Michael B. Lustik, Monty G. Marshall, Jay Ulfelder, and Mark Woodward. 2010. A Global Model for Forecasting Political Instability. American Journal of Political Science, 54:190-208.

[18] According to Patrick Meier's blog, http://earlywarning.wordpress.com, he shared e-mail communication with Jack Goldstone, a PITF contributor. On July 8, 2008, Meier wrote of this correspondence: "When I asked Jack [Goldstone] why he and his colleagues had not applied their model through to 2007/2008 in order to make predictions for 2008-2010, he mentioned that the organization sponsoring the research has exclusive rights to the data and predictions about the present and near future… While [Goldstone] and his research team cannot use the material, their sponsors are making extensive use of the forecasts. Indeed, Centcom is drawing on the conflict modeling and parts of the forecasts are also being incorporated into the OECD fragile states response planning. So while the funder wishes to control dispersal, they are not keeping it fully locked up."

nationally, which may not accurately capture cross-border violence or conflict that does not fall within the date parameters of the study.[19] Similarly, Menkhaus (2004:436) argues that "predictive models predicated on systemic variables, thus, tend to see trouble everywhere," meaning that a state might qualify as a potential for conflict escalation based on these factors, when in fact it could be moving in the opposite direction. Furthermore, the use of pre-existing data sets, such as the PITF, the Correlates of War, or Uppsala (a project of the Peace Research Institute of Oslo) have been criticized for leaving gaps in the data, such as inability to predict exact number of deaths.[20] Perhaps because of this rigidity, Goldstone (2008) argues that it is necessary to combine qualitative and quantitative analysis in conflict assessment.

To address the deficiency of using inflexible annual data, several models began to include content analysis and automated event coding in their methods. Content analysis is defined by Neuendorf (2002:11) as "systematic, objective, quantitative analysis of message characteristics." Content analysis for conflict assessment is done by analyzing electronic news wire reports or "messages" around the world for relevant key words. News wire reports are essentially newspaper articles that are prepared by major news agencies and sold to other news organizations, corporations, or governments in bulk. They are referred to as news wire reports because the text was traditionally transmitted through telegraphy, but the internet has supplanted this technology for many news agencies.

[19] The author thanks conversations with Professor Holger Schmidt and Nate Haken for the notion that the rigidity of measuring data only within state boundaries and within a calendar year may cause some conflicts to be missed.

[20] For an example of this criticism, see Haken, N., Burbank, J, and Baker, P. 2010

The articles are analyzed for content related to conflict according to a code book, and trends are recorded. Automated event coding is another technique that uses electronic news wire articles to forecast conflict. When the content analysis system registers aberrant increases of certain terms, as stipulated in the code book, analysts use this information to determine if a conflict is brewing in that state. Jenkins and Bond (2001:5) describe this trend when they write "recent developments in the automated coding of electronic news wire services have made it possible to construct event summaries on a real-time basis for large numbers of countries." To simplify: automated event coding focuses on the frequency with which a certain political event occurs by counting the number of events (for example mobilization of armed forces, military coup, or coercive threat), whereas content analysis identifies the qualitative shifts within the reporting.[21]

3.2 Challenges: Content Analysis

A number of challenges and assumptions exist in the field of conflict assessment with respect to content analysis and automated event coding. This section reviews those challenges associated with using content analysis and automated event coding for conflict assessment related to coding bias, media coverage, and press freedom.

Coding bias. One key assumption in content analysis is that using only one electronic news wire service does not affect the accuracy of the coding. In Schrodt, Simpson, and Gerner's (2001) comparison between two news wire services, Reuters and *Agence France Presse* (AFP), of five geographical regions using the Kansas Event Data System (KEDS) methodology, the authors discovered that although there are regional

[21] Jenkins and Bond, 2001

biases (for example, Reuters provides denser coverage in the Balkans), there does not appear to be a noticeable bias in type of event. The authors also conclude that using both the headline and first paragraph of an article provide a more accurate account when using AFP, but the lead sentence and title alone are adequate when using Reuters.[22] Due to the abundance of information required for the analysis, analysts have programmed computers to conduct the coding and the accuracy of this automated coding is another important assumption in the field. A study by King and Lowe (2003) determined that not only does the computer not suffer the fatigue, distraction, boredom, or potential attrition of human coders; it is equally capable of automated information extraction.

The aforementioned efforts (KEDS, Harff's, Jenkins and Bond, and PITF [although government funded]) have been primarily academic, but the Defense Advanced Research Projects Agency (DARPA), in a US military effort to conduct conflict assessment using content analysis, developed the Integrated Crisis Early Warning System (ICEWS) to identify elements that precede conflict.[23]

Media coverage. Other challenges related to the use of content analysis and automated event coding arise from the deficiencies related to media coverage itself. For a media outlet or news wire service to have a journalist in every village in Liberia to report on the level of violence is not feasible. Conflict early warning analysts cannot afford to employ thousands of field workers to report conflict levels from these villages either. Furthermore, it is widely believed that the number of traditional foreign correspondents at

[22] Schrodt et al., 2001.p.36

[23] O'Brien, 2010.

news outlets is in decline.[24] Even more, states with low levels of development, such as Liberia, which will be discussed further in chapter 3, lack the most essential infrastructure required to conduct basic news reports. This could be related to both the transportation required to reach remote parts of the country and the communications infrastructure that facilitates rapid reporting.

Press Freedom. Countries with the highest potential for political instability rarely enjoy a free and thriving press. Not surprisingly, a cross comparison of Press Freedom rankings by Reporters Without Borders's *Press Freedom 2010 Survey*, with the *Failed States Index 2011* reveals a strong negative correlation.[25] These media are not always capable of gaining access to accurate information, and Freedom of the Press has reported harassment towards journalists who were critical of the government in countries such as Namibia, Madagascar, Senegal, and many more. Many countries that have experienced instability, such as Niger and Ethiopia, have a de facto state-run media that might not permit reporting of violence, especially if the actions are conducted by government actors or allies. Several states also have a relatively newly independent media that may undergo heavy criticism from the government, such as Zimbabwe or Madagascar, and might not have an extensive network of experienced journalists, with adequate resources and skills to

[24] For an analysis of the decline in traditional American foreign correspondents abroad, see Maxwell (2009). According to a 2007 article by Pamela Constable in the Washington Post, only four US newspapers maintain significant numbers of foreign correspondence, including the Chicago Tribune, the Christian Science Monitor, USA Today, and McClatchy. See Constable, Pamela "Demise of the Foreign Correspondent" February 18, 2007, http://www.washingtonpost.com/wp-dyn/content/article/2007/02/16/AR2007021601713.html

[25] The bottom 10 states on the *2011 Failed State Index* are all among the top 20 in the *Press Freedom Index 2010*, for the same time period. Myanmar/Burma, Yemen, Sudan, and Somalia all rank among the top 20 on the *Failed States Index* and lowest 20 on the *Press Freedom Index 2010*. The *Press Freedom Index 2010* and the *Failed State Index 2011* both measure data from the calendar year of 2010.

conduct responsible journalism.[26] Furthermore, according to Freedom House's *Freedom of the Press 2010* Survey, the governments of authoritarian states, such as Eritrea and Equatorial Guinea, continue to legally influence the media environment by enacting legislation that restricts the ability of independent journalists to operate freely. Menkhaus (2004:436) summarizes the relationship between conflict assessment and media freedom well when he writes "access to reliable information worsens in direct relation to the deterioration of local politics; rising insecurity and polarized politics hamper independent information gathering and politicize the views of local informants." The sphere in which media operate can shift rapidly as conflict conditions escalate and these changes can at times be difficult to discern outside of the country.

Yet, despite severe limitations, methodologies that use content analysis and automated event coding from these very news reports remain one of the most accurate ways of obtaining information because it is seemingly difficult to glean a large amount of accurate and current information in any other practical way. As one can see, the prospect of using domestic and foreign electronic news wire reports, via content analysis or automated event coding, is subject to diverse challenges. These challenges motivated, in part, a greater appreciation for the value of gathering field reports through informal channels.

3.3 Technique: Mobile Reporting

[26] For example, an article by Gift Phiri on May 26, 2010 in *The Zimbabwean*, a self-proclaimed newspaper for Zimbabweans in exile, based in the United Kingdom, claims that the Information and Publicity Minister of Zimbabwe, Webster Shamu has accused many journalists of taking bribes. What Shamu refers to as "crony journalism" includes accepting gifts to conceal information or to provide positive or unflattering coverage of individuals or organizations.

Cell phone use is increasingly popular in developing countries.[27] This can have a profoundly positive impact on various areas of society; research has been done on the impact of cell phones in developing areas to fight corruption,[28] promote election turnout,[29] promote civic action,[30] increase disaster preparedness and response,[31] and much more. In the past few years, some organizations that conduct conflict assessment have begun to incorporate reports from mobile devices into their analysis. This has led to a rise in an informal field that leverages information and communications technology (ICT) to record and track incidents during large-scale disaster or conflict crises. However, it is still important to remember that several of the world's most politically unstable states currently have very low levels of cell phone use. See Appendix 1 for a comparison of the World Bank's list of Fragile Situations in 2012 with mobile phone subscription per 100 inhabitants. Only 3 of the 32 states listed have reached world average mobile subscription levels, while 14 of the states are at or below half the world average.

Conflict assessment analysts have begun to take advantage of new media technologies because they offer access to information that is potentially more current and consistent than that gathered through electronic newswire. Every technique that relies on new media faces different challenges and benefits related to consistency and veracity,

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[27] In developing countries, rates of mobile phone subscriptions per 100 inhabitants improved from 58 (2009), to 70 (2010), to 78 (2011), reflecting a rapid rate of growth. Alternatively, mobile phone subscription in the developed world at this time demonstrates a much more modest growth rate, with 113 (2009), 114 (2010) and 118 (2011) mobile phone subscribers per 100 inhabitants. (Key Global Telecom Indicators for the World Telecommunications Service Sector, 2006-2011, International Telecommunication Union (ITU), www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom.html) (ITU is a UN agency that gathers ICT statistics).

[28] Bailard 2009

[29] *Telecoms in Emerging Markets*, The Economist 2009

[30] Meier 2008

which will be discussed below. A benefit of new media technology in conflict assessment is that it provides an outlet for input from individuals who reside in the conflict regions. Their perspective on the current situation has the potential to provide invaluable contextual information that foreign journalists may not be able to contribute.

For the purposes of this thesis, mobile reporting will refer to the use of mobile devices to inform a group or individual about a specific episode or event relating to a conflict. The type of incident, and the manner in which it is then publicized or analyzed, varies significantly across different organizations.

The purpose of mobile reporting is to glean information from those experiencing life in the conflict zone, which can provide more specific details to the analysis than are available from macro-level indicators. This can benefit the analysis in many ways; for example, it can provide a greater context for the behavior or activity in question, which might help to determine if certain elements are accelerators for violence or instability.

When organizations seek out community partners to assist with in-country reporting, it is necessary that these correspondents have access to rural information, and it is beneficial if they have a large social network from which they can gather more opinions and specific incidents of instability or violence. For this reason, many organizations that conduct conflict assessment rely on civil society leaders for in-country analysis, as they often have a broad range of contacts and are frequently considered trustworthy in their local communities.

3.4 Challenges: Mobile Reporting

[31] Meier 2008

Challenges to the use of new media for conflict assessment are varied, and many are similar to difficulties faced by journalists when gathering information. In some instances, a challenge to one organization's methodology might prove beneficial for another, for example, anonymity. Although there are many more, this section briefly introduces the following challenges to successful use of mobile reporting in conflict assessment: mobile phone penetration, government and service provider manipulation, state sovereignty, validity, anonymity, reliability, and cultural differences. An exploration of these challenges provides the reader with a greater understanding of why an organization may have developed its methodology in a certain way, in attempt to avoid or mitigate several of these challenges. Chapters 3 and 4 address which of these considerations are particularly relevant in Liberia and those that are important considerations for the Fund For Peace's UNLocK methodology.

Mobile Phone Penetration. Although mobile phone technology is growing rapidly throughout the developing world, a number of countries still suffer shockingly low rates. Kenya and Nigeria, two countries with a rapidly growing cell phone presence, had only 30 and 27 mobile phone subscribers respectively per 100 people in 2007.[32] (For comparison, the developed world had an average of 102 mobile phone subscribers per 100 people in 2007.[33]) By 2010, these numbers doubled, to 62 and 55 mobile phone subscribers per 100 people in Kenya and Nigeria respectively. Although this growth is remarkable, it illustrates that even in the most rapidly growing markets in Africa, mobile phone penetration still

[32] International Telecommunications Union (ITU), the leading UN agency for ICT issues

[33] For further comparison, according to ITU, in 2007 the numbers of mobile phone subscriptions per 100 inhabitants were as follows: Germany, 117; Japan, 85; United Kingdom, 121; and United States, 82. The relatively low number for the United States in 2007 is curious.

hovers around half to two-thirds of the population. Furthermore, gender disparities in mobile phone ownership exist; a woman living in Africa is 23 percent less likely to own a phone than a man.[34]

Cost is another inhibitor to mobile phone absorption. In Sub-Saharan Africa, the average mobile cellular prepaid tariff is approximately $10.40 per month, a prohibitive cost for poor segments of the population.[35] When considering the impact of including mobile reporting into conflict assessment, it is important to remember that cell phone access is neither widely nor evenly distributed in conflict or post-war environments.

Government or Service Provider Manipulation. Another challenge to the use of mobile phones for conflict assessment is that the communication can still be manipulated by the government or powerful rebel groups. For example, according to the BBC, during the food riots in Mozambique in September 2010, the government blocked text messages throughout the country, as citizens attempted to rally greater public support for the riots via short message service (SMS).[36] Additionally, in some remote villages, reception can be inconsistent and the mobile phones themselves can be damaged or even stolen by those wishing to conceal the truth.

State Sovereignty. Concerns over state sovereignty arise when governments or non-state actors, are concerned about a population that is not within their state borders. Organizations that conduct conflict assessment may be viewed as attempting to gather

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[34] *Women & Mobile: A Global Opportunity*, a 2010 study commissioned by the GSMA and the Cherie Blair Foundation for Women. http://www.mwomen.org/Research/women-mobile-a-global-opportunity_1

[35] World Bank, *The Little Data Book on Information and Communication Technology 2011*. p.8.

[36] BBC "Mozambique 'blocked texts' during food riots," September 14, 2010 www.bbc.co.uk/news/world-africa-11300211

intelligence, and disrespect for state sovereignty might be acutely felt when foreign organizations work with civil society leaders, who often oppose or critique government behavior. To circumvent this challenge, many organizations that conduct conflict assessment work directly with government officials, by involving them in the reporting process, maintaining transparency about their activities in the country, and sharing analysis. Developing international conflict assessment networks is another tactic conflict assessment organizations use to mitigate the challenges of state sovereignty. If a conflict assessment network exists across borders, it may be perceived as less of a direct threat to heads of state. Alternatively, states may wish to protect their activities in a country, which may make for a less accurate analysis of the conflict environment. In this scenario, it becomes necessary for conflict assessment organizations to rely heavily on civil society actors in their communication, as community leaders are often more able to speak candidly without fear of impunity, when state actors cannot.

Validity. How accurate is the information being gathered through these new media technologies? Analysts that incorporate mobile phone reporting from diverse sources must also consider the validity of those reports. Several conflict assessment programs provide training workshops for participants before they are allowed to report incidences, effectively vetting participants and encouraging accurate reporting. Other projects use triangulation; they require verification on the accuracy of the report with another individual in the region. Although many organizations provide a verification mechanism, it is impossible to know if ethnic, political, social, or geographic biases exist in the qualitative reporting. Furthermore, as previously mentioned, some organizations accept reports from any interested actor. This could not only lead to the incorporation of incorrect information, but it could potentially

lead to the manipulation of data. For example, rebel groups or government forces could intentionally misidentify their location or incorrectly suggest culpability to a rival group or individual as the perpetrator of an incident.

Anonymity. Another concern that is relevant to the veracity of reports is the danger that civil society leaders could face for their involvement in conflict assessment activities. For example, if civil society leaders have a relationship with an organization that conducts conflict assessment and that organization names specific individuals or rebel groups that have a relationship to the state, or a neighboring state, it could lead to a dangerous situation. Herein lies the benefit of anonymity that is at times essential for the success of mobile reporting. Non-governmental organizations might provide an additional layer of security for correspondents in conflict environments. However, anonymity can also challenge the veracity of a report, because, as previously indicated, anonymous incident reporting allows potential untrue reporting.

Reliability. The reliability of reporting is also a concern when the analysis involves in-country reports from a variety of sources. While the reports filed by government organizations are systematic and routine, reports that rely heavily on individual mobile reporting are inconsistent. Furthermore, an extremely involved citizen may provide such a meticulous account of information that it may lead to an over-representation of incidents in a certain area. For example, if individuals across a country are reporting incidents via mobile phone to the same organization, and one or two of these individuals are considerably more active with reporting, it may lead the organization to conclude that the conflict situation in that region is more severe, when in fact it may be the same as a nearby region with a less-motivated correspondent. When the number of reports received from

one area relatively low, an analyst may be forced to conclude that fewer violent incidents occurred, when in fact the decrease in reporting might be due to external factors. With the lack of a mandatory schedule, fluctuations in data availability will occur.

Cultural Differences. One key challenge that impacts the reliability, validity, and efficacy of all types of new media reporting for conflict assessment is the cultural nuances of those doing the reporting. A culture that is well-adapted to using mobile technologies may be more willing and able to absorb the new technology, and the social skills necessary to leverage it for reporting acts of instability. For example, as chapter 4 will explain, Ushahidi began in Kenya, where mobile phone use is creative and highly embedded in the culture, as evidenced by the success of M-PESA mobile banking in Kenya. This may lead to an enhanced use of mobile technology for conflict assessment, as many individuals may already feel comfortable using this technology. Additional cultural factors, such as language, gender roles, and literacy level can impact the way in which mobile phone use is distributed across a state and the activities for which it is used.

3.5 Technique: Satellite Technology

The third and final technology addressed in this thesis is satellite technology and its two contributions to the field of conflict assessment: (1) crisis-mapping and (2) photogrammetry. As previously stated, crisis-mapping refers to the visual representation of data to illustrate the spatial dimension of the information. In conflict assessment, this often refers to the combination of global positioning system (GPS) satellites and cellular telephones to create maps that identify the geographic coordinates of the location of the cellular phone report. In crisis-mapping, short message service (SMS) messages, also known as text messages, are placed on a map using the geographic coordinates of the

phone, and a "map" of the conflict becomes available. This allows people to see time-sensitive waves of activity across a region.

Ushahidi is perhaps the most prominent organization that creates crisis-mapping software platforms. As will be explored in chapter 4, an organization can partner with Ushahidi to develop a platform that measures whatever types of incidents the organization stipulates. When a participant reports an incident, the report is categorized and becomes a visual indicator of an event on a map.

This process relies heavily on what is referred to as crowd-sourcing, which Livingston (2011:23) describes as "the distribution of problem solving to 'crowds,' to members of the general public that are tied together in a network." Livingston mentions a related initiative of Voix des Kivus in Congo referred to as 'crowdseeding,' or what he (2011:25) describes as "the strategically planned placement of mobiles with selected individuals and the establishment of long-term relationships with each user." Crowd-sourcing lowers the barriers to traditional organization while maintaining the ability for group analysis. It would be nearly impossible for participants to meet frequently to share information, and the proliferation of mobile phones has allowed for group conflict assessment without physical organization.

Crowd-sourcing relies on information from individuals who vary geographically and demographically. Suroweicki asserts that diversity is important to achieving accuracy in a group, i.e. via crowd-sourcing. He explains this when he writes (2005: 36) "the positive case for diversity, as we've seen, is that it expands a group's set of possible solutions and allows the group to conceptualize problems in novel ways." Suroweicki emphasizes the importance of how group diversity, and, in the case of UNLocK,

independence, avoid the pitfall of groupthink, or the tendency of everyone in a group to accept the same conclusions. This diversity and independence is helpful for conflict assessment because it allows for broader contribution to the analysis, which encourages greater depth and more viewpoints in the conflict assessment.

The other conflict assessment technique facilitated by the development of satellite technology discussed in this thesis is photogrammetry: the use of satellite imagery (aerial photographs) to provide geometric information about an area. Perhaps the most well-known application of photogrammetry is Google Earth. Geo-spatial analysis is conducted by using high-resolution satellite imaging to watch for changes in the landscape, such as burning villages or rebel movements. Organizations and special projects, such as the Enough Project's Satellite Sentinel Project,[37] Human Rights Watch,[38] and Amnesty International's two initiatives Science for Human Rights[39] and the Crisis Prevention and Response Center's Eyes on Darfur, have used photogrammetry to corroborate field reports with photographic evidence of conflict activity in places like the Democratic Republic of the Congo, Kyrgyzstan, Pakistan, Sri Lanka, Sudan, Syria, and Zimbabwe.

The concept of using photogrammetry for conflict assessment operates in two ways. First, it provides irrefutable proof of large scale actions. Humanitarian NGOs, in conjunction with ground reports, have used photogrammetry to provide evidence of tank movement, creation of mass graves, burnt villages, and bombing in civilian areas, with

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[37] As found on the website for Enough Project Satellite Sentinel project http://satsentinel.org/

[38] See, for example, Human Rights Watch, "Sri Lanka Satellite Images, Witnesses Show Shelling Continues" May 12, 2009 www.hrw.org/news/2009/05/12/sri-lanka-satellite-images-witnesses-show-shelling-continues

[39] As found on the website for Amnesty International: http://www.amnestyusa.org/research/science-for-human-rights, and http://www.eyesondarfur.org/index.html

specific dates and locations. These images are used by government representatives to encourage leaders to encourage others to act against (or desist) these destructive activities. Photogrammetry images also provide local journalists and NGOs with evidence to pressure their own government and generate advocacy. For example, forced evictions decreased in Chad following significant NGO activism generated in part by images of the damage, and Sri Lankan military officials were forced to respond to a report, with the pressure of local journalists.[40] The images are also used as legal evidence in court. For example, Zimbabwe Lawyers for Human Rights used images generated by Amnesty International's Science for Human Rights when they filed a court case against the government.[41] According to Christoph Koettl of Amnesty International's Science for Human Rights, using photogrammetry "shrinks the space for impunity."[42]

The second function of photogrammetry in conflict assessment is using the images as a mechanism of deterrence. If the use of photogrammetry to generate international advocacy against, and to persecute, governments continues to gain traction, conflict assessment analysts are hopeful that it will deter governments and rebel groups from initiating these mass atrocities in the first place.

3.6 Challenges: Satellite Technology

Like content analysis and mobile reporting, the use of satellite technology for conflict assessment is not without its challenges. This section will review three challenges

[40] The author thanks Christoph Koettl for these and other examples of the collaboration of field work, media and NGO advocacy, and satellite imagery made available through Amnesty International's Science for Human Rights.

[41] Interview with Christoph Koettl, at Amnesty International USA, Washington, D.C. December 8, 2011.

[42] Interview with Christoph Koettl, at Amnesty International USA, Washington, D.C. December 8, 2011.

that the use of crisis-mapping and photogrammetry for conflict assessment face: internet access, satellite access, and terrain. The main challenges to crisis-mapping for conflict assessment are the same as those previously analyzed for mobile reporting.

Internet access. In addition to the ability of gathering a variety of incident reports from a diverse group, one of the key benefits of crowd-sourcing is its ability to display information spatially and temporally. This can be extremely useful for decision makers in highly-developed countries to learn more about conflict dynamics, but it does little to assist those in the conflict zones, where internet access is often significantly lower. For example, in sub-Saharan Africa in 2009, less than nine per one hundred people use the internet, and in low income states around the world, that number drops to less than three out of one hundred people using the internet.[43] Furthermore, maps are not always the most intuitive way of conveying information. According to Joelle Burbank of the Fund for Peace, showing maps of Liberia or a smaller region of the country to UNLocK participants was not always useful, as many individuals had little experience with maps and had a hard time interpreting them.[44]

Satellite access. Obtaining satellite imagery for photogrammetry is an expensive process. Each time an organization wants to move a satellite to view a new location it requires a burst of energy in space, which is not only expensive, but finite, and eventually

[43] World Bank, *The Little Data Book on Information and Communication Technology 2011*, p.127

[44] Burbank, Joelle (Associate, Fund for Peace), in discussion with the author, Washington, D.C., December 15, 2011.

the satellite will no longer function.[45] Organizations that conduct conflict assessment typically do significant research on an area prior to requesting satellite imagery, and must take multiple images for comparison to show changes in the landscape. A related challenge is that there is a time lag between the event and the receipt of the image. Analysts must wait for the imagery to begin the careful analysis, so photogrammetry is not available in real time.

Terrain. Terrain is another important consideration for successful use of photogrammetry. South Sudan is the location of several satellite photogrammetry sites because in part because its dessert terrain improves the visibility of changes via satellite. Using photogrammetry is challenging in areas of dense vegetation, as landmarks and stark changes are difficult to discern.[46] Similarly, extreme weather conditions can make photogrammetry difficult to use as well.

4. CONCLUSION

This chapter introduced the field of conflict assessment both in scholarship and practice. The first part of this chapter provided an overview of the evolution of conflict assessment, the relationship between conflict assessment and the conflict cycle, the difference between structural and operational conflict prevention, and the definition of conflict assessment. Part one also identified three prominent critiques of conflict

[45] As explained by Caitlin Howarth, of the Satellite Sentiel Project at Harvard Humanitarian Initiative, in a presentation at a panel titled "A Double-Edged Sword: Technology and Mass Attrocities," at the United to End Genocide Conference, October 22, 2011, Washington, D.C.

assessment: the magnitude of available information, the difficulty in discerning which events might trigger conflict escalation, and the warning-response gap.

Part two provided an introduction to the functions, goals, and challenges of using technology for conflict assessment through content analysis and automated event coding, mobile reporting, and satellite use for crisis-mapping and photogrammetry. The concepts introduced in this section will be built upon in chapter 3 as the conflict dynamics in Liberia are introduced and analyzed.

As will be explored in chapter 3, a number of social, economic, and developmental issues affect the ability of a non-state actor to conduct conflict assessment. A thriving civil society and extensive mobile phone penetration will have a positive impact on mobile reporting. However, as chapter 3 shows, in Liberia, and other countries at a similar development level, phone use is still concentrated in urban centers, and a mobile phone is a luxury that much of the population cannot afford.

[46] The author thanks Christoph Koettl of Amnesty International, for suggesting this as a reason why photogrammetry may not work in Liberia.

Chapter 3: Liberia

1. INTRODUCTION

This chapter provides a brief introduction to Liberia in two parts. First it addresses the country's conflict landscape by providing an overview of Liberian history as it relates to current society and politics. The second part introduces Liberian demography, infrastructure, and development, as all of these elements have a significant impact on the ability of an organization to conduct conflict assessment.

2. CONFLICT DYNAMICS

Liberia is a country of nearly 4 million people,[1] about the size of the state of Virginia[2] on the southwestern edge of West Africa. With Côte d'Ivoire to the east, Guinea to the north, and Sierra Leone to the west, Liberia's neighbors are no strangers to armed conflict themselves. Porous borders and illicit trade, among other issues, significantly contributed to international influence in Liberia's civil war that lasted over a decade (1989-1997 and 1999-2003).

2.1 History

Stephen Ellis (2007:288-289, 304) summarizes the reasons for the decade of civil war in Liberia and the way in which war was waged as a combination of numerous factors,

[1] Population was 3,999,122 in 2010, according to the World Bank Data Catalog, 2012.

[2] According to the Central Intelligence Agency (CIA) World Factbook, Liberia is approximately 43,000 square miles.

including rural resentment at the wealthy urban population in Monrovia, individual actions of Charles Taylor, historical roots, rival warlords, religious ideology, a "wild" youth population frustrated with a lack of economic opportunity, and long-term political control through the "manipulation of social networks."

Significant unrest in the country began when Samuel Doe capitalized on food riots to assume power in 1980, ending over a hundred years of rule by the descendants of American slaves. Instability continued until 1989, when Charles Taylor and the National Patriotic Front of Liberia (NPFL), with support from neighboring governments such as Burkina Faso and Côte d'Ivoire, took charge and launched the country into civil war. The Economic Community of West African States (ECOWAS) developed a Monitoring Group (ECOMOG), a Nigerian-led collaboration of West African armies, which entered the Liberian civil war in 1990 and almost immediately became a party to the violence. The war lasted until 1996 when rebel factions agreed to an ECOWAS-brokered ceasefire, and laid the ground for elections, but the relative peace was short-lived. In 1999 conflict erupted again with the rise of Liberians United for Reconciliation and Democracy (LURD), a rebel group supported by Guinea. A second rebel group, the Ivoirian-backed Movement for Democracy in Liberia (MODEL), entered the fighting in the southern part of the country in 2003. Amid ECOWAS mediation attempts and calls for US military involvement, Taylor accepted an offer of asylum to Nigeria in 2003, effectively ending the civil war.

The war formally ceased with the signing of the Comprehensive Peace Agreement (CPA) on August 18, 2003. Among the issues outlined in the CPA was the creation of a National Transitional Government in Liberia (NTGL). The NTGL, elected by representatives of LURD, MODEL and Taylor's government, was charged with executing

state functions until elections in 2005, including a CPA-established program of disarmament, demobilization, rehabilitation, and reintegration (DDRR) for some 38,000 ex-combatants throughout the country. In August 2003, ECOWAS committed troops to support peace with the deployment of ECOWAS Mission in Liberia (ECOMIL). In September 2003 the United Nations Mission in Liberia (UNMIL) arrived (per UN Security Council Resolution 1509) to support the peace by monitoring the DDRR. UNMIL assisted the return of 314,000 registered internally displaced persons, and assumed peacekeeping activities from ECOMIL forces shortly thereafter. According to Nichols (2005:110), in his account of the first year of the DDRR program, the funding and UNMIL troop numbers were insufficient, the disarmament program began prematurely, the program accounted for the surrender of only roughly two-thirds of Liberian weapons, and "Liberian armed groups' structures remain very much intact and incidents of violence still threaten the fragile peace process." Although this analysis was written when the DDRR program was still in its infancy, many weapons and war-time allegiances still exist.

In 2005 Liberians elected Ellen Johnson Sirleaf to the presidency. Sirleaf brought with her a Harvard education in economics and a public commitment to building peace.[3] Economic development and infrastructure were improving until the global financial crisis caused growth to slow significantly. Sirleaf's successful 2011 presidential bid, and

[3] According to Ellis (2007, foreword), "Fortunately, there are Liberians who do think how their country could achieve peace and modest prosperity in the future. President Johnson Sirleaf is among this group. She and others with some awareness of Liberia's global situation know that the current UN mission, coinciding as it does with the inauguration of a democratically-elected president who is well-respected abroad, is almost certainly the country's last chance to become a normal member of the international community in a way that it has not been since the 1980s."

Liberia's fairest elections in history, signify both her domestic popularity and her commitment to democratic reform.[4]

2.2 Conflict Cycle Analysis

With this brief history in mind, recall the conflict phases as discussed in chapter 2. According to Ramsbotham et al.'s conflict cycle, Liberia is likely in the normalization phase, as it is currently experiencing activities related to structural peacebuilding. The authors (2011:16) list the following conflict resolution mechanisms at this normalization phase as "collective security and cooperation arrangements, economic resource cooperation and development, and alternative defense." One could also argue that Liberia is in the reconciliation phase, as cultural peacebuilding activities are also occurring, which the authors identify as "commissions of enquiry/truth and justice commissions, peace media development, peace and conflict awareness education and training, cultural exchanges and initiatives, sport as reconciliation, and problem-solving as future imaging." Although Liberia experienced a Truth and Reconciliation Commission from 2006 to 2009, and has a number of peace and conflict awareness programs, the country has not yet moved out of a phase that requires significant government, security, and economic reform. Ellis (2007, foreword) writes of the future of the country,

> "If Liberia is to survive as a nation-state, its entire system of government will have to be reinvented in ways that cannot easily be foreseen…Like some other African failed states, Liberia is entering a highly uncertain phase in which it remains to be seen which legacies of its history, with roots sometimes going back to the nineteenth century or earlier, can be made compatible with statehood in the twenty-first century."

[4] Although Sirleaf's opponent, Winston Tubman, alleged fraud, several hundred international election observers support the outcome.

Following the CPA, the election of Sirleaf, and the end of the interim post-civil war government, Liberia began a slow de-escalation of violence. Sirleaf's personal commitment to civil society, and more specifically women's groups, has encouraged the growth of pro-peace NGOs. The country is moving along the conflict cycle in the right direction, towards reconciliation.

2.3 Current Conflict Dynamics

An understanding of current conflict dynamics in Liberia forms a basis for what behavior or events might be relevant to conflict assessment analysis. A variety of domestic and international issues affect the social, political, and security environment in the country. This section will focus on three profound elements that impact the current conflict dynamics in Liberia: legacies of the civil war, the presence of UNMIL, and regional cross-border security.

As previously mentioned, Liberia is only ten years beyond a devastating civil war. The specific characteristics of warfare have had an immense impact on society's ability to begin the post-war healing process. Legacies exist from Liberia's use of terror through the invocation of religious authority, child soldiers, drug addiction, and widespread rape.[5] Furthermore, poor road infrastructure, ethnic intermingling, and large portion of the population residing in rural areas during the war led to sub-conflicts between villages that were at times completely unrelated to the elite-driven power battles waging in Monrovia.[6]

[5] In Steven Ellis' (2007) *Mask of Anarchy*, a thorough history of the Liberian civil war, the author argues that religion and symbolism are entrenched in Liberian society and contributed significantly to perceptions of power and conflict dynamics

[6] Ellis, 2007.

Ellis (2007:117) summarizes the characteristics of the war well when he writes, "the search for national enemies became inseparable from the search for personal enemies."

According to Ellis (2007), 1 in 44 Liberians fought during the civil war, a number he thinks to be low because of the amount of individuals who took up fighting for short periods of time, or would not formally identify as a combatant. Many child soldiers, aged 9-15 during the 1990s, are now reaching their 20s and 30s, and form an important part of the workforce, while potentially battling with drug addiction, post-traumatic stress disorder, and unattended injuries. Writing about the youth in Liberia who came of age during the war, Ellis (2007:286) states; "they believe they can acquire the good things in life through aggressiveness." Incorporating hundreds of thousands of uneducated ex-combatants, who have limited job skills and are desensitized to violence, into peaceful Liberian society remains a challenge.

In addition to domestic legacies of the civil war, international forces maintain a significant influence in peace and security issues throughout Liberia. Two international elements that have the largest impact on conflict dynamics in Liberia are the presence of UNMIL and regional West African border security issues.

The UNMIL mission, in place since 2003, is beginning to wind down. The mission has an extensive presence,[7] as Ellis (2007, foreword) writes, UNMIL troop presence and budgets "dwarf the resources of the Liberian state." UNMIL has contributed significantly to infrastructure development, especially road construction, and there is a concern among

[7] According to the UN, as of March 2012, UNMIL has a total of 9,195 total uniformed personnel, 7,781 troops, 135 military observers, 1,279 police, 479 international civilian personnel, 995 local staff, and 227 UN Volunteers. The approved budget for 2011-2012 is $525,612,730. http://www.un.org/en/peacekeeping/missions/unmil/facts.shtml

analysts that the post-war reconstruction efforts will halt once UNMIL leaves.[8] As UNMIL transitions security institutions back to the Liberian state, US support and training of the Liberian military has helped it toward its goal of being fully operational by 2014.

Regional security issues are an important consideration for Liberian conflict dynamics. As Côte d'Ivoire, Guinea, Liberia, and Sierra Leone move closer to a regional monetary union, they are working together on a cooperative security agenda. According to Brownie Samukai, Liberia's Minister of Defense, these countries are working together to build confidence, share plans with one another, understand the standard operating procedures for border military behavior, and learning about each state's customs, immigrations, and military hierarchies.[9]

Significant unrest following a disputed election in October 2010 in Côte d'Ivoire has stirred up unrest in the region. According to Samukai, "our concern isn't the conflict itself, but the weapons that were used along the border."[10] Liberian mercenaries crossed over and fought in Côte d'Ivoire during this recent conflict, and Samukai stated that previously unknown weapons were recently discovered along the border.

Problems along the border with Sierra Leone are an area of concern for Liberian security as well. Samukai stated that following a cross-border violence issue, civilian

[8] A concern about reconstruction after the dissolution of UNMIL was expressed by Dr. J. Peter Pham and shared by John Blaney in a panel discussion titled "Security Sector Transformation in Post-Conflict Liberia" at United States Institute of Peace on April 4, 2012.

[9] "Security Sector Transformation in Post-Conflict Liberia" at United States Institute of Peace on April 4, 2012.

[10] "Security Sector Transformation in Post-Conflict Liberia" at United States Institute of Peace on April 4, 2012.

authority from both countries met to discuss the situation, and it resulted in no retribution.[11] Regional security issues exist, and illicit cross-border trade of weapons and drugs remains a concern, but Sirleaf continues to support peace in the region, and civilian and military conditions seem to be improving.

3. LIBERIAN DEVELOPMENT

With a greater understanding of the human aspects of Liberia (its history and conflict dynamics), this section focuses on the state's physical aspects and demography, including infrastructure and development. Both societal and environmental elements can have a large impact on conflict assessment methodology. This section describes the Liberian economy, demography, and technological infrastructure, as these elements can greatly impact the way in which technology is absorbed, and conflict assessment is conducted.

3.1 Economy and Demography

As a result of the devastating civil war, Liberia is an extremely impoverished under-developed state. Liberia has a gross domestic product (GDP) per capita of $400, second lowest in the world,[12] which has secured it a spot on the World Bank's list of highly indebted poor countries (HIPC), a collection of 39 countries eligible for debt-relief due to poverty levels. Agriculture, particularly rubber, forms the majority of the labor force,

[11] "Security Sector Transformation in Post-Conflict Liberia" at United States Institute of Peace on April 4, 2012.

despite the fact that only 38 percent of the country lives in a rural area. The urban-rural divide is an important aspect of Liberian society. Over 60 percent of Liberian society lives in cities, a significantly greater percentage than other highly-indebted poor countries, with 33 percent urban population, or other sub-Saharan African states, with 37 percent urban population.[13] This has significant impacts for conflict assessment, considering that the urban centers (particularly Monrovia), are the base of many civil society organizations, despite the fact that the war began in the rural areas.

Outside of the cities, the country has dense vegetation,[14] which makes it difficult for photogrammetry conflict assessment, as discussed in chapter 2. Heavy rainfall, especially during the rainy season from May to October, and poor road quality often make rural travel nearly impossible. Seasonal road conditions are a consideration for civil society organizations when planning their locations and dates for fieldwork and outreach.

3.2 Telecommunications Infrastructure

Mobile phone use is limited in Liberia. In 2009, the year for which the most recent country-level data are available, Liberia had a mobile phone subscription rate of 21 per 100 inhabitants (less than one in four Liberians had a mobile phone). Liberia has a lower mobile subscription rate than both the sub-Saharan African average of 37 and global average for other low income states, 27.[15]

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[12] Liberian GDP is higher only than the Democratic Republic of the Congo, (with a GDP per capita of $300). Central Intelligence Agency (CIA), *The World Factbook, Country Comparison GDP Per Capita*, www.cia.gov

[13] World Bank Data, Rural Population (% of total population), www.worldbank.org.

[14] 44.9 percent of Liberian land is covered in forest. World Bank Data Catalog, 2012.

[15] World Bank, *The Little Data Book on Information and Communication Technology 2011*, p.127. According to the World Bank, "low income economies are those with a GNI per capita of $995 or less in 2009"p. 9.

The cost may be one prohibitive factor in the absorption of mobile technology. Although statistics were not available for Liberia specifically, the average monthly mobile cellular prepaid tariff rate for low income countries is $8 (meaning $96 a year).[16] This fee is over half of the World Bank's estimate for the Liberian gross national income (GNI) per capita of $160 a year.[17]

Even if mobile phones were more financially accessible, only 16 percent of the population is covered by a mobile cellular network.[18] Less than 1 in 100 people use the internet in Liberia, lower than the 3 percent average for low income countries, and the 9 percent average for the rest of sub-Saharan Africa.[19] Furthermore, Liberia has no electricity grid, which requires generators for power use.

Another factor that affects Liberian communication use is the ability to read. The adult literacy rate in Liberia is 59 percent, not far from the 62 percent average for other low income countries.[20] This means that over a third of the population could not easily send or read SMSs or email messages, and would likely have difficulty accessing and interpreting a crisis-map on a computer screen.

The Government of Liberia (GoL) is paying attention to the global increase in mobile technology usage. There is a separate telecommunications regulatory body, and

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[16] World Bank, *The Little Data Book on Information and Communication Technology 2011*, p.127.

[17] World Bank, *The Little Data Book on Information and Communication Technology 2011*, p.127

[18] World Bank, *The Little Data Book on Information and Communication Technology 2011*, p.127.

[19] International Telecommunications Union and World Bank. (World Bank, *The Little Data Book on Information and Communication Technology 2011).*

[20] Adult literacy rate defined as "the percentage of people ages 15 and older who can, with understanding, read and write a short, simple statement about their everyday life." according to the United Nations Educational, Scientific, and Cultural Organization Institute for Statistics. (World Bank, *The Little Data Book on Information and Communication Technology 2011, p. 231)*

what the World Bank refers to as a "partially competitive" mobile telephone service market. Cell phone growth is on the rise, with MTN Liberia, a South African-based telecommunications provider, signing its one-millionth mobile customer in April 2012. MTN has identified Liberia as one of its strongest growing markets in Africa.[21]

3.3 Civil Society and Media

Liberia has an active and engaged civil society. The ability of Liberians to organize around social issues was made famous by the 2012 Nobel Peace Prize to President Sirleaf, Leymah Gbowee, and a Yemeni woman, Tawakkol Karman, for their non-violent commitment to promoting peace. According to CIVICUS, an organization that measures civil society around the world, 55 percent of Liberians are actively engaged in civic life.[22] In a 2010 report, CIVICUS assessed that Liberian civil society is focused around Monrovia, and that fewer than 3 percent of Liberian civil society organizations are connected internationally, a number that CIVICUS finds to be startlingly low.[23] Interestingly, the study found that 68 percent of Liberian civil society organizations have joined networks, while some of the remaining groups "find the idea of joining networks and coalitions repugnant. They prefer to do their work and advocacy alone."[24] The communication and cooperation of civil society organizations that work on peace and security issues is extremely relevant for conflict assessment. As mentioned in chapter 2, a

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[21] Telegraphy, "MTN Liberia breaks one million subscriber barrier" www.telegeography.com/products/commsupdate/articles/2012/04/02/mtn-liberia-breaks-one-million-subscriber-barrier/

[22] CIVICUS, 2010. *Beyond Numbers: An Assessment of the Liberian Civil Society, CIVICUS Civil Society Index Analytical Report for Liberia*.

[23] CIVICUS, 2010, 23.

[24] CIVICUS, (2010:21).

broad network of participants can improve the physical reach of the organization and the diversity of reporting.

According to Freedom House's Freedom of the Press 2011, Liberian media is rated as "partly free."[25] This is in part due to a reduction in the number of physical attacks on journalists as compared with years passed. It is also a result of the passing of freedom of information legislation that gives Liberian journalists legal access to government information. According to Freedom House, media freedom seems to be backpedaling in Africa, so Liberian improvement in this regard is promising. There are about a dozen newspapers and three television stations in the country, mostly concentrated in Monrovia. Due to literacy rates and financial constraints, most Liberians receive their news from radio stations, of which there are 15 independent stations in the capital and 24 community stations throughout the rest of the country.[26]

4. CONCLUSION

This chapter has provided a brief overview of Liberian history, current conflict dynamics, and development levels. Liberia's devastating civil war that ended only a decade ago still impacts the security situation and the national conscience. In the coming years, the departure of UNMIL and the related transition of the security apparatus to Liberian institutions, as well as the regional cross-border arms trade, will provide challenges to peacebuilding for Liberians.

[25] Freedom House, *Freedom of the Press 2011 - Liberia*, September, 23 2011

This chapter has also illustrated the significant challenges that Liberians face for access to technology and communications. On the positive side, cell phone subscription rates, press freedom, and civil society engagement are improving. However, Liberian poverty is severe, and the divide between the center and the periphery in terms of development, civil society presence, and media access are significant.

This chapter has outlined a number of important considerations for conflict assessment in Liberia. As chapter 4 describes the Fund for Peace's UNLocK development and methodology, a greater understanding of the conflict dynamics in Liberia will help clarify the goals of the UNLocK conflict assessment, and the conditions in which the project operates. The development and infrastructure challenges, as well as the civil society conditions, greatly impact the way UNLocK methodology has developed in Liberia.

[26] Freedom House, *Freedom of the Press 2011 - Liberia*, September, 23 2011

Chapter 4: Case Study: Universal Network of Local Knowledge

1. INTRODUCTION

This chapter describes and analyzes the methodology of the Fund for Peace's UNLocK project in Liberia in 2011 as a case study to assess the effect of technological advancements on the methodology of a non-state actor's conflict assessment. This chapter seeks to respond to the two research questions introduced in chapter 1: first, to what extent have advances in technology affected the methodologies of non-state actors doing conflict assessment? Second, if these advances have caused a change in methodology, have they improved the quality of the assessment?

To address these questions, this chapter first provides an overview of the UNLocK methodology, including a discussion of the uses of technology and relevant partnerships. Next, this chapter describes the two types of data: (1) a comparison of the official UNLocK Liberia reports from the field and (2) responses to a questionnaire at a Liberian workshop. The final section of this chapter applies the two research questions to the qualitative data and draws inferences on potential relationships between technological advancement and the quality of conflict assessment with UNLocK in Liberia.

2. METHODOLOGY

This section provides an introduction to the UNLocK project. First, this section reviews the organizational context of the UNLocK project, followed by background

information on why and how the project began. Next this section provides a description of the specific methodology and activities of the project, including pre-workshop and workshop activities, analysis, distribution, and goals of the UNLocK project. The introduction hopes to supply an understanding of the UNLocK project for the remainder of the chapter that analyzes the project's activities.

2.1 Organizational Context

According to its website, the Fund for Peace is:

> "…an independent, nonpartisan research and educational organization that works to prevent war and alleviate the conditions that cause conflict. We promote sustainable security through research, training and education, engagement of civil society, building bridges across diverse sectors, and developing innovative technologies and tools for policy makers."[27]

The website also outlines the focus of the organization as follows "A leader in the conflict assessment and early warning field, the Fund for Peace focuses on the problems of weak and failing states. Our objective is to create practical tools and approaches for conflict mitigation that are useful to decision-makers."[28] To work towards this objective, the organization is organized along six themes: (1) conflict assessment, (2) early warning and state building, (3) peace and stability operations, (4) foreign policy, (5) civil society and human rights, and (6) sustainable development.

The UNLocK project falls within the early warning and state building initiative. The website describes the project as follows: "The UNLocK Program is a participatory early warning system conducted in partnership with local stakeholders to improve conflict

[27] As stated on the Fund for Peace website, www.fundforpeace.org/global/

[28] As stated on the Fund for Peace website, www.fundforpeace.org/global/

assessment and prevention." The project currently operates in three countries: Liberia, Nigeria, and Uganda.

2.2 Background[29]

The UNLocK program builds off of the Conflict Assessment System Tool (CAST). Through significant research and assessment of conflict drivers, the Fund for Peace developed the CAST methodology, an analysis of twelve indicators that measure state instability. These twelve indicators form the basis of the CAST software, the conflict assessment tool that the FfP uses in the Failed States Index (see Appendix 2 for a more detailed description of the CAST software and recent changes to the content analysis methodology). The theoretical framework on which the CAST methodology rests consists of 12 indicators and relevant sub-indicators that assess social, economic and political/military conditions. (See Appendix 3 for a complete list of the 12 CAST indicators and sub-indicators).

The development of UNLocK was an organic process. The project was initially conceived when Humanity United, a grant-making institution that focuses on "building peace and advancing human freedom,"[30] approached the Fund for Peace to see if they wanted to begin an early warning project. The project began with a workshop in Uganda in 2008, where the Fund for Peace staff trained participants on the CAST framework and indicators. The partner organization continued teaching the framework and process to local

[29] Information on the background and development of the UNLocK project was obtained through several interviews with Senior Associate Nate Haken and Associate Joelle Burbank, for which the author is very grateful.

[30] As stated on the website for Humanity United, www.humanityunited.org/whoweare

participants and eventually they requested the development for a database to store and share reports.

The Fund for Peace chose the three UNLocK countries (Liberia, Nigeria, and Uganda) because they represent three Anglophone states that are recovering from war or extreme violence. Furthermore, the states are in different regions (Liberia, West Africa; Nigeria, West Africa/Central Africa; and Uganda, East Africa/Great Lakes Region) and each state is at a different place on the conflict cycle.

2.3 Pre-workshop

This section describes how the UNLocK project works, beginning with a description of the activities that occur prior to and during the workshop. Next is a brief explanation of how the information is analyzed and distributed to relevant stakeholders, followed by a discussion of the short-term and long-term goals of the UNLocK project.

The UNLocK program leverages new media and social networks to promote the voice of civil society in conflict early warning. To do this, the project begins with conducting grant-funded workshops in Liberia, Nigeria, and Uganda in conjunction with civil society partners. These local partner organizations Liberian Democracy Watch in Liberia, Institute of Human Rights and Humanitarian Law in Nigeria, and Agency for Cooperation and Research in Development (based in Nairobi) in Uganda. These partner organizations conduct the majority of the pre-workshop preparation, including solicitation of participants. Most of the twenty to thirty participants in the UNLocK workshops are associated with an organization, usually related to human rights, relief, and/or development work. When searching for participants the partner organizations look for professionals who

come from regions of interest and organizations that have the capacity to participate in UNLocK.

In post-war regions, there may be a great deal of distrust and a lack of social capital, and the Fund for Peace has found it to be easier to encourage communication and cooperation between individuals that have a prior knowledge of, or familiarity with one another. The Fund for Peace also believes that it is important to expand the network of participants, and include individuals from different identity groups, political parties, and genders. In some situations the partner organization takes the initiative to conduct peacebuilding activities in conjunction with the workshop.

2.4 Workshop

The focus of the workshop is to teach participants about the twelve indicators and sub-indicators and how to use them. Participants also learn how to report incidents and use the database. The UNLocK database is password protected so participants are able to contribute and view sensitive information. Although participants can contribute directly to the database, many do not have consistent internet access. For that reason participants are encouraged to submit reports via text, Facebook, e-mail, phone, while at the workshops, and by any other means. Participants often submit reports from incidents they learned of through community and local radio stations and newspapers.

There are five goals of for the UNLocK local workshops: (1) to train participants in conflict assessment and get them comfortable with a common language, (2) to build relationships between the various participants and organizations, which helps develop channels for communication, (3) to create communication strategies and mitigation

activities, (4) to ensure that participants are aware of the conflict landscape, and (5) to design advocacy strategies to address the problems that emerge from the data.

2.5 Analysis

On a systematic basis the Fund for Peace staff in Washington, D.C. aggregate and organize this information into reports two to three times each year. The reports are verified by four processes:

1) Front end: the workshops train participants to report evidence-based conflict assessment.
2) Local partner validation: the sustained relationship with the local partner allows for reliable validation of all reports before publication.
3) Yahoo group: to varying degrees of participation, a Yahoo group allows a forum for participants to double-check each other's reports.
4) Corroboration: if the information provided is particularly alarming the reports are verified by an external source. Sensitive reports are usually not made public.

After the information is verified and organized, the Fund for Peace develops a report that organizes the data by indicator and region. This identifies trends among indicators and sub-indicators. For example, in Uganda from March to July 2010 the indicator under which the greatest number of reports were categorized was Security Apparatus. For the following four month period, from August to December 2010, the indicator with the largest number of reported incidents was State Legitimacy. This is probably largely due to the January 2011 elections because the greatest number of State Legitimacy reports were related to government corruption and election irregularities.

The reports are categorized by indicator and then visually displayed on a map, which allows the viewer to see which issues have been reported in which regions. The reports are

also compared to the data from the previous report, which identifies trends or shifts in concern over specific indicators.[31]

2.6 Distribution

The completed UNLocK reports are distributed to a variety of groups that fall into two broad categories: participants in the field, and international policy-makers and development practitioners. After each analytical report is completed it is reviewed and approved by the in-country civil society partner before being published. Upon publication it is electronically delivered to UNLocK field participants. This serves to share the information domestically and also to reinforce the social network among participants.

To deliver the analytical report to international policy-makers and development practitioners, each finalized UNLocK report is submitted to a mailing list of approximately 2,500 individuals, and an additional list-serve of approximately 1,000 on Crisismappers. The report is also published on the Fund for Peace website, as well as the Facebook page. The audience for the report includes Washington-based policy-makers and embassies, as well as international and local conflict assessment organizations. One challenge that the UNLocK project faces is trying to determine how to make the information more useful to responders. For example, if a specific problem becomes evident in the data, what type of information do they need to respond? To meet this challenge, UNLocK staff has briefings in Washington to determine what type of information is most useful to practitioners. They are also consulting with practitioners and policy makers to change the packaging or tailor the analysis to a certain organization to improve its utility. By modifying the information

[31] For an example of a summary report, see: http://www.fundforpeace.org/global/library/culrr1202-unlockliberia-01g.pdf

that UNLocK receives into a framework that is more useful to United States Agency for International Development (USAID), for example, they may be able to expand its utility. However, it is important that the local partners are able to determine what information is most important to them.

According to conversations with the UNLocK staff, the stated goals of the UNLocK project include: to fill holes in the data and supplement the CAST content analysis for a more accurate early warning picture, to incorporate the opinions and information of those living in conflict zones, to generate policy recommendations, to inform and provide early warning to local communities and participants, to identify economic, political, and/or social trends, to build local capacity through strengthening the networks and providing participants with the knowledge of the CAST framework, to create a tool for investors and development practitioners, and to strengthen communication within civil society.

One of the new initiatives of the UNLocK Liberia is a partnership with Ushahidi. As stated in chapter 2, Ushahidi is an organization that provides NGOs with crisis-mapping software. Ushahidi Liberia began with two staff members in June 2010 and according to the organization's blog "within the first six months, the team created 15 customized Ushahidi instances for more than a dozen local and international partner organizations."[32] One unique element of Ushahidi Liberia is iLab Liberia, a technology lab in Monrovia that partners with Ushahidi and other non-profit technology organizations to provide training and collaboration on peacebuilding and conflict resolution technology applications.

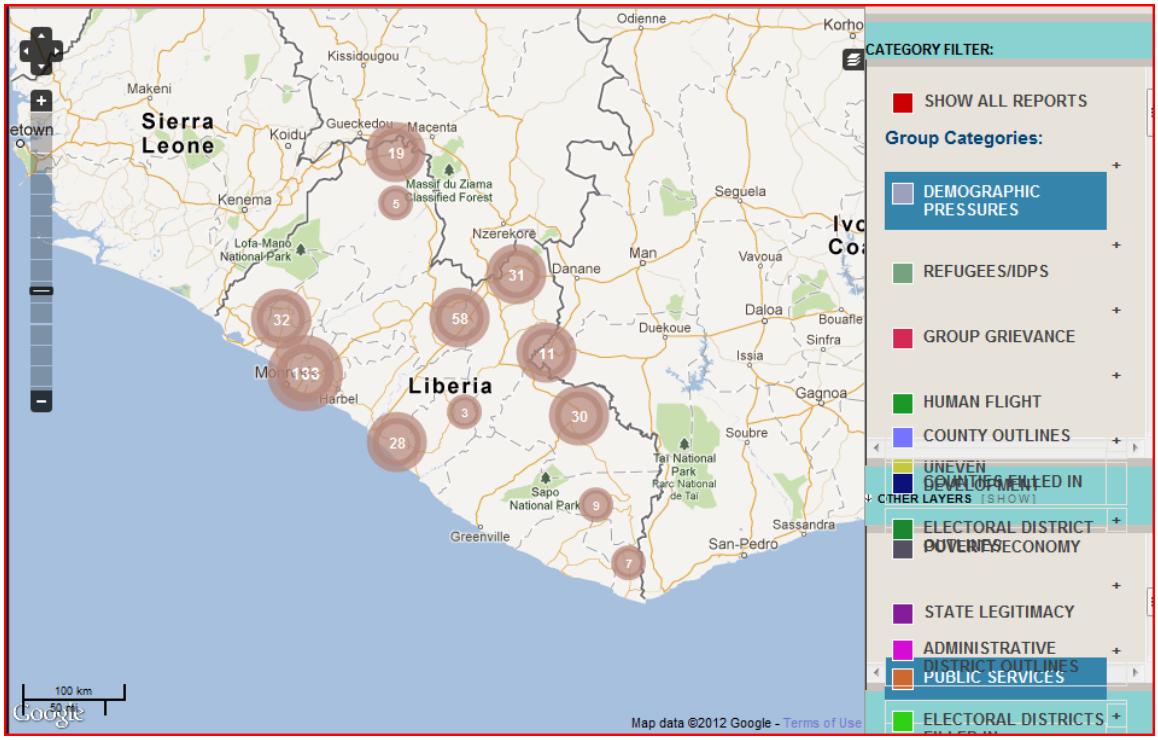
[32] Ushahidi Liberia, www.ushahidiliberia.com/about-us

According to Patrick Meier, Director of Crisis Mapping and Partnerships for Ushahidi, as of July 2011, iLab Liberia is the only Ushahidi lab of its kind. Meier stated that iLab Liberia provides the best possible opportunity for research and development; it operates as a testing platform to the masses, a think tank, and a place where solutions can be folded back into the platform.[33] Additionally, iLab Liberia is operational, with multiple NGO partnerships and platforms.

UNLocK Liberia and Ushahidi work together through the Liberia Early-Warning and Response Network (LERN). Through Humanity United funding, LERN has developed as a working group for a variety of peacebuilding and early warning NGOs to collaborate. Ushahidi developed a crisis-mapping platform for LERN members to log incident reports, and it is through this platform that individuals can report incidents along the 12 CAST indicators. Each LERN group has its own platform, and the LERN website has the option to view all event maps together. Figure 4.1 illustrates Demographic Pressures in Liberia from the UNLocK group map on the LERN website, as created by Ushahidi.

Figure 4.1 UNLocK Liberia Ushahidi platform showing Demographic Pressures

[33] Meier, Patrick (Director of Crisis Mapping and Partnerships, Ushahidi) in discussion with the author, Washington, D.C., July 28, 2011.



Source: LERN UNLocK group website: http://www.lern.ushahidi.com/simplegroups/groupmap/5

3. DATA

This section introduces the data available through the Fund for Peace's UNLocK Liberia project. Using multiple data sets, this section will explore the UNLocK Liberia through four data comparisons, to address the following questions:

1) How do UNLocK incident reports compare between 2010 and 2011?
2) Since both the UNLocK project and the CAST content analysis software utilize the same twelve indicators of state instability, how does the software compare to the human reporting? How does the comparison between UNLocK and CAST data change between 2010 and 2011?
3) How do the UNLocK incident reports compare between the three projects in Liberia, Nigeria, and Uganda?
4) How do participants interact with UNLocK in Liberia?

3.1 UNLocK reports in 2010 and 2011

How do the reports from UNLocK participants vary between 2010 and 2011? A comparison of these two data sets explores a number of different elements. If UNLocK reports accurately reflect incidents on the ground, one might expect the reports to be distributed differently across the indicators based on current events that may have a significant impact on social, economic, or political/military factors throughout the country. For example, the data from 2010 might report more religious tensions (in reflection of fighting between Christians and Muslims in the northern part of the country in February 2010) whereas the data from 2011 might report election-related rhetoric (in reflection of the national elections in October and November of 2011). Additionally, one would expect a greater number of reports in 2011 as the UNLocK project grows and more participants are incorporated in the network, and as mobile phone subscriptions increase.

Figure 4.2 compares the percentage of reports that were entered for UNLocK Liberia in each indicator for both 2010 and 2011. (For the actual data, see Appendix 4.) For 2010, UNLocK Liberia logged 480 reports, whereas there were only 323 logged in 2011. This is analyzed in a later section, but is likely a result of a greater number of UNLocK workshops in Liberia in 2010 (4) than 2011 (2).

Figure 4.2 UNLocK Liberia 2010 v. 2011

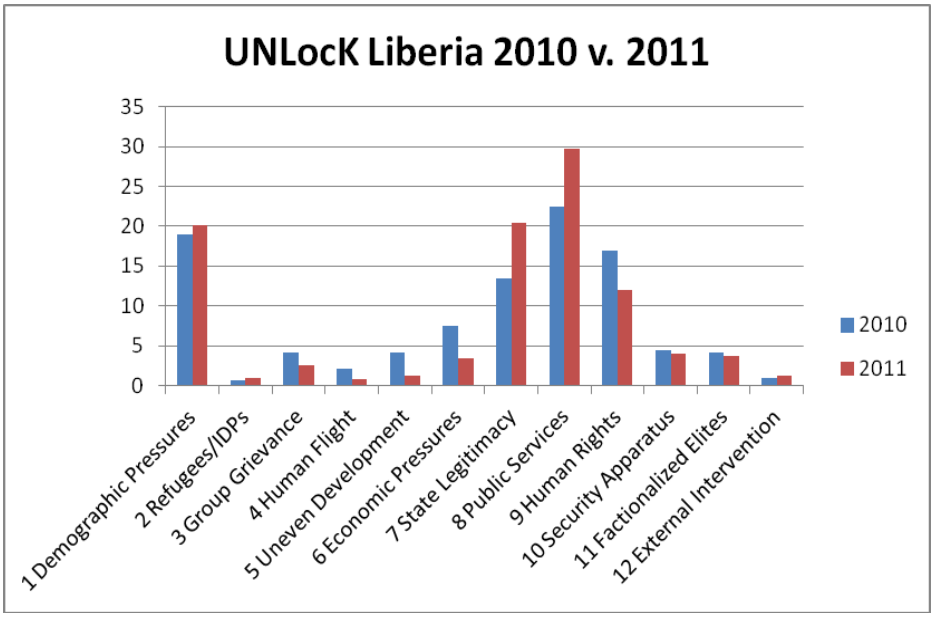


Figure 4.2 demonstrates a striking similarity between 2010 and 2011 reporting of pressures. Concerns over State Legitimacy and Public Services both increased by 7 percent from 2010 to 2011. Pressures related to State Legitimacy include corruption and election irregularities, so it seems logical that they might be more heavily reported in 2011, given the national elections. Nearly one third of UNLocK reports in 2011 were related to Public Services, almost half of which focused on crime/policing, many citing assault and murder. The remaining Public Services reports focused on quality of education, health care, and roads.

3.2 UNLocK reports and CAST data in 2010 and 2011

Since both the UNLocK project and the CAST content analysis software utilize the same 12 indicators of state instability, how does the software compare to the human reporting? How does the comparison between UNLocK and CAST data change between 2010 and 2011?

This question will compare the percentage of CAST content analysis data relevant to each indicator to the percentage of UNLocK reports to that same indicator. Since both are taken as a percentage, it will hopefully mitigate the varying number of sub-indicators listed. There are a number of problems with comparing these two data-sets. First, the CAST content analysis software captures different amounts of data for each indicator. For example, the data used in this study does not capture any information for Human Flight, but captures ten sub-indicators for Demographic Pressures. Second, the CAST information may overlap, for example, an article may mention specific Boolean phrases that indicate "Disease" (Indicator 1.4) and "Health System" (Indicator 8.1). However, this also occurs in UNLocK data. Third, the sub-indicators that the CAST software uses do not always directly correspond to UNLocK sub-indicators. For example, the CAST software filters for phrases relevant to "Deforestation," "Environment," and "Natural Resources," while the CAST framework for UNLocK trains participants to report incidents of "Land Competition" and "Environmental Degradation."

To mitigate these shortcomings, this research took all CAST articles that were filtered for a certain indicator and divided them from the number of total articles that mentioned any indicator for a certain country. For example, in Uganda, the CAST software found 20,624 articles that mentioned Uganda in 2010. 93 of these articles mentioned Boolean phrases relevant to Deforestation, (.45% of the total) and 1,564 mentioned those relevant to "Disasters" (7.5% of the total). To account for this potential overlap (an article that mentions both deforestation and disasters), this research used the total number of articles, which was 45,190, and added all sub-indicators together, to determine the reports mentioned for each indicator. This means that the 93 "Deforestation" articles and the 1,564

"Disasters" articles were added together, along with the eight other sub-indicators of "Demographic Pressures" to form 9,399. Taken out of the total number of articles analyzed (45,190), this would indicate that roughly 20.8% of the CAST articles referenced "Demographic Pressures."

The CAST software uses Meltwater News, a global media monitoring company that scans and filters over 162,000 sources. As the Fund for Peace continues to improve their analytical capacity, they adjust their phrase filters. Following an in-depth case study on North Korea in 2011, the Fund for Peace began to modify their searches to include county names, rather than solely using country names, in an attempt to increase the amount of domestic-focused journalism being picked up by the filter. This results in a smaller number of article "hits" than the previous country-level only methodology, which the Fund for Peace deems to be more accurate.

Figure 4.3 Liberia 2010 UNLocK vs. CAST

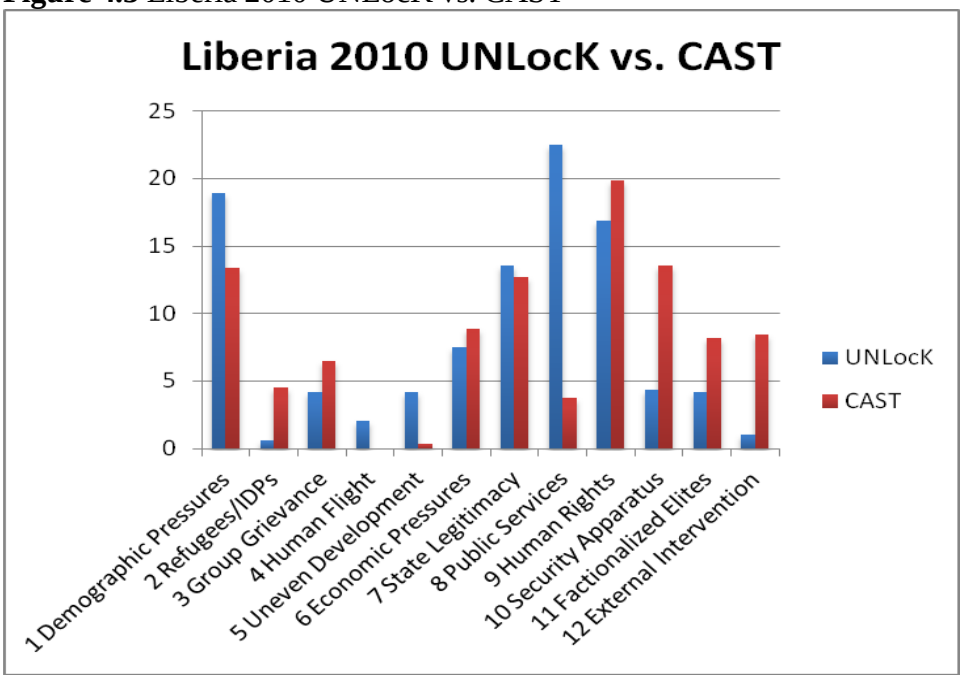
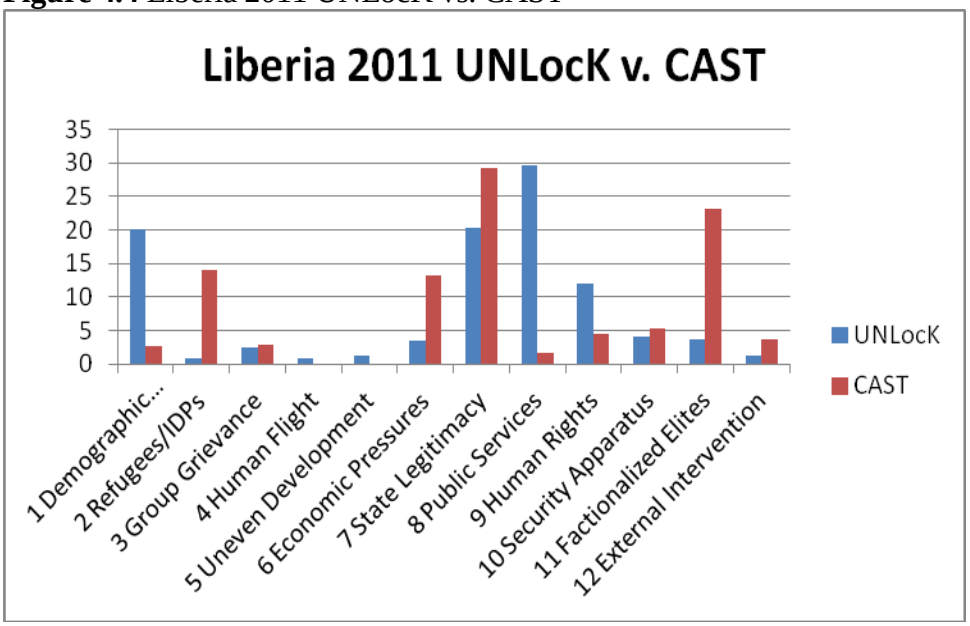


Figure 4.4 Liberia 2011 UNLocK vs. CAST



Interestingly, comparing figures 4.3 and 4.4 indicates a significant difference in CAST analysis between the two years. Recall figure 4.2 that demonstrated the similarities between UNLocK reporting for 2010 and 2011. Figure 4.3 illustrates that, with the exception of public services and security apparatus, UNLocK and CAST data are not too dissimilar. Figure 4.4 illustrates that under the new 2011 CAST filters there is very little correlation between what UNLocK participants report as pressures and what the CAST software filters determine the media are reporting as pressures. The difference is likely a result of the CAST filter adjustments, as opposed to significant changes in media coverage or UNLocK reporting between 2010 and 2011.

If the Fund for Peace has determined that the new CAST model is more accurate, perhaps this points to a bias in the UNLocK reporting. This could mean that these pressures are actually not as salient in Liberia, or it could identify a bias in the indicators themselves. To explore if these differences reflect Liberian political, economic, and social

pressures, the next question will compare the 2010 UNLocK and CAST data for the other two UNLocK projects in Nigeria and Uganda.

Furthermore, is it desirable to have the UNLocK participants identify the same pressures as the CAST software? On the one hand, it justifies the reliability of the media representation, as well as the software and its ability to accurately measure pressures. On the other hand, however, it may also point to a decreased utility of the UNLocK project in forecasting or assessing conflict drivers.

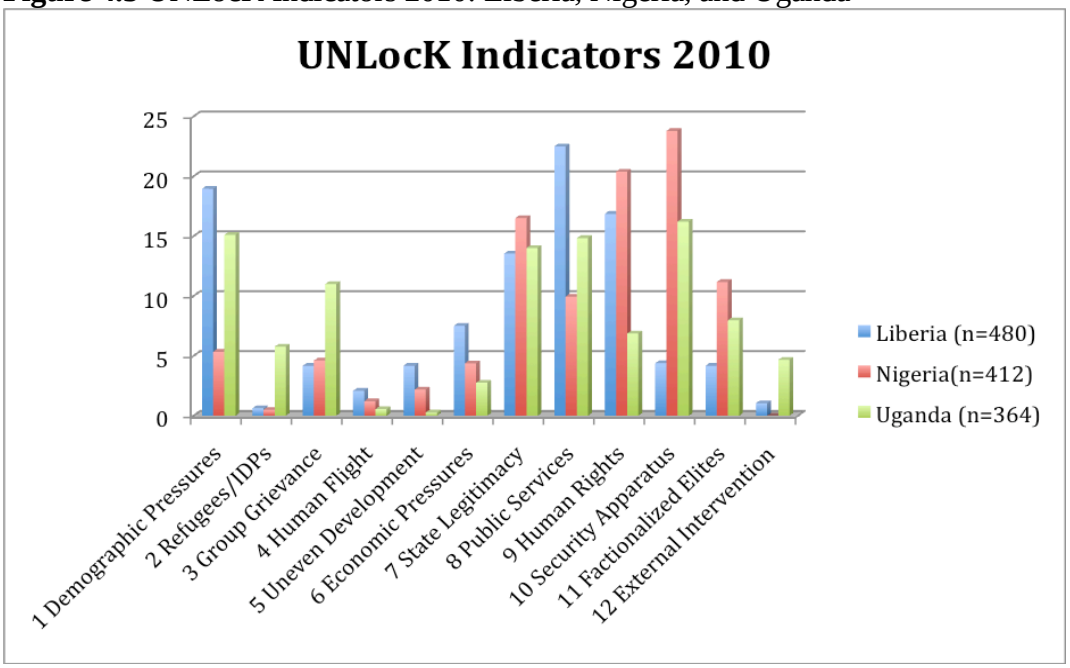
3.3 2010 UNLocK reports in Liberia, Nigeria, and Uganda

How do the UNLocK incident reports compare between the three projects in Liberia, Nigeria, and Uganda? The goal of this comparison is to determine if certain indicators are more likely reported by UNLocK participants across the three states. As the Liberian UNLocK data for 2010 and 2011 demonstrated, the bulk of the incident reports were related to Demographic Pressures, State Legitimacy, Public Services, and Human Rights for both years. Is there something inherent in these indicators that make them more likely to be reported than the other 8, or is the significance of these pressures unique to Liberia?

A comparison between the UNLocK reports in all three states addresses the issue of whether certain indicators are more likely to be reported than others regardless of location. It is important to note that the UNLocK in-country partners vary. For example, the Nigerian partner, Institute of Human Rights and Humanitarian Law in Nigeria, focuses on human rights issues, which is highly represented in their incidence reporting, as evidenced by figure 4.7.

As previously stated, the UNLocK Liberia network has a greater national reach than that of UNLocK Nigeria or UNLocK Uganda. This is primarily due to funding, as the funding for UNLocK Nigeria and UNLocK Uganda focuses on regional issues rather than national ones. For that reason, a comparison of the three projects is problematic, as the UNLocK Nigeria and UNLocK Uganda numbers may more accurately reflect regional concerns. Figure 4.5 compares the data from 2010, as UNLocK Uganda is currently without funding and the project did not hold workshops in 2011.

Figure 4.5 UNLocK Indicators 2010: Liberia, Nigeria, and Uganda



This graph highlights interesting similarities between reports from Liberia, Nigeria, and Uganda in 2010. For example, UNLocK participants in all three countries were not as likely to report on incidents relating to Refugees/IDPs, Human Flight, Uneven Development, Economic Pressures, or External Intervention. This could be due to a number of factors, including fewer incidences related to those indicators occurring in the

three countries in 2010, or a bias against reporting structural or long-term pressures, such as economic opportunity.

The data do show interesting differences as well. For example, the difference between concern over Demographic Pressures in Liberia and Nigeria is drastic (nearly 20% and 5% respectively) and the reverse is true for Security Apparatus (nearly 5% and 25% respectively). These differences illustrate that although certain indicators are more popular than others to report, there is enough differentiation to infer that UNLocK participants are reporting different pressures in each state.

How do the UNLocK network incident reports in each country compare to what the media are saying about social, political/military, and economic pressures during the same time period? A comparison between the data from the UNLocK participants, organized by indicator, received in 2010, with the data from the 2010 CAST content analysis software, organized by indicator, reveals a correlation. The comparison is best represented in the following bar charts:

Figure 4.6 Liberia 2010 UNLocK vs. CAST

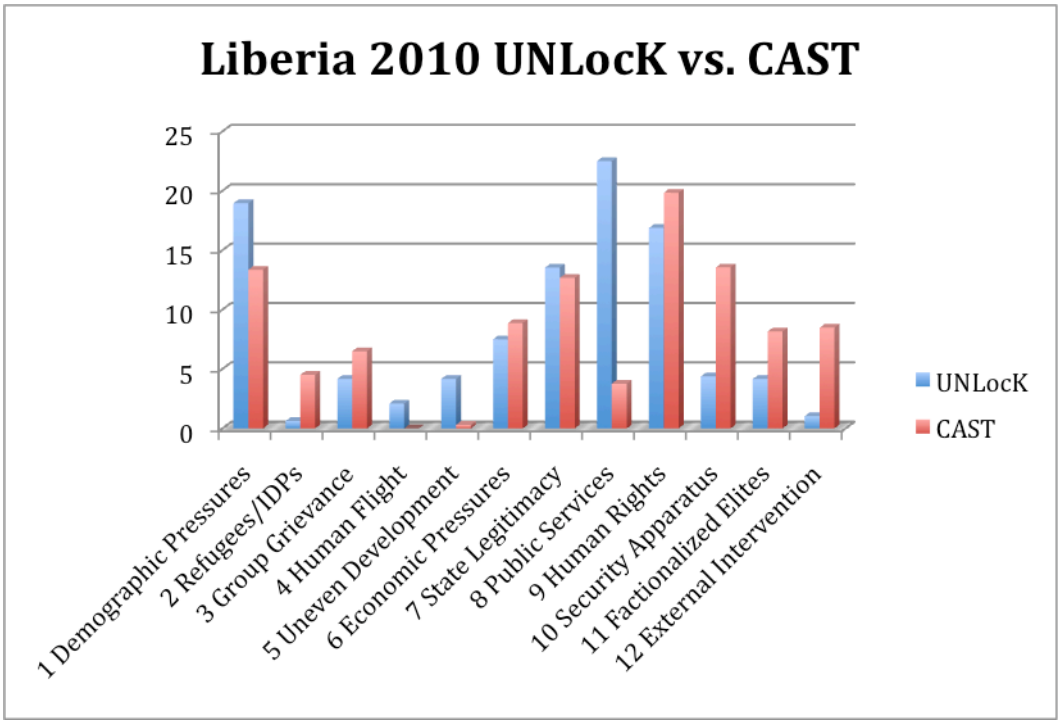


Figure 4.7 Nigeria 2010 UNLocK vs. CAST

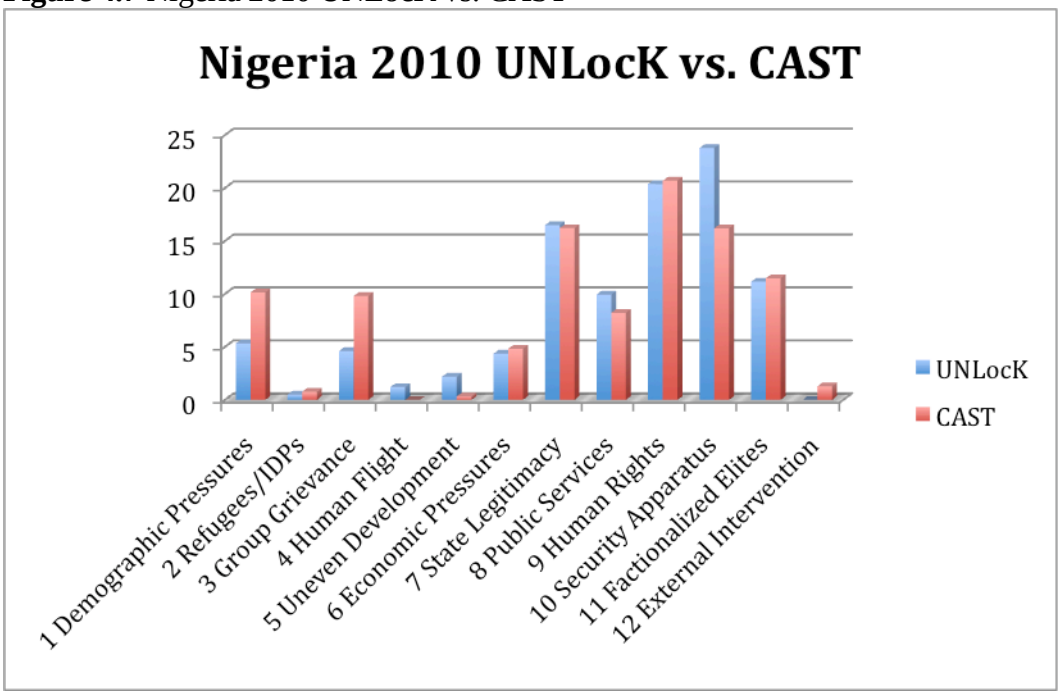
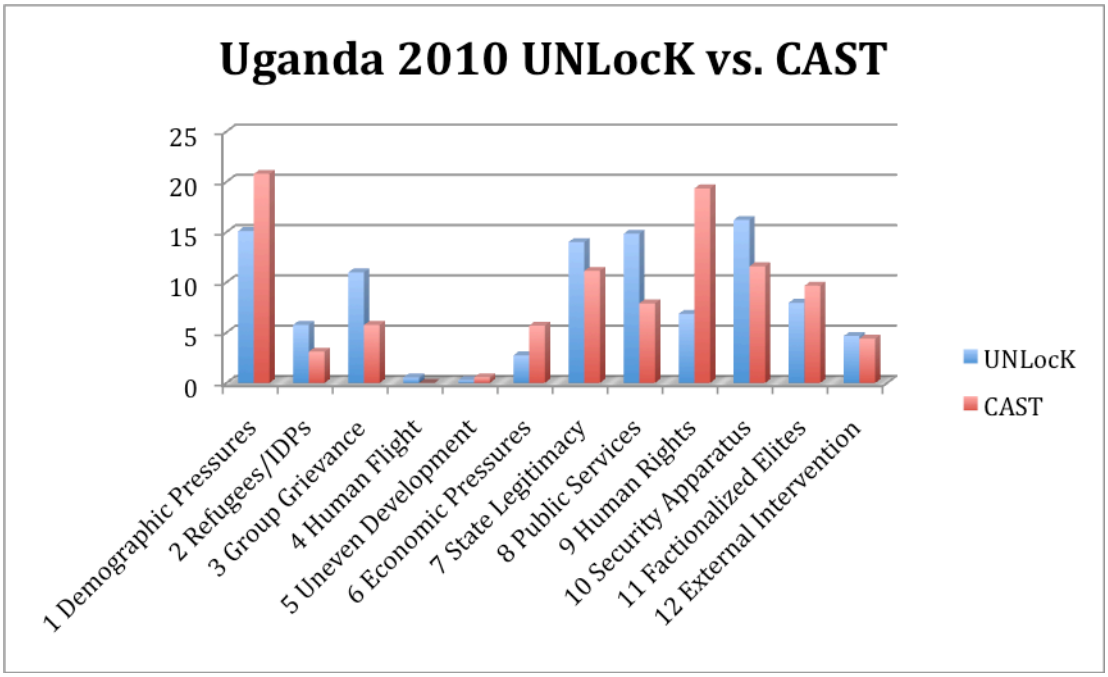


Figure 4.8 Uganda 2010 UNLocK vs. CAST



All three graphs reflect a similar shape, with lower percentages near Refugees/IDPs, Human Flight, and Uneven Development, and far higher percentages near State Legitimacy, Public Services, Human Rights, and Security Apparatus across all three states. It is important to note that the CAST software data used in this analysis does not capture any information on Human Flight, and has only two sub-indicators for Uneven Development and External Intervention. The impressive correlation to note is that UNLocK participants did not significantly report these indicators either.

Although the shapes of the graphs are similar, they may be misleading because of the failure to include any data on Human Flight increases the percentages of other data for CAST content analysis indicators. Other important distinctions occur, for example, the

difference between CAST content analysis and UNLocK in reporting on Public Services in Liberia.

The similarity between the percentages of UNLocK participant reports and the percentage of CAST content analysis articles in 2010 is difficult to refute. It is also difficult, however, to prove causation, or state for certain that these similarities reflect actual problems in these countries. There may be underlying bias in the twelve CAST indicators themselves, which make identifying certain indicators more likely than others.

3.4 Participant Questionnaire

In May 2012, the Fund for Peace UNLocK project held two workshops in different counties in Liberia, one in Nimba and the other in Bong. To determine the behavior and preferences of the participants, they conducted a brief survey, to which they received 36 responses. The four questions and their responses are indicated in the tables below.

Table 4.1 Preferred reporting method

What is your preferred method of reporting incidents?	
Email:	32.6%
SMS Phone Message:	58.7%
Website form:	2.1%
Other	6.5%

This table demonstrates a clear preference for SMS phone messaging. Several participants selected multiple forms of reporting, rather than providing a preference for one. These results are unsurprising given the rarity of internet access for most Liberians, as

discussed in chapter 3. Given the improving access to mobile phones in Liberia, this points to an opportunity for greater participation in the UNLocK network.

Table 4.2 Frequency of incident reporting

How often do you or your organization report incidents?	
Weekly:	18.1%
2-3 times a month:	51.5%
Less than once a month:	30.3%

This table demonstrates that most individuals who participated in the survey state that they report incidents 2-3 times each month. Interestingly, two-thirds of those surveyed who claimed to report incidents at least once a week indicated preference for both email and SMS phone messages.

Table 4.3 Frequency of UNLocK network communication

How often do you or your organization communicate with other members of the UNLocK network?	
Weekly:	30.0%
2-3 times a month:	46.6%
Less than once a month:	23.3%

This table demonstrates the strength of the UNLocK network. Many of the workshops also function as opportunities for individuals in the peacebuilding and conflict assessment community to get acquainted and share best practices.

Table 4.4 Frequency of UNLocK data use

How often do you or your organization use the UNLocK conflict assessment reports or memos in your work?

Regularly:	31.2%
Sometimes:	56.2%
Rarely:	12.5%

This table indicates that nearly a third of participants regularly use the Fund for Peace analysis reports in their work, and over half of those surveyed indicate using the material "sometimes". Although these terms are vague, they point to the utility of, and familiarity with, the aggregate analysis of nation-wide UNLocK reports.

Given the consistently higher percentage of participants selecting the middle response, and the fact that participant's names and organizations were also listed on the form, these responses could suffer from social desirability bias, meaning that participants responded to the questionnaire in a manner that they deemed would be looked favorably upon by the staff of the Fund for Peace.

4. ANALYSIS

These data comparisons reflect a number of interesting correlations related to the UNLocK Liberia project. UNLocK participants reported similar concerns in 2010 and 2011, with a percentage rise in both State Legitimacy and Public Services, namely violent crime. However, there were significantly more UNLocK reports in 2010 than 2011, so a percentage comparison is not necessarily indicative of a rise in violent crime. The decrease in number of reports is surprising for several reasons. 2011 was an election year, in which

one might expect to encounter heightened tensions and divisive rhetoric related to the election. Furthermore, as both the UNLocK network and the number of Liberians who own a mobile phone continue to grow, one could also assume that reporting would continue to grow. When asked about these differences, Fund for Peace staff stated that they generally see a rise in reporting activity following a workshop, because participants are energized and reminded of how and when to report to UNLocK.

The UNLocK (mostly) mobile reporting and the CAST content analysis software revealed a similar understanding and concern over pressures related to social, economic, and political/military concerns in 2010, yet produced markedly different results in 2011. This is most likely the result of significant changes to the CAST software filters. UNLocK participants report on different issues in each of the three states, Liberia, Nigeria, and Uganda, indicating that certain pressures are not necessarily more frequently reported than others. The CAST data, with a few major exceptions, mirror these different pressures across all three states.

The UNLocK Liberia participant questionnaire from May 2012 indicates that participants prefer using SMS, and that the majority of participants reported communicating with another member of the UNLocK network at least every other week. Almost a third of those surveyed reported using Fund for Peace analysis regularly. This is significant because most individuals who attend the workshops are the sole representative of their organization, which means that approximately 10 NGOs represented at these workshops regularly discuss the CAST indicators and UNLocK analysis.

Chapter 5: Conclusion

1. INTRODUCTION

This chapter reviews the research problem, purpose, and design of the study. Next it discusses the limitations of the study, namely, that Liberia may not be representative of other conflict assessment environments, as well as other limitations related to the Fund for Peace data. Following a discussion of limitations, this chapter addresses recommendations for future research, and finally, it provides conclusions and reflections on the study.

2. DISCUSSION

This research addressed the following two questions: how have advances in technology affected the methodologies of non-state actors doing conflict assessment? Second, if these advances have caused a change in methodology, have they improved the quality of the assessment? The Fund for Peace's UNLocK project in Liberia was analyzed using personal interviews with staff members, data from the UNLocK Liberia participants, content analysis software data, and a questionnaire about UNLocK network participation and reporting behavior.

How do the data address the original research questions: how have advances in technology affected the methodologies of non-state actors doing conflict assessment? Second, if these

advances have caused a change in methodology, have they improved the quality of the assessment?

Advances in technology have had a marginal impact on the case study of Fund for Peace's UNLocK in Liberia. Despite the incorporation of a crisis-mapping platform and increased mobile phone diffusion, reports actually decreased significantly between 2010 and 2011. Of the UNLocK participants who claimed to report an incident weekly, many benefited from frequent access to email, which, as chapter 3 indicated, is extremely rare in Liberia. Perhaps it is too soon to tell whether increased mobile phone diffusion and the continued presence of iLab Liberia will improve the quantity of UNLocK reports.

Considering the spike in UNLocK reports during and immediately following a workshop, the extremely low levels of development, literacy, and access to technology, and the cultural reliance on local social networks, it could also be argued that technology has a long way to go before it can profoundly impact the methodology of a non-state actor conducting conflict assessment in Liberia.

The second research question asks if, and how, advances in technology have improved the quality of conflict assessment? As stated in the introduction, measuring the quality of an assessment presents problems, as each organization has a different goal and audience for their assessment. One approach to quality assessment is to apply the three critiques of conflict assessment, as outlined in chapter 2, to see if any technologically-enhanced elements of the UNLocK methodology have addressed any of these challenges.

The three critiques of conflict assessment discussed previously were (1) the multitude of information makes processing difficult, (2) the failure of analysts to recognize the trajectory of trigger events, and (3) the warning-response gap. Although advances in

technology have improved the quantity of information, searching for the right information is often a cumbersome project. In this manner, the Fund for Peace's UNLocK project's collaboration with Ushahidi may mitigate this criticism, as it allows for easy filter of incidence reports, which allow analysts to easily extract relevant data. This is important to note, as the previous source of information regarding conflict conditions in Liberia was likely provided by infrequent journalistic coverage, or government analysis. Furthermore, the public availability of the Ushahidi platform makes anyone an analyst, meaning that more researchers and practitioners can analyze the previously-unavailable data. The longevity of the project, and the consistency of the methodology along the 12 indicators, also may allow for analysts to better anticipate the trajectory of events. In the case of UNLocK Liberia, it is unclear if greater technological advancement, in the way of increased SMS use and an Ushahidi platform will have any real impact on the warning-response gap and the challenge of political will.

As mobile phone use increases across Liberia, it may improve the quality of the conflict assessment because it allows for increasingly different means of reporting incidents. This has the potential to improve the diversity of geographic and socio-economic experiences of participants, which, according to Suroweicki, as stated in chapter 2, improves the quality of the assessment.

3. LIMITATIONS

There are a number of limitations inherent in this research. Perhaps the most prominent is that given the extremely low levels of Liberian literacy, income, development, and access

to technology, Liberia is clearly an outlier. This means that results from this study might be specific to Liberia and may not translate well to other conflict assessment environments. Another limitation of the study is the new partnership between UNLocK and Ushahidi. As the partnership grows, and iLab Liberia expands its presence, there may be a more measurable difference in the impact of technological advances on conflict assessment. A third limitation is the change in the CAST software analytical tool from 2010 to 2011. If the software phrase filter had remained the same, the comparison of UNLocK Liberia and CAST content analysis from 2010 to 2011 may have illustrated more about the changes in media coverage, and the relationship between the two data sets during those two years.

4. RECOMMENDATIONS FOR FUTURE RESEARCH:

For future research it would be beneficial to repeat this study with the UNLocK Uganda and UNLocK Nigeria projects. This type of study should also be replicated when mobile phone use is more widespread in Liberia. Furthermore, the questionnaire revealed interesting results, and it may help the research to follow up with participants, and reach out to participants in other parts of Liberia to determine if those results are indicative of behavior across the country.

5. CONCLUSION:

The major findings of the data analysis were that (1) UNLocK participants reported similar concerns in both 2010 and 2011, (2) the UNLocK reports and the CAST content analysis

were significantly more closely related in 2010 than in 2011, with the new CAST software analytical tool, and (3) according to a participant questionnaire, most UNLocK Liberia participants prefer reporting by SMS, but tend to report more if they have consistent access to email.

These findings demonstrate that technology is not necessarily a panacea for conflict assessment and early warning. The increased number of reports received during and following an UNLocK workshop, as well as the questionnaire response indicating that nearly a third of participants communicate with other members of the UNLocK network weekly, indicates that perhaps culturally Liberians prefer to conduct peacebuilding and conflict assessment at a personal level.

This has research has policy implications for governments and peacebuilders in Liberia and similar post-war states. Policy makers and peacebuilders must recognize that conflict assessment and early warning activities must remain accessible to the affected population, which varies significantly according to the conflict environment. As governments and NGOs in developed states continue to fund photogrammetry and crisis-mapping projects that rely on computer and mobile phone access, it is important to note that in parts of the world, these projects exclude key groups of the population from participating in the conflict assessment.

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Appendices

Appendix 1: Table comparison of World Bank 2012 Fragile Situations and mobile phone subscription per 100 inhabitants.

Country Name	Subscriptions per 100 inhabitants in 2010
Myanmar	1.2
Eritrea	3.5
Solomon Islands	5.6
Somalia	6.9
Marshall Islands	7.0
Kiribati	10.0
Burundi	13.7
Congo, Dem. Rep.	17.9
Central Afr. Rep.	22.3
Comoros	22.5
Chad	23.8
Micronesia, Fed. Sts.	24.8
Nepal	30.7
Low income	33.1
Sierra Leone	34.1
Afghanistan	37.8
Guinea-Bissau	39.2
Liberia	**39.3**
Haiti	40.0
Guinea	40.1
Sudan	40.5
Togo	40.7
Yemen, Rep.	46.1
Angola	46.7
Timor-Leste	53.4
Zimbabwe	61.3
Iraq	74.9
Cote d'Ivoire	76.1
World	78.2
Bosnia and Herzegovina	82.7
Upper middle income	84.5
Georgia	89.4
Congo, Rep.	94.0
High income	110.5

Source: World Bank Data Catalog 2012,
http://data.worldbank.org/indicator/IT.CEL.SETS.P2 and
World Bank's 2012 Fragile Situations list,
http://siteresources.worldbank.org/EXTLICUS/Resources/FCS_List_FY12_External_List.pdf

Only 3 of the 32 states listed have reached world average mobile subscription levels, while 14 of the states are at or below half the world average. No data were available for Kosovo or West Bank/Gaza.

Appendix 2: CAST software

Twelve indicators form the basis of the CAST software, the conflict assessment tool that the FfP uses in the Failed States Index. The CAST methodology isolates four key lessons that they have incorporated into their analysis (Haken, et al. 2010: 5):

1)utilizing a strong theoretical framework
2)filtering a rich sample of relevant documents
3)systematically scanning the documents
4)ensuring correct calculations and interpretations by normalizing the data

The CAST software is patented so full disclosure of coding book, relevant algorithms, and inputs is not available to the public. As the Fund for Peace website indicates, the CAST software, among many other functions, incorporates a "rating system for trend analysis that can track a conflict over time," a content analysis measurement. This trend is measured on a rating of twelve indicators, for a total possible ranking of 120. According to the website of the Fund for Peace, the CAST software:

> "The methodology that is the basis of CAST includes assessing 12 social, economic and political/military indicators as well as the core state institutions (Core Five) needed to cope with the pressures upon the state. Assessments are based on the identification of the presence and/or intensity of various measures (or sub-indicators), such as HIV-Aids or inflation, for each of the indicators and core state institutions. Using Boolean logic, the CAST software analyzes tens of thousands of articles and reports to determine the relationship of the content to the indicators and to the core institutions."

Appendix 3: CAST indicators

SOCIAL INDICATORS

1. Demographic Pressures
1.1 Land Competition
1.2 Food Supply
1.3 Water Supply
1.4 Disease
1.5 Natural Disaster
1.6 Population Density
1.7 Youth Bulge
1.8 Alcoholism
1.9 Orphans
1.10 Drug and Narcotic Abuse
1.11 Environment Degradation

2. Refugee/IDPs
2.1 Law and order in the camps
2.2 Health conditions in the camps
2.3 Sanitary conditions in the camps
2.4 Food supply in camps
2.5 Security in camps
2.6 Alcoholism in camps
2.7 Population fleeing violence
2.8 Population displaced by disaster
2.9 Challenges with resettlement

3. Group Grievance
3.1 Organized ethnic/religious violence
3.2 Ethnic/religious violence by government
3.3 Spontaneous ethnic/religious violence
3.4 Ethnic/religious hate speech
3.5 Ethnic/religious discrimination
3.6 Ethnic/religious tension
3.7 Cattle rustling
3.8 Ethnically/religiously polarizing language in political campaigns

4. Human Flight
4.1 Educated leaving for opportunity
4.2 Skilled workers leaving
4.3 Local businessmen investing elsewhere
4.4 Migration from urban areas in anticipation of violence
4.5 Rural-urban migration

ECONOMIC INDICATORS

5. Uneven Development
5.1 Migration from urban areas in anticipation of violence
5.2 Rural-urban migration
5.3 Ethnic or religious discrimination in employment
5.4 Regional, religious, or ethnic disparities in education
5.5 Regional, religious, or ethnic disparities in access to justice
5.6 Inadequate access to electoral process

6. Economic Pressures
6.1 Inflation
6.2 Unemployment
6.3 Poverty
6.4 Less investment
6.5 Illicit economy/corruption
6.6 Labor strikes

POLITICAL/MILITARY INDICATORS

7. State Legitimacy
7.1 Police corruption
7.2 Military corruption
7.3 Government corruption
7.4 Government complicity in criminal enterprise
7.5 Intimidation of political opposition
7.6 Riots
7.7 Unresolved/disputed election
7.8 Election Irregularities

8. Public Services
8.1 Health system
8.2 Sanitation system
8.3 Road system

8.4 Food supply
8.5 Water supply
8.6 Fuel supply
8.7 Educational system
8.8 Homelessness
8.9 Crime/policing
8.10 Prison system
8.11 Electricity supply

9. Human Rights
9.1 Sexual violence
9.2 Security forces brutality
9.3 Violent crime
9.4 Ethnic cleansing
9.5 Abductions/missing people
9.6 Extortion
9.7 Child Abuse
9.8 Violent crackdown
9.9 Selective indictment
9.10 Media freedom
9.11 Human trafficking
9.12 Gender-based human rights issues

10. Security Apparatus
10.1 Rebel activity
10.2 Military impunity/abuse
10.3 Police impunity/abuse
10.4 Non-state armed groups
10.5 State-sponsored militia activity
10.6 Arms proliferation
10.7 Vigilante justice
10.8 Armed groups supporting political parties
10.9 Political rallies attacked
10.10 Organized crime
10.11 Shootings/stabbings

11. Factionalized Elites
11.1 Intimidation of political opposition
11.2 Hate speech
11.3 Polarized government officials
11.4 Ethnic religious political rhetoric

12. External Intervention
12.1 Military aid
12.2 Economic aid
12.3 Diaspora communities support rebels
12.4 Foreign actors support rebels
12.5 Incursion

Appendix 4: UNLocK Liberia reports in 2010 and 2011

This table compares the actual number of reports for UNLocK Liberia in 2010 and 2011, sorted by indicator.

CAST Indicators	UNLocK reports 2010	UNLocK reports 2011
1 . Demographic Pressures	91	65
2. Refugees/IDPs	3	3
3. Group Grievance	20	8
4. Human Flight	10	2
5. Uneven Development	20	4
6. Economic Pressures	36	11
7. State Legitimacy	65	66
8. Public Services	108	96
9. Human Rights	81	39
10. Security Apparatus	21	13
11. Factionalized Elites	20	12
12. External Intervention	5	4
Total	**480**	**323**