Making Sense of Local Conflict and Valuable Resources

on a Regional Basis in Africa

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Introduction

The purpose of the study is to identify and discuss whether regions with easy access to valuable resources experience higher fatalities than regions without resources. Is there a link between easy access to valuable resources such as diamonds and oil and higher intensity of conflict and do regions with valuable resources experience higher fatalities than regions without resources? This study asks whether easy accessibility to diamonds and oil regions in Sierra Leone, Democratic Republic of Congo (DRC), Liberia, Sudan, Nigeria and Angola experienced higher fatalities compared to regions with no resources, as well as the implications to designing intervention or prevention responses to conflicts in these countries. Furthermore, the study will narrowly focus on diamonds and oil in the above mentioned countries to ask if these resources are particularly conflict prone.

The literature on conflict and valuable resources cites countries that have been in conflict due to poor economic and political conditions which were exacerbated by the presence of diamond deposits and oil. For instance Michael L. Ross (2004) argues that natural resources have been used to finance war by rebels and warlords and also to enrich themselves. Among them, the conflict in Sierra Leone became synonymous with blood diamonds (Smillie, et al, 2000). In Angola, revenue from diamonds was used by the National Union for the Total Independence of Angola (UNITA) rebels to finance the conflict with the government. The government also financed itself from the offshore petroleum (Le Billon 2001). The United Nations Panel of Experts (2001) implicates a number of Congolese rebel groups as well as armed groups from neighboring African states that were part of a network that plundered the natural resources of the Democratic Republic of Congo.

The need for the study

Diamonds and oil are one example of a long list of African resources that have caused conflict despite international efforts designed to mitigate the impact of resources on conflict. Resource conflict countries such as Sierra Leone, the Democratic Republic of Congo, and Angola point to a stark truth: the conventional approach to understanding the relationship between resources and conflict is not complete and has gaps to fill. For instance a number of recent studies on the causes of conflict have pointed to the availability of natural resource as a motivating factor for generating conflict (Berdal & Malone, 2000, de Soysa, 2000, Collier and Hoeffler 2004). Other studies that are related to resource availability and conflict are in the realm of economic opportunity fueling conflict. If all "politics is local" as the saying goes then all "conflicts are local" and if we are to fill in the gaps within the literature on conflict, the field of conflict resolution cannot afford to offer an analysis of the relationship on conflict and resource on a national basis, but rather do it on local basis if we are to understand what Gurr alluded to as "why men rebel" (1970).

Objective of the study

The purpose of the study is to identify and discuss whether regions with easy access to valuable resources experience higher fatalities than regions without resources. The study is tailored towards identifying whether regions with valuable resources in Sierra Leone, DRC, Liberia, Nigeria, Sudan and Angola experience high fatalities compared to regions without resources. Through developing an understanding of the geographical location in which oil and the diamonds are located, the study will seek to identify the fatalities and intensity of conflict

that results from the accessibility of these resources in the regions that have them and those that do not.

Theories to be used in the study

The theories to be used in the study are Relative Deprivation theory and Frustration-Aggression Theory (F-A). Relative Deprivation theory deals with the lack of equitable distribution of resources. It articulates that people tend to compare themselves to others in terms of what they have and what they do not have, and how deprived they are from getting that that they desire. People take action in order to acquire something that others have and which they believe that they rightfully should have. For example, marginalized ethnic groups may pick up arms in order to acquire something that they believe they are entitled to, but they are being denied access to; such groups believe they are deprived.

Research Question

Does easy access to valuable resources such as diamonds and oil produce higher intensity conflicts?

Literature Review

Introduction

Within the field of conflict study there is ample evidence that diamonds and similar resources have contributed to conflict (Olsson, 2003). For instance the conflicts in Sierra Leone, the Democratic Republic of Congo, and Angola have been fueled by the sale of "conflict diamonds" (Olsson, 2003). These and other conflicts in which resources have played a central

role highlight how natural resources can lead to conflict (Olsson, 2003). Diamonds are a valuable resource and are commonly mentioned in the conflict literature. They are the only natural resource subjected to its own international regime known as the Kimberley process to minimize the influence of diamonds on conflict in conflict prone regions. For instance, case studies in the Democratic Republic of Congo (DRC), (United Nations Panel of Experts, 2001) Sierra Leone and Liberia (Smillie, et al, 2000), and Angola (Le Billon, 2001a) have provided evidence for diamonds driving conflicts in these countries.

Studies on the countries mentioned have led to conclusions from scholars such as Ross (2004a) that the availability of valuable diamonds does not contribute to the onset of conflict but rather prolongs a conflict once one starts. The case studies above have been followed up by other systematic studies using data on diamond production. Diamonds are divided into two geological groups. Primary diamonds occur in underground rock formations and are both capital and labor intensive. Secondary diamonds are easier to find and can be exploited with ordinary tools such as shovels and sieves. Humphreys (2005) finds that diamond production is not only associated with the likelihood of conflict onset but also shorter wars. In short most of the studies associate diamonds to conflict but, none so far has been able to measure the level of violence, or intensity of the conflict, associated with easy accessibility of diamonds.

Scope of the Literature

There are three major arguments in the literature of conflict and natural resources and these are:

1. **The resource curse argument:** hypothesizes that there is a negative relation between the mere *abundance* of natural resources, quality of institutions, and economic growth.

2. **Resource conflict**: posits that conflict emanates from *the incompatible claims* to the resource in question, that is who has the right to the resource in question. These incompatible claims emanate from various sources such as resource exploitation, compensation, exploration and environmental degradation. Thus, conflict arises from the revenues generated and how these revenues are allocated.

3. **Resource Accessibility:** posits that conflict emanates from the opportunity in terms of the revenues the resource provides and how easily *accessible* the resource is. In essence, conflict is caused by the outrage and sense of injustice over the fact that the resource is stolen or unfairly appropriated. Conflict emanates where opportunities exist for easy access to the resource in question and the rent-seeking generated from the resource. The core argument of resource accessibility is purely about greed, that is, greed is the primary motivator of the conflict and the conflict may have nothing to do with incompatible claims to the resource in question.

The literature cites countries that have been in conflict due to poor economic and political conditions which were exacerbated by the presence of natural resources. The definition of a civil war or armed conflict from scholars in general is derived from the battle related threshold of either 1000 or 25 which treats the intensity of conflict as a given. That is, it is implicitly implied that their studies either account for the severity of the conflict or low intensity of the conflict. In the literature Michael Ross, 2003 contends that civil wars are treated as:

> Resource-related combat, in which opposing armies do battle over resource-rich territory. Many observers of Africa's recent civil wars have suggested that combatants are "fighting for control" of a resource, implying resource wealth tends to increase the casualty rate during a civil war by causing combatants to fight for resource-rich territory that would otherwise have little value (Michael Ross, 2003, 17).

My study defines conflict as a conflict between government and another armed group over territory that involves battle related deaths with a threshold of 25 deaths per year. However, the studies used in my literature review use the definition of civil war as an internal conflict with at least 1,000 combat-related deaths, which is a high threshold and 25 which is a low threshold between government forces and rebel movements. In the studies used 25 is considered to be representative of a low-intensity internal armed conflict. The literature on the relationship between valuable mineral resources and armed conflict is dominated by three arguments: 1) **resource curse argument**, 2) **resource conflict** and 3) **resource accessibility**.

Resource Curse

The "resource curse" or "paradox of plenty" (Karl, 1997), hypothesizes that there is a negative relation between the abundance of natural resources, quality of institutions, and economic growth. Some Scholars have taken the resource curse thesis further by positing that resource dependence creates an atmosphere conducive for the emergence of conflicts via its negative impact on economic performance and the quality of governing institutions (Ross 1999; Ross, 2004, Le Billon 2001; De Soysa 2002; Auty 2004; Fearon 2005). That is countries that are heavily dependent on natural resources as a share of their gross domestic product (GDP) tend to neglect other major sectors of the economy, resulting into financial problems. For instance Nigeria and Sudan economies are oil economies, that is, their economies are heavily reliant on oil revenues as oil-exporting countries with no other substantial economic sectors in existence.

Normally countries with resource endowment tend not only to make heavy investments in the extraction of the resource at the cost of developing other sectors of the economy such as

manufacturing but also essential public and social services such as health and education to its citizens are neglected. Such countries according to the resource curse thesis are conflict prone (Collier and Hoeffler, 2005; De Soysa 2002 and Fearon and Laitin 2003). De Soysa and Neumayer (2007) when using the UCDP threshold hold of 25 deaths find that study also finds that oil is associated with violence. Fearon (2004) additionally after examining 128 wars, from 1945–1999 concluded that Contraband goods such as diamonds prolonged conflict duration. Collier and Hoeffler (2002), additionally posit that 23 percent of oil dependent countries in their study had civil wars compared to 0.55 countries without natural resources. This is so because the countries are exposed to the volatility of the commodity prices on the world market. A decline in the GDP as a share of the primary export generated from the mineral resource may create domestic pressures for these countries since they don't have other sectors of the economy that would act as bulwarks to the boom and bust of the commodity prices on the world market.

Resource abundance and dependence

Resource abundance/wealth has to do with when the resource constituting a high production as a primary commodity for a country's export, while resource dependence has to with the resource constituting high proportion of the country's as share of primary exports in GDP. The paper looks at the connection between resource abundance/wealth and dependence that is a country may not be rich in resource wealth but may be overly dependent of a particular resource wealth as share of primary exports in GDP. For instance LeBillon 2008 indicates the percentages by which countries have resource wealth and dependent on resources, looking at the percentages one can note that in the case of Sierra Leone its exports of diamonds are about 18% but production is worth less than $100 per capita (LeBillon 2008, 354).

Resource Dependence

Many scholars in the literature posit that there is a correlation between high dependence on mineral resource and conflict. For instance Fearon 2005 and Ross 2006 find that dependence on oil as a percentage of a country's GDP is positively correlated with the onset of war.

Resource Conflict

The term "resource conflict" in LeBillon 2008 for instance is similar to the grievance model that appears in the Collier & Hoeffler 2004 discussion on the causes of conflict. The grievance model posits that conflict emanates from the nexus between political and economic interests as groups vie for the control of resources. For LeBillon 2008 resource conflicts comprise both "livelihood conflicts pertaining mostly to renewable resources" and "national or military resource security pertaining to mostly nonrenewable resources such as oil and strategic minerals". (Le Billon, 2008, 349). Thus, the prism of the resource conflict is that the discovery and the excavation of the resource itself can lead to conflict arising from the allocation of revenues (rents) from the resource (Le Billon, 2008). That is the inability of governments to deal fairly with the economic and political interests of groups pertaining to the resource in question can increase the likelihood of violence.

Resource Accessibility:

The term "conflict resource" in LeBillon 2008 for instance is similar to the greed model that appears in the Collier & Hoeffler 2004 discussion on the causes of conflict. The greed model posits that conflict emanates from the nexus between economic interests as groups vie for the control of resources. Thus, the "lootability" of the resource in question and the opportunity it

offers for revenues increases the likelihood of violence. For LeBillon (2008) "conflicts resources" has to do with access to the resources and the opportunity the resources provide for revenues and thus attracting armed rebellion.

Empirical/systematic studies showing the relationship between valuable resources and conflict

Collier and Hoeffler (1998) Case Study on economic causes of war

Collier and Hoeffler (1998) examined 98 countries of which 27 had civil wars from 1960-92 and found a strong correlation between mineral resource wealth (abundance) and conflict. That is countries that are heavily dependent on the export of natural resources as the primary commodities are vulnerable to civil war than resource-poor states. In the study Collier and Hoeffler (1998) looked at four independent variables: income per capita, ethno-linguistic fractionalization, mineral resource endowment and population size which were measured against the dependent variables: the occurrence and the duration of civil war, additionally they found that these four variables were strongly correlated with the duration and incidence of civil war. In the study Collier and Hoeffler (1998) measured the countries mineral resource endowment by the share of primary exports in GDP. They found that mineral resource wealth "initially increases the duration and the risk of civil war, but then reduces the risk of civil war" (Collier & Hoeffler, 1998, 571). The key word here is initially the implication behind their relational is that as the share of primary product in GDP increases so does the capacity for the government to defend itself. For instance C&H posit:

> At a high level, natural resources start to reduce the risk of war. We interpret this as being due to the enhanced financial capacity of the government, and hence its ability to defend

itself through military expenditure, gradually coming to dominate (Collier & Hoeffler, 1998, 571)

That is the lower the GDP generated from the resource endowment as a share of primary export the higher the incidence of war and the higher the GDP generated from the resource endowment as a share of primary export the lower the incidence of war. However, also in the same study Collier and Hoeffler found that the relationship between resource endowment and conflict was curvilinear. In other words the relationship between resource endowment and conflict was curvilinear indicating that resource endowment was positively associated with conflict (increase in one variable is associated with increase in the other). That is Collier and Hoeffler found that "Increased natural resources increase the risk of war"…and at a high level, natural resources start to reduce the risk of civil war" (Collier & Hoeffler, 1998, 571). In a subsequent study using a bigger dataset Collier & Hoeffler (2004) confirmed a negative relationship between resource wealth and conflict. Other factors that (Collier & Hoeffler, 1998) identified in the study were:

1. *Income per capita*

Collier & Hoeffler (1998) furthermore concluded that for income per capita if compared and measured on international basis countries with a low income per capita or low income countries were susceptible to conflict as compared to high income per capita countries.

2. *Ethno-linguistic fractionalization:* which is premised on cultural diversity within the countries the authors found that the higher the fractionalization between ethnic groups the more the incidence of conflict. That is when one ethnic group(s) is associated with the government and the other ethnic group(s) is associated with the rebels. For instance in Liberia

president Doe decided to surround himself by members from his ethnic group, the Krahn. He relied on the Krahn and Madingo, to govern Liberia on the other hand the National Patriotic Front of Liberia (NPFL) under the leadership of Charles was dominated by the Gios and Manos who Doe resented and executed. In other wards the more fractionalized the groups the greater the risk of civil war. For population size the authors' prism it on the attraction of secessionism.

Greed/Grievance

Collier and Hoeffler (2004) examined 78 large civil conflicts from 1960-99 and found a strong correlation between mineral resource wealth (abundance) and conflict as a result greed rather than grievance. **Greed theory** deals with ability to finance a conflict and **Grievance theory** deals with the equitable distribution of resources. This could be along religious lines, and ethnic lines. That is countries that are heavily dependent on the export of natural resources as the primary commodities are vulnerable to civil war because resources, by and of themselves, provide an opportunity for the rebels to gain access to the revenues from the wealth.

Collier and Hoeffler (1998) Case Study on greed and grievance

In the study Collier and Hoeffler (2004) looked at a number of descriptive variables in which Collier and Hoeffler (2004) examine the relationship both greed variables and grievance variables.

Grievance variables

Polarization is used as a unit of measurement for the relationship between Social fractionalization (measured as Ethnic fractionalization, and Religious fractionalization) ethnic

polarization, ethnic dominance (45-90%)—"where one ethnic group makes up 45-90 percent of the population", democracy, and peace duration. Income inequality and land inequality, is also used as a unit of measurement for the relationship between Social fractionalization (measured as Ethnic fractionalization, and Religious fractionalization) ethnic polarization, ethnic dominance (45-90%)—"where one ethnic group makes up 45-90 percent of the population", democracy, and peace duration.

Greed variables

Dependence upon primary commodity exports as a share of GDP is used as a unit of measurement for the relationship between GDP per capita (const.US$), Diaspora, Male secondary schooling, Forest cover, Mountainous terrain, Population density, and Population in urban areas. In the greed model dependence upon primary commodity exports as a share of GDP is measured against other variables.

Combined Model of Greed and Grievance

Collier and Hoeffler posit that "the combined model is superior to the greed and grievance models independently". In the combined model, only variables such social fractionalization, mountains, male secondary school enrolment are included. Collier and Hoeffler (2004) do not accept any further reduction of the variables nor are any additions to the variables allowed from the previous models into the combined model. Countries that are poor with a low per capita income, social fractionalization and low secondary school enrolment have a high risk of onset of war. For instance the Collier and Hoeffler's 2004 model:

predicts that a country with the worst characteristics (lowest per capita income, lowest GDP growth and highest population growth, a primary commodity export share of 0.32, the largest population, the lowest fractionalization, ethnic dominance, a geography Gini coefficient of zero and only one month of peace) would have a near-certain risk of war while a country with the best characteristics would be a very safe society (Collier and Hoeffler, 2004, 22)

That is the lower the GDP generated from the resource endowment as a share of primary export the higher the incidence of war and the higher the GDP generated from the resource endowment as a share of primary export the lower the incidence of war. However, also in the same study Collier and Hoeffler found that the relationship between resource endowment and conflict was curvilinear.

Ross, Michael L. (2004). How does natural resource wealth influence civil war? Evidence from thirteen cases

Michael L. Ross (2004) argues that natural resources have been used to finance war by rebels and warlords and also to enrich themselves. Among them, the conflict in Sierra Leone became synonymous with blood diamonds Smillie, et al, (2000). In Angola, revenue from diamonds was used by the National Union for the Total Independence of Angola (UNITA) rebels to finance the conflict with the government. The government also financed itself from the offshore petroleum (Le Billon 2001). The United Nations Panel of Experts (2001) implicates a number of Congolese rebel groups as well as armed groups from neighboring African states that were part of a network that plundered the natural resources of the Democratic Republic of Congo.

The 3 major arguments and the several empirical and systematic studies above bring out the complexities between conflict and valuable mineral resources such as diamonds and oil. The

literature indicates various ways in which diamonds and oil lead to conflict. In some cases, the connection between diamonds and oil and conflict works through the resource curse in which natural resource abundance impedes economic development and leads to conflict. In other cases the connection between diamonds and oil and conflict can be seen when groups within a state challenge the ownership claim of the central government over the valuable resource in question. In other cases the connection between diamonds and oil and conflict works through resource accessibility in which groups take the opportunity for personal enrichment. The consensus within the literature on conflict is that natural resources have played a central role in the history of conflicts. Thus the literature provides us with different ways in which conflict from resources manifests itself.

After reviewing the three key arguments, none of them can stand on its own in explaining why regions with valuable resources experience higher fatalities than regions without resources. Rather, a combination of the three key arguments can help to explain this and help bridge the gap in understanding, which I will demonstrate in the forthcoming analysis. Several additional theories will help to bridge this gap: relative deprivation theory, social identity theory and frustration-aggression theory.

Theories Used for Analysis in the Study

Frustration-Aggression Theory (F-A)

In their seminal work Dollard et al (1939) that became known as the frustration-aggression hypothesis (F-A), argued that "the occurrence of aggressive behavior always presupposes the existence of frustration and that the existence of frustration always leads to some

form of aggression" (Dollard et al, 1939, p.8). Dollard et al (1939) defined frustration as preventing the fulfillment of a goal (Dollard et al 1939, p.7). Thus, the F-A theory as defined by Dollard et al (1939) is premised on two basic tenets, a) Aggression is always produced by frustration, and b) Frustration always produces aggression. Thus, F-A asserts that aggression is always the result of frustration (Dollard et al. 1939).

The theory is relevant in understanding the relationship between diamonds and the conflict in Africa. The African countries in this study by far are haunted by a legacy of having poor governance structures, unequal access and distribution of resources that tend to favor some segments of the population more than others. This inevitably raises expectations of access to the diamonds among certain groups of the population with very serious consequences to stability if these expectations of access to diamonds are not met. When people perceive that they are being prevented from achieving a goal, their frustration is likely to turn to aggression (Dollard et al. 1939) then F-A theory becomes relevant in understanding why people get into conflict. The closer you get to a goal, the greater the excitement and expectation to fulfill that goal. Thus, the closer the individual gets to his/her goal, the more frustrated an individual gets if the individual feels that they are being held back, the more it increases the probability of an aggressive response.

The theory has been extensively debated in studies such as Davitz, (1952), Christy, Gelfand and Hartmann (1971), and Cf. Bandura (1969, 1973) have argued that frustration does not necessarily lead to aggression while other studies such as Buss, (1963; Geen, 1968; Rule and Percival, 1971, Burnstein and Worchel, 1962, Mallick & McCandless, 1966 and Pastore, 1952) have supported the F-A connection, that is, frustration leads to aggression. In his seminal work Gurr (1968) applied a systematic F-A theory analysis to the problem of political violence, by

framing the frustration as one of "relative deprivation" (Gurr, 1968). Gurr (1968) argued that the

implication of F-A theory is:

> That civil violence almost always has a strong appetitive sensational base and that the
> magnitude of its effects on the social system is substantially dependent on how
> widespread and intense anger is among those it mobilizes... If anger implies the presence
> of frustration, there is compelling evidence that frustration is all but universally
> characteristic of participants in civil strife: discontent, anger, rage, hate, and their
> synonyms are repeatedly mentioned in studies of strife. Moreover, the frustration as-
> sumption is implicit or explicit in many theoretical analyses of the subject (Gurr, 1968,
> 250).

Following Gurr's (1968) line of reasoning, this theory provides a plausible explanation of

diamonds producing conflicts in Africa, where needs are not easily met by African governments.

The F-A theory can also be used to address the relationship between diamonds and

conflict because it examines the nexus between the source and agents of aggression. For example

the F-A theory presupposes that for frustration to occur there must be a source of the frustration

and this frustration produces two forms of aggressions, that is, direct and displaced aggression.

Thus, when the source is attacked, then that aggression is direct, while if something other the

source is attacked then aggression is displaced. For example, in Sierra Leone the Revolutionary

United Front of Sierra Leone (RUF) (agents of aggression) attacked both Sierra Leoneans

(displaced aggression) and the government (direct and displaced aggression). Sierra Leoneans

were seen as both a source of cheap labor to mine the alluvial diamonds and also blamed for the

loss of the elections by RUF and the government was considered as an obstacle to RUF's goal of

taking control of the diamond mines and over the country. The RUF's violence is what Ted

Robert Gurr observed, as violence produced from "interference with goal-seeking behavior or

from interference with continued enjoyment of an attained condition" (Gurr, 1968, p.256).

Consequently RUF's "goal-seeking" behavior was that of gaining access and control of not only the diamond mines but also the government.

Relative Deprivation (RD)

The theoretical and the empirical works on Relative Deprivation (RD) have been extensively debated in the social science literature (Samuel Stouffer et al, 1949, Davis 1959, Runciman 1966, Gurr 1968, 1970). Gurr (1968) defined relative deprivation as:

> [A]ctors' perception of discrepancy between their value expectations and their environment's apparent value capabilities. Value expectations are the goods and conditions of life to which people believe they are justifiably entitled. The referents of value capabilities are to be found largely in the social and physical environment: they are the conditions that determine people's perceived chances of getting or keeping the values they legitimately expect to attain (Gurr, 1968, p.253).

From the above definition RD theory deals with the lack of equitable distribution of resources. Thus, people tend to compare themselves to others in terms of what they have and what they do not have, and how deprived they are from getting that that they desire. People take action in order to acquire something that others have and which they believe that they rightfully should have. For example, marginalized ethnic groups may pick up arms in order to acquire something that they believe they are entitled to, but they are being denied access to; such groups believe they are deprived.

Whereas the causes of conflict in Sierra Leone, Angola and DRC have been extensively documented, RD theory can help explain the conflict in Sierra Leone, Angola and DRC. For instance RD theory explains individual and group violence (Davies 1966, Gurr 1970). When a group of people feels deprived this leads to grievances and becomes a source of mobilization because grievances project a groups unrealized expectations (Davies 1966, Gurr 1970). The

unrealized expectations in the case of the above countries were on the distributional aspects of the diamonds both at the individual as well as the collective level. Thus, diamonds were a triggering mechanism for the conflict. As a result the National Union for the Total Independence of Angola (UNITA) in Angola, and the Revolutionary United Front of Sierra Leone (RUF) took on the state in order to legitimize their deprivation claims on the precious diamonds. For instance RUF articulated that Sierra Leoneans had been marginalization and deprived of the economic benefits of diamonds. Furthermore, control over the gains of economic exploitation of diamonds as well as over the state institutions itself in the above mentioned countries reinforced continuity of the conflict.

Methodology Section

The purpose of the study is to identify and discuss the typologies of resource conflict by discussing the research questions:

1) Does easy access to valuable resources such as diamonds and oil produce higher intensity conflicts?

2) Why are valuable resources such as diamonds and oil conflict prone?

3) The typologies of valuable resources such as diamonds and oil.

The questions are tailored towards identifying not only the typologies of resources but also the intensity of the conflict, in relationship to presence of valuable resources such as diamonds and oil. The study seeks to identify the intensity of conflict that results from the control and accessibility of these resources. The intensity of conflict is measured by the mean deaths and mean number of incidences in regions with resources and regions without resources of the countries in the study.

Area of Study

The research study covers resource driven conflicts in Africa focusing on diamonds and oil. First, I will identify the regions in which there are diamonds/oil and those regions that do not have diamonds/oil. Then, I will compare whether regions with diamonds and oil have experienced more fatalities and higher intensity conflict than regions with no diamonds and oil. The study covers six countries, four of which are diamond producing countries which are: Democratic Republic of Congo (DRC), Angola, Sierra Leone, and Liberia; the rest are oil producing countries: Sudan, Nigeria and Angola. (Note Angola falls both in the diamond and oil producing countries)

The project will rely solely on secondary data. The Uppsala Conflict Data Program (UCDP) at Uppsala University Sweden is used in the study. To measure violent incidents in the seven countries the battle events data from the Uppsala Conflict Data Program (UCDP) Geo-referenced Events Dataset (GED) is used. UCDP Geo-referenced Events Dataset (GED) contains the casualty estimate categories or battle related deaths of best; high; and low estimates and will be used to deduce the level of intensity of the conflict that arises from the availability of diamonds and oil in the seven countries. UCDP (2010) defines its casualty estimate categories as:

1) **Best estimate:** the aggregated most reliable numbers for all incidents of organized violence during one event. If different reports provide different estimates, an examination is made as to what source is most reliable. If no such distinction can be made, UCDP as a rule includes the lower figure given.
2) **Low estimate:** the aggregated low estimates for all incidents of organized violence during one event. If different reports provide different estimates and a higher estimate is considered more or equally reliable, the low estimate is also reported if deemed reasonable.
3) **High estimate:** the aggregated high estimates for all incidents of organized violence during one event. If different reports provide different estimates and a lower estimate is considered

more or equally reliable, the high estimate is also reported if deemed reasonable. If there are incidents when there is some uncertainty about which party has been involved, these may also be included in the high estimate (UCDP, 2010).

However in my study I use the best estimate which is deaths that were verified and confirmed to have occurred in the provinces. The research will use the regional best estimate on deaths per capita as a unit of analysis of measurement for intensity of conflict in regions where diamonds and oil are located or lacking.

Data Collection

There are a number of databases on conflict and war around the world: The Uppsala Conflict Data Program (UCDP) at Uppsala University Sweden, Center for International Development and Conflict Management CIDCM at the University of Maryland USA, Correlates of War (COW) and the AKUF project at the University of Hamburg Germany. UCDP is the only English database updated annually to reflect the changes in active conflicts since 1989. This database has other advantages as it also incorporates data such as annual total fatality estimates for all armed conflicts, which is of crucial importance for current conflict. The UCPD also allows you to create your own dataset that suits your research question since its data can be electronically be download in an excel format.

Rationale or choosing UCDP

Correlates of War (COW)'s threshold is too high and cannot be used for my research because some of the annual fatalities in the countries of in my study are less than 1000. However, the UCPD has a lower threshold of 25 annual fatalities which allows for the localization of the conflict in my study. UCPD allows me to track the movement of the conflict

from one region to another because of its low threshold and it allows me also to track when the

conflict moved from a low intensity to a high intensity. The definition of armed conflict used in

the study is that of UCDP which is:

> An armed conflict is a contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths (UCDP).

The Violence threshold for UCPD is three folds:

1) **Minor Armed Conflict**: at least 25 battle-related deaths per year and fewer than 1000 battle-related deaths during the course of the conflict
2) **Intermediate Armed Conflict**: At least 25 battle-related deaths per year and an accumulated total of at least 1000 deaths, but fewer than 1000 in any given year
3) **War**: At least 1000 battle-related deaths per year. For the purpose of this study I collapse the three folds into one category deaths and my study also includes other variables such as location and best estimate of annual fatalities.

UCDP also offers systematic data on organized armed conflict for the entire African

continent from 1989-2010, as opposed to other datasets that focus on particular countries or

regions in a given time frame or periods.

Rationale for choosing the seven countries

The countries chosen for the research rank high on the index of failed states: a failed state is

synonymous with poor governance, conflict, lack of institutions to deliver basic goods and

services, and ethnic tensions these variables continue to cast a threatening shadow over stability

in these countries (Fund for Peace for the failed state index 2011). Nonetheless, these countries

remain states in the Westphalian sense.

Variables Used to measure the intensity of the conflict in the six countries:

Number of violent incidences: meaning the number of times that battled related deaths is reported in the regions in which there are diamonds/oil and those regions that do not have diamonds/oil.

Number of regional battle related deaths: number of deaths that occurred or reported in the regions in which there are diamonds/oil and those regions that do not have diamonds/oil.

Tracking the conflict: shows the movement, of the conflict from regions in which there are diamonds/oil to those regions that do not have diamonds/oil, and vice-versa.

Data Analysis

In order to find out whether easy access to valuable resources such as diamonds and oil produce high intensity conflicts, I will compare the mean deaths and mean number of incidences in regions that have diamonds/oil and those regions that do not have such resources. I will do this separately for each country. These analyses will show me whether the regions that have valuable resources such as diamonds and oil have more fatalities, more incidence of violence, and more intense violence than those regions that don't have oil or diamond.

How the locations of diamond and oil regions were determined

The location of diamond mining sites and oilfields was determined by looking at how diamonds and oil are distributed within the regional boundaries of each country. Mining sites that were obtained from the official records of the seven countries mining sector were matched to the precise location on the maps of each country. Then the number of battle related deaths is matched with provinces within each country that has had a civil war with diamonds and oil

which is then contrasted with the rest of the country provinces that have no diamonds and oil, but have battle related deaths.

Mapping of different valuable natural resources to provinces

Part of the research includes the mapping of different resources to different provinces within these countries. For instance Nord Kivu and Sud Kivu in DRC are rich in diamonds, gold, cassiterite, coltan and wolframite (tungsten ore) which meant moving the mapping from the provincial level to district level and then territories in order to be able to differentiate diamond mining sites from gold mining sites. For example Rutshuru district in Nord Kivu province has a number of diamond territories such as Tongo territory and gold territories such as Kalengera territory, that is, names of territories rather than provinces were used to locate diamond and gold territories associated with deaths. The UCPD data set was cross-referenced against existing maps that show provinces, counties, districts, municipalities, towns, and villages with diamonds mining sites and oilfields, and provinces, counties, districts, municipalities, towns, and villages that do not have natural resources.

Measuring the intensity of the conflict in the regions with and without valuable resources

Measuring the intensity of conflict in the provinces in which these resources are located rather than on a national level is the most prudent way to do it. The UCPD dataset shows that much of the conflicts in the chosen countries are localized. That is, conflicts in these countries occurred within particular provinces or counties of the countries, however, it's problematic to use the data to measure the intensity of the conflict and also track the movement of the conflict from one province to another. Nonetheless, this does not mean that the dataset cannot be used

and trusted, since the dataset uses the best estimate which is deaths that were verified and confirmed to have occurred in the regions. The data may not be sufficiently reliable to draw concrete conclusions, but it can be used to confirm particular trends about diamonds and oil.

Cold war used as a variable to analyze the data.

Since most of the conflicts in the countries in my study have a cold war angle to them the study starts its analysis of resource conflict from 1989 to present. By most accounts in the scholarly world 1989 is considered to be the end of the cold war. The study chooses 1989 because that's when most rebel movements started to look somewhere else for other sources of funding. After 1989 conflicts that had been contained because of cold war geopolitics and ideological alignments, most of the rebel movements in Africa were considerably weakened because of the disappearance of either Soviet or US military, financial and technical assistance, and thus had to look within their own countries for revenues to support the fighting (Duffield and Prendergast 1994).

Possibilities of the Study

The study barely scratches the surface about the resource conflict in Africa and the study represents the initial possibilities of using the geo-referenced data for more sophisticated empirical studies. The study excludes the unclear locations in which the battle related deaths are in the UCPD dataset. For instance the dataset in some instances lists the number of deaths with the location being Liberia but does not give the county in which the deaths occurred or sometimes gives the county but does not give the district in which the deaths occurred and that is true for the other countries. As such the study excludes that type of data because it cannot be

attributed to whether the deaths occurred in or near diamond mining sites or mines or near diamond mining towns or no mining towns or districts. Since the study measures the intensity of conflict by using battle related deaths then it is imperative that deaths that correspond with diamonds are located in mining areas and deaths that occur in regions without diamonds also correspond to those regions.

Limitations

The countries identified have experienced significant conflict and are less likely to have well compiled data both on a provincial level and national level. That is, matching the number of battle related deaths to diamond and oil producing regions posed serious challenges in the countries in the study, these challenges include:

The unreliability of the battle related deaths figures: Some of the deaths recorded were impossible to match to a particular mining town or village or district because some of the mentioned mines in the official mining records of the countries were not matched to a particular town or municipality on a map. Thus, the dataset with the battle related deaths is replete with gaps that make it impossible to paint a reliable and comprehensive picture of the battle related deaths particular to diamonds and oil. For example, the dataset lists the total number of battle related deaths in a region that is known to have mining activity but does not offer the name or location of the mine or the town or district or municipality in which the deaths occurred. Take the case of DRC that has the Ituru region, which has more than one natural resource such as cassiterite, coltan and wolframite (tungsten ore), gold and diamonds: in order to be able to match deaths that may have occurred in diamond and gold mining locations, names of towns and districts are important to attribute battle related deaths to any of the natural resources.

The dataset does not provide precise information on the location of the battle related deaths, but offers the region in which the battle related deaths occurred. That is the Dataset relies on the GPS location and sometimes the GPS location gives the region but not the precise location. As a result I had to look up some of the regions that were heavy in mining. But some of the mining sites that were obtained from the official records have no information available on their precise location. However, a number of reasons can be attributed to this: first and foremost, these are countries that have be ravaged by conflict so insecurity in some of these regions still exists which makes it impossible to locate the precise mineral mines; there is a lack of centralized data collection by local authorities; poor infrastructure, especially the poor road network system; and some of the mining areas are remotely located and cannot be pinpointed by GPS.

Analysis

Findings/Results

Table 1

Total Deaths by Regions

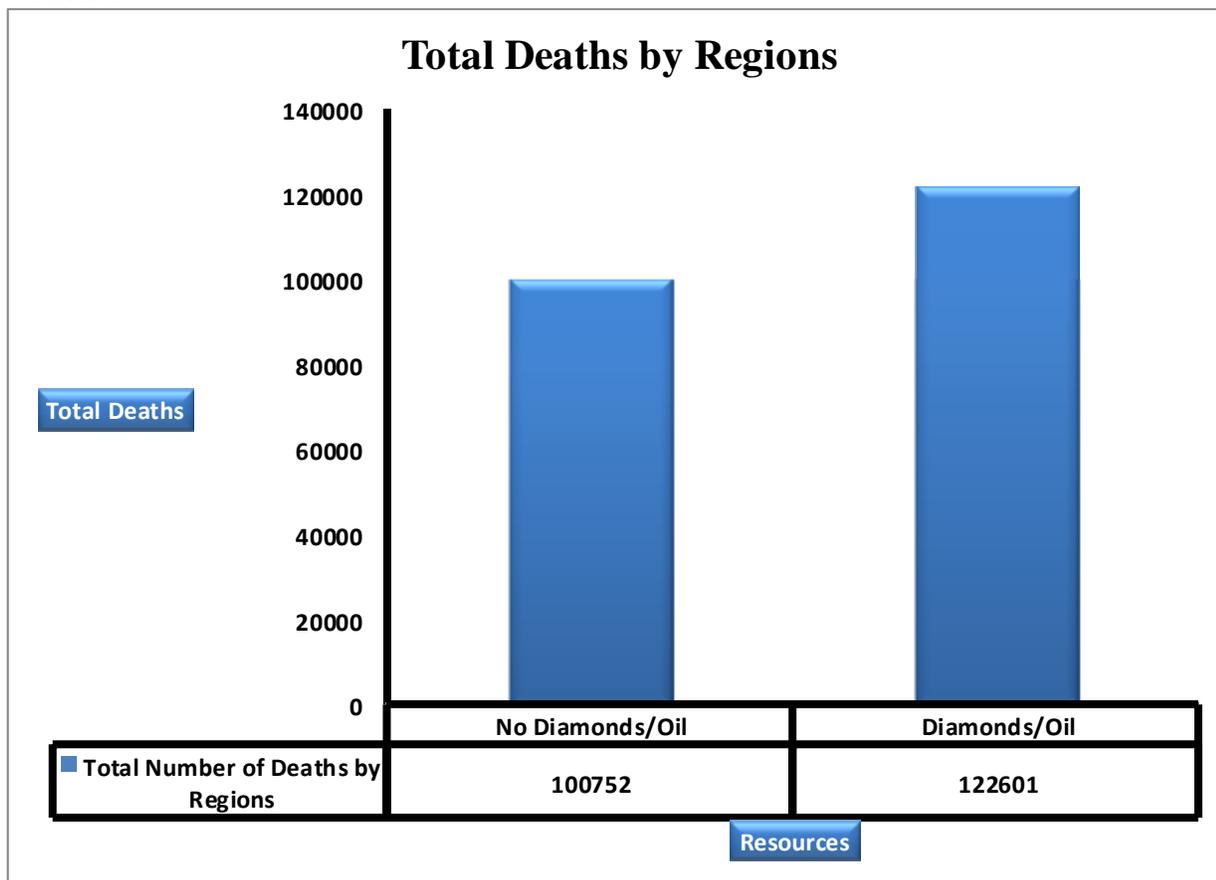| Resources	No Diamonds/Oil	Diamonds/Oil
Total Number of Deaths by Regions	100752	122601

Table 1 displays the results obtained after using the UCDP data of the total deaths. The total

deaths were matched to regions with diamonds/oil and regions without such resources. Table 1

shows that regions with diamonds and oil had more fatalities measured as the mean total deaths

as compared to regions with no diamonds and oil. Looking at the fatalities numbers from the bar

graphs regions with resources across the six countries had a total deaths mean of 1238.39, while

regions without resources had a total deaths mean of 1095.13. The mean difference between

regions with resources and regions without resources is 143.26. This difference between the

means is large enough to suggest that regions with diamonds and oil are correlated with higher fatalities than regions without diamonds and oil.

Table 2

Total Deaths by Country Regions by Diamonds/Oil

	ANG	DRC	Sierra Leone	Liberia	Nigeria	Sudan
No Diamonds/Oil	6,615	30,624	2,707	7,741	7,035	46,030
Diamonds/Oil	22,969	57,559	4,185	10,768	2,571	24,549
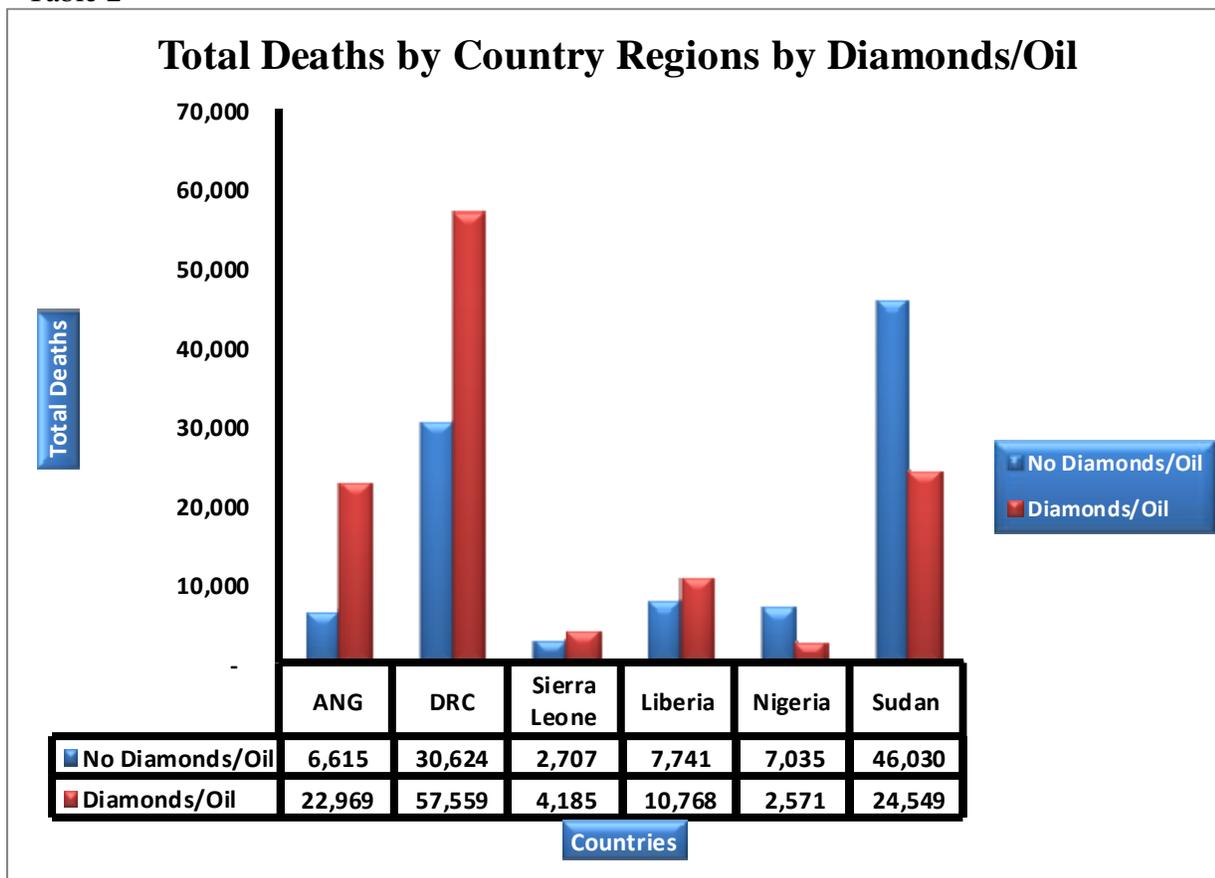
Overall, a picture similar to that in table 1 emerges in table 2 when looking at regions within each country. Regions with diamonds and oil experienced higher fatalities than regions without resources. The results thus suggest that violence is driven by the presence of diamonds and oil. The results in Angola, DRC, Liberia and Sierra Leone show that regions with diamonds and oil experienced more fatalities than regions without. The Data shows a correlation between the presence of diamonds and oil and conflict in regions.

On the other hand, Nigeria and Sudan do not fit this pattern. The data shows that the overall mean deaths are more in regions without oil than regions with oil. In Nigeria regions with oil have a total deaths mean of 197.77, while regions without oil have a total deaths mean of 469. The mean difference between the regions with oil and without is 271.23. The total deaths mean in regions without oil is not only twice that of regions with oil, but also the mean difference is almost twice the total deaths mean of regions with oil, which is a significant difference. This suggests that the presence of oil is not the primary driver of violence in Nigeria, but rather a combination of other factors are causing the higher fatalities. For Nigeria the higher fatalities in regions without oil could be stemming from the incompatible claims to land ownership (Kwaja and Kew 2010).

A similar picture emerges for Sudan in table 2, where more deaths occurred in regions without oil than regions with oil. In Sudan regions with oil have a total deaths mean of 2092.27, while regions without oil have a total deaths mean of 1115.86. The mean difference between the regions with oil and without oil is 976.41. The total deaths mean in regions with oil is not only almost twice that of regions without oil, but also the mean difference is almost the same as the total deaths means of regions with oil. This suggests that the presence of oil is not the primary driver of violence in Sudan, but rather a combination of other factors are causing the higher fatalities in regions without oil compared to regions with oil. For Sudan the higher fatalities in regions without resources could be stemming from the war for independence, which if the case, then high fatalities occur throughout Sudan regardless of the presence of oil.
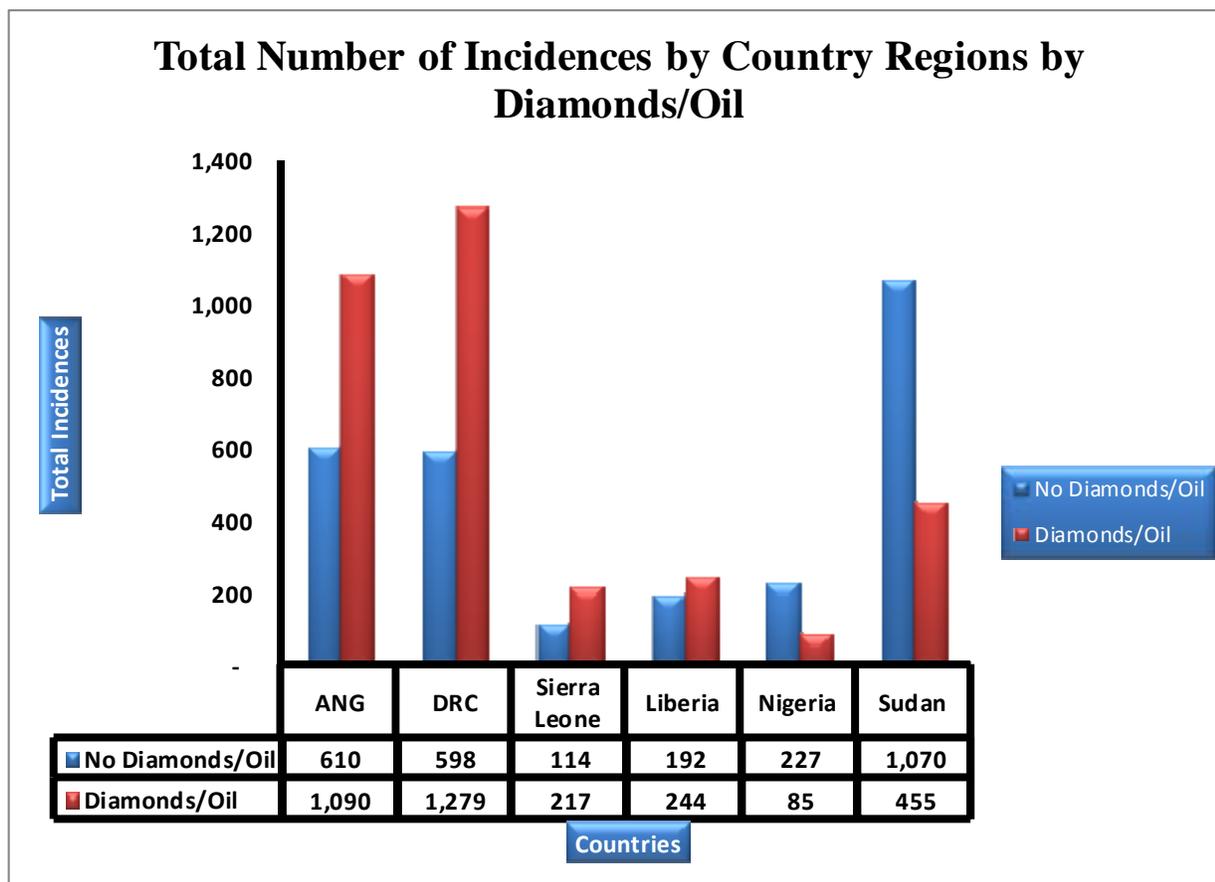
Table 3

Total Number of Incidences by Regions

Total Number of Incidences by Regions	No Diamonds/Oil	Diamonds/Oil
	2811	3370
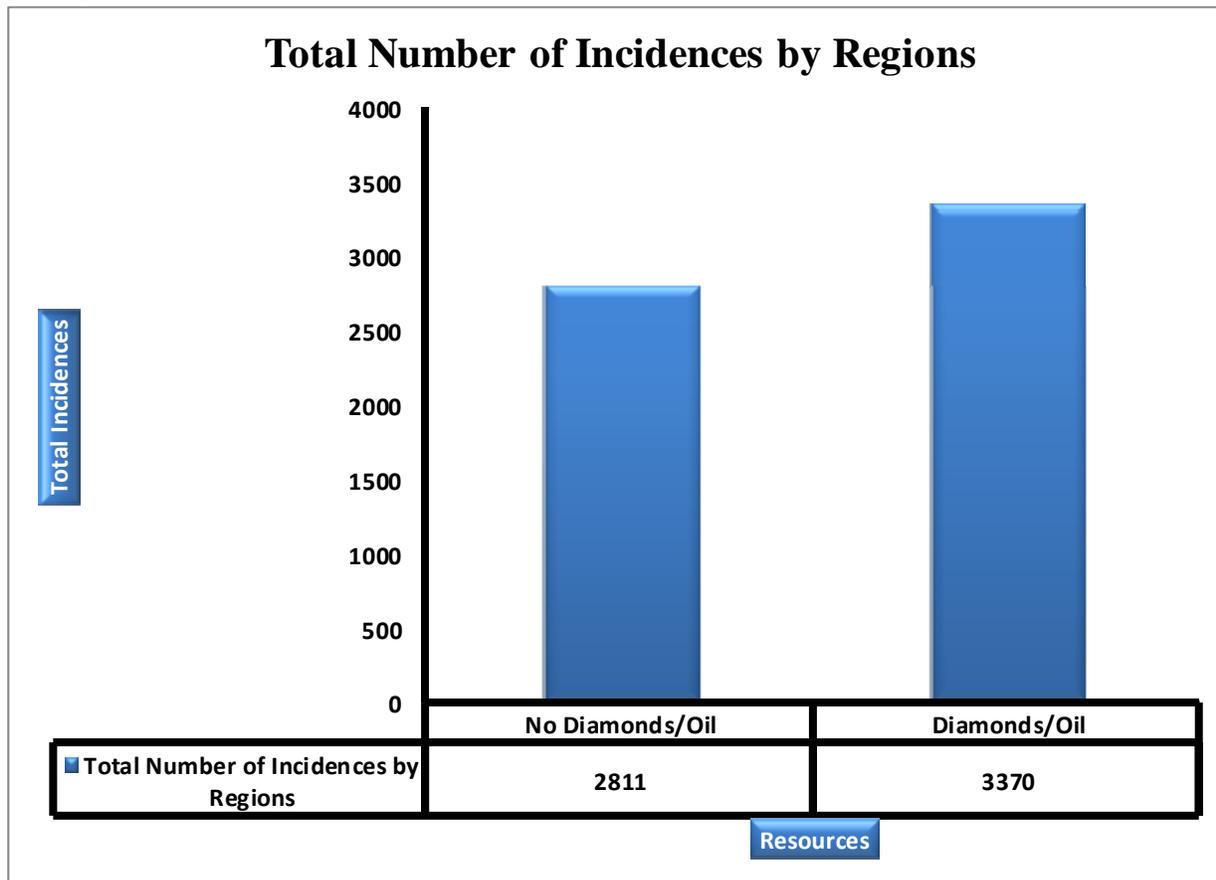
In terms of the magnitude of the conflict, table 3 displays the results obtained after using the

number of recordable incidents that occurred or were experienced during the conflict in regions

with and without diamonds and oil from the UCDP data of the total deaths. The magnitude of the

conflict is measured by the total incidence mean that occurred during the conflict. Table 3 shows

that regions with diamonds and oil had more incidences measured as total incidence mean as

compared to regions with no diamonds and oil. Looking at the total incidence numbers from the

bar graph regions with resources across the six countries had a total incidence mean of 34.04,

while regions without resources had a total incidence mean of 30.55. The mean difference

between regions with resources and regions without resources is 3.49. The difference between

the incidence means is not large, but the data in general across the six countries suggests that

regions with diamonds and oil are correlated with higher violence intensities than regions without diamonds and oil.

Table 4

Total Number of Incidences by Country Regions by Diamonds/Oil

	ANG	DRC	Sierra Leone	Liberia	Nigeria	Sudan
No Diamonds/Oil	610	598	114	192	227	1,070
Diamonds/Oil	1,090	1,279	217	244	85	455

Overall, a picture similar to that in table 3 emerges in table 4 when looking at regions within each country, regions with diamonds and oil experienced higher intensity of the conflict than regions without resources. The results in Angola, DRC, Liberia and Sierra Leone show that regions with diamonds and oil experienced higher intensity than regions without. The Data shows a correlation between the presence of diamonds and oil and higher intensity of conflict in regions with these resources.

In terms of the magnitude of conflict, with the exception of Sudan, Nigeria and Angola measured by the mean number of incidences the data shows that diamond and oil areas experienced more heated conflict than the rest of the country. However, in spite of the widespread distribution of battles in the regions of each country, diamond and oil regions such as the Kivus (DRC), Kono, Kenema (Sierra Leone), Lofa (Liberia), Lundas (Angola), and within the provinces of Cabinda experienced high intensity of conflict.
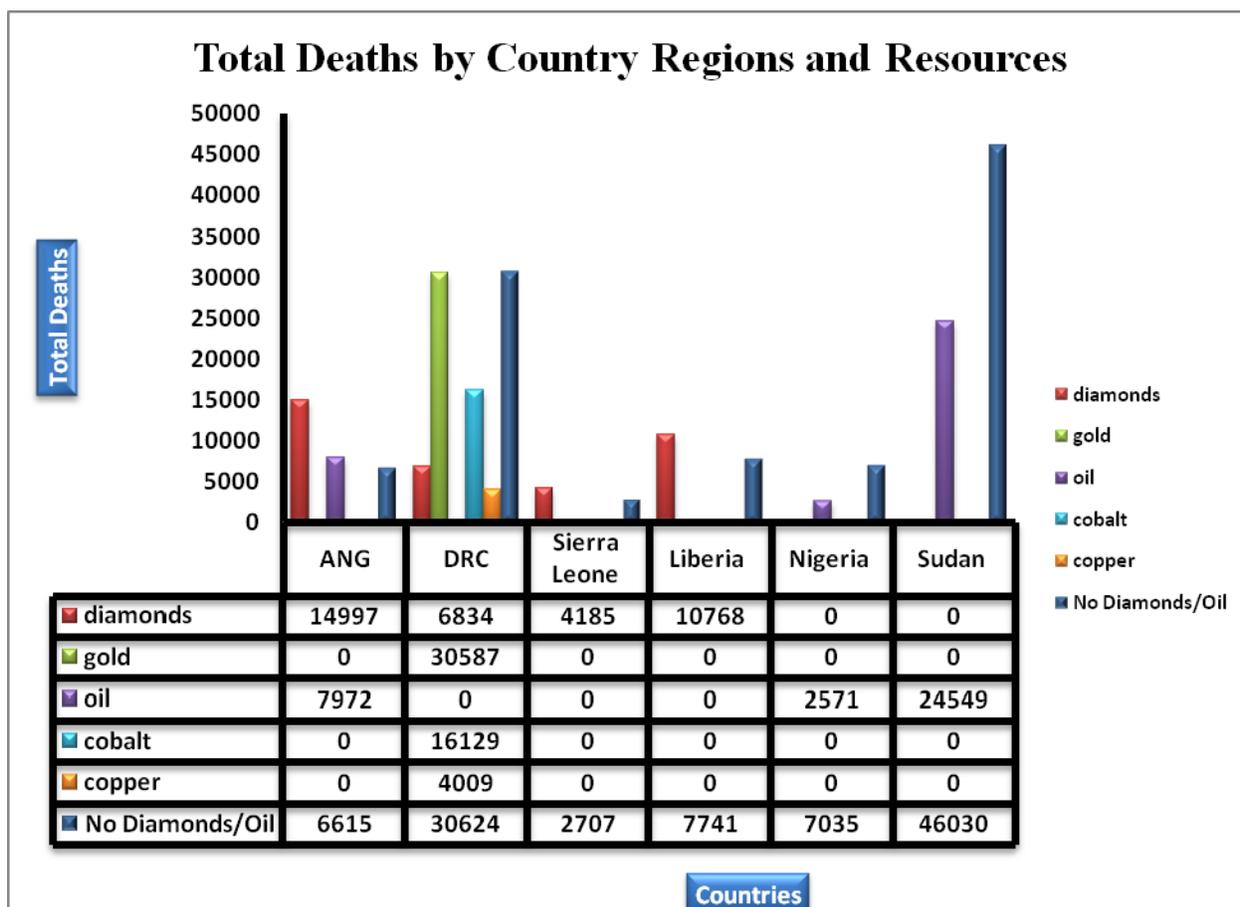
Table 5

Total Deaths by Country Regions and Resources

	ANG	DRC	Sierra Leone	Liberia	Nigeria	Sudan
diamonds	14997	6834	4185	10768	0	0
gold	0	30587	0	0	0	0
oil	7972	0	0	0	2571	24549
cobalt	0	16129	0	0	0	0
copper	0	4009	0	0	0	0
No Diamonds/Oil	6615	30624	2707	7741	7035	46030

Table 5 compares regions with diamonds, oil, gold, coltan, copper, and wolfamite and regions without the above mentioned resources. In Angola both diamond and oil regions had more

fatalities than regions without these two resources. The total deaths mean of diamonds and oil regions is 1276.1, while regions without diamonds and oil is 508.85. The mean difference between the regions with oil and diamonds and regions without is 767.21. The total deaths mean in regions with diamonds and oil is not only twice that of regions without oil and diamonds, but also the mean difference is larger than the total means death of regions without oil and diamonds. The presence of diamonds and oil contributed to the higher fatalities in these regions when compared to regions without these resources.

Comparing the 3 regions in Angola which have diamonds and oil to those without, the data indicates that more fatalities occurred in regions with diamonds and oil. The total deaths mean in regions with diamonds was 1153.62 compared to regions without diamonds that had a total deaths mean of 508.85. The oil regions had a total deaths mean of 613.23, compared to regions without oil that had a total deaths mean of 508.85. Overall Angola's diamond regions experienced more fatalities than both oil regions and regions without these resources.

In the DRC, combined diamonds, oil, gold, coltan, copper, and wolfamite regions have more fatalities than regions without these resources. The total deaths mean of these regions is 2616.32, while regions without these resources is 1392. The mean difference between the regions with resources and regions without resources is 1224.32. The total deaths mean in regions with resources is not only twice that of regions without resources, but also the mean difference is almost the same as the total mean deaths in regions without resources. The presence of these resources contributes to the higher fatalities in these regions when compared to regions without these resources. Comparing the 5 regions in DRC which are the diamond regions, gold regions, coltan and wolfamite regions and cooper regions and regions that do not have these resources, the data indicates that more fatalities occurred in regions with gold than the other regions with

resources. Thus, the data indicates that more fatalities have been registered in gold producing regions than diamond, copper and tin regions.

The results in Angola, DRC, Liberia and Sierra Leone show that regions with diamonds and oil experienced more fatalities than regions without. The Data shows a strong correlation between the presence of diamonds and oil and conflict in regions with these resources and regions without these resources.

The same cannot be said for Nigeria and Sudan. The data in Table 5 indicates that the conflicts in Nigeria and Sudan are not primarily over oil because more fatalities occurred in regions without oil than regions with oil. However, oil still plays a key role in both places. The main feature that distinguishes Sudan from Nigeria is that both the government of Sudan in the north and the rebel movement in the south before gaining independence (on 9 July 2011, independent Southern Sudan) have used oil as the main source of revenue to finance their war activities (Abiodun 2007). It is evident in Sudan that the war for independence of the South from Sudan was financed by the oil revenues and by the same token for the Sudan government in the north it used the oil revenues to quell the independence movement of Southern Sudan (Abiodun 2007). In the end, Southern Sudan is now an independent country that still relies on oil revenues, and it remains certain that how oil is now shared between the two independent nation-states will determine their stability. Thus, in the war in Sudan the idea of independence was the primary motivating factor, but oil was the means by which the war was financed.

Oil is also not the primary driver of fatalities in Nigeria, where more fatalities occurred in non-oil regions as compared to the oil-producing Niger Delta. Oil disputes, however, are linked to the wider inter-ethnic and religious divides in Nigeria over the issue of land ownership, which is

a major issue in the non-oil fatalities. Competing land ownership claims between the federal government and the oil producing communities also underlie the Niger Delta conflicts. Thus, because of Nigeria's overlapping "ethnic and economic dilemmas" (Kew, 2005) all of its fatalities could be characterized as resulting from resource conflicts.

Discussion of the results using the theories

Although we cannot know for certain without direct survey responses from individuals in the regions with and without diamonds and oil, we can reasonably infer that if more deaths occurred in regions with resources as compared to regions without resources, as is the case in tables 1, 3 and 5, then we can conclude that the logic of Frustration-Aggression is likely to be at work. In other words, the presence of these rich resources in these highly impoverished locales is creating widespread frustration, which incites aggression. Echoing F-A, one would expect that the regions with diamonds and oil would have higher intensity conflicts than regions without these precious resources as evidenced in table 3 and 4 because we assume that the people in these regions with the resources believe that they have a right to the benefits from the resources, but at the same time they are largely denied the benefits from these resources leading to stronger feelings of frustration, which leads to aggression.

Relative Deprivation theory deals with the lack of equitable distribution of resources, such that people tend to compare themselves to others in terms of what they have and what they do not have, and how deprived they are from getting that which they desire. People take action in order to acquire something that others have and which they believe that they rightfully should have. Thus, RD would predict that regions with diamonds and oil would have more fatalities than

regions without these resources. As the data indicates in tables 1, 2 and 5 more deaths occurred in regions with diamonds and oil as compared to regions without resources. One would thus expect under RD that armed groups and other rebel movements took on the state in order to pursue their deprivation-based claims on the precious diamonds. The RD argument is that the lack of equitable distribution of resources in regions with diamonds and oil may enhance group mobilization for conflict.

That is, the presence of diamonds and oil tends to attract groups who see diamonds and oil as a source of revenue that they have been deprived of by their governments compared to other regions without resources. For instance Collier & Hoeffler (2004) have argued that the conflicts in Liberia, Sierra Leone, DRC and Angola were conflicts purely driven by "greed", that is the easy "lootability" of the diamonds and the revenues generated from the diamonds may well explain why regions with diamonds experienced more fatalities than regions without diamonds. Furthermore, reading Reno (1999) one comes to the conclusion that the conflicts in these countries were purely commercial in nature. That is, belligerents in these countries consolidated their power by coalescing their interests with those of other groups such as local fighters, international and local business.

Thus these groups, particularly the strongmen in these countries, cited that the major cause to go to war was the mismanagement of the diamond revenues and that they were marginalized and deprived of the economic benefits of diamonds (Abiodun 2007). Furthermore, control over the gains of economic exploitation of diamonds as well as over the state institutions in the above mentioned countries reinforced continuity of the conflict (Abiodun 2007). As a result the data suggests that regions with diamonds experienced more fatalities than regions without. Additionally, because of the need to control and have access to the resources that these groups

felt they had been denied by the central government, the belligerents in regions with resources preferred outright victory contributing to more fatalities in regions with resources compared to regions without resources (Reno 1999 and Abiodun 2007). As a result more fatalities and higher intensity occurred in regions with diamonds and oil as indicated by tables 1, 2, 3, and 4.

Conclusion

The causes of civil wars in Africa are complex, ranging from the colonial legacy, authoritarianism, military rule, neopatrimonial structures, "shadow state" phenomenon, and external intervention. All of these are critical in understanding why regions with diamonds and oil are conflict prone in Africa. The data indicates that in Sierra Leone, DRC, Liberia and Angola, the conflict predominantly occurred in regions with diamonds and oil. Thus, the data suggests that the struggle for control of diamonds and oil are important sources of conflict. That is, one can expect that violence will persist as long as people's expectations of the benefits from resources such as diamonds and oil are not met, and also when people perceive that they are being denied access to these resources and thus see conflict a viable alternative.

If more deaths and higher intensity of conflict is occurring in regions with diamonds and oil as the data indicates, then this suggests that more emphasis and attention should be placed on precious resources such as diamonds that are easily lootable and easily accessed because of their ability in motivating and sustaining civil wars in Africa. However, there is a much bigger picture to the data discussed in this paper, which is that of institutional reform and constitutional re-

design, which in essence is "resource governance," capable of addressing conflicts that emanate from these resources. If institutional reform and constitutional re-design remains weak, then regions with resources will be prone to conflict and people in these locales will continue to look for potentially violent alternatives to access the benefits of these precious resources. The ability of these resources to bring about a heightened sense of frustration and provoke conflict within regions that have these resources tells us that these resources must correspond with real tangible benefits within these regions. Without such reforms and benefits, conflict from these resources becomes a self-fulfilling prophecy in the African context, such that these resources are indeed conflict prone.

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COW website: http://cow2.la.psu.edu/

Table 6 Shows countries with Diamonds

Countries	Conflict	Alluvial Diamonds	Region with Alluvial	Primary Diamonds	Region with Primary
Botswana	No	Yes			Francistown, Gaborone
South Africa	No	Yes		Yes	Northern Cape Kimberley, Limpopo Province, Free State Province, Gauteng Province
DR Congo	Yes 1996-Present	Yes	Kasaï-Oriental province of Souther-central (DRC), Kasaï Occidental province Congo (DRC)		
Angola	Yes 1975-2006	Yes	Lunda Sul and Lunda Norte-Cuango River	Yes	Lunda Norte Province
Namibia	No	Yes	Oranjemund-Orange River, west coast of Namibia, Karas region- Lüderitz	Yes	
Sierra Leone	Yes	Yes	Kono District, Koidu, Kenema and Bo Koidu and Tongo diamond regions	Yes	
Guinea	No				
CAR	No	Yes	Bria-Boungou River and its tributarie	No	
Tanzania	No	Yes		Yes	Shinyanga Province
Liberia	Yes 1989-2003	Yes	the Lofa River, Mano River, and Morro River, in the Lofa province of north-eastern		

			Liberia, and in the Gbapa area on the Guinea boarder and Grand Cape Province		
Côte d'Ivoire	Yes 2002-2011	Yes	Seguela Region	Removed from the Kimberley Process participants list and is under UN sanctions to prohibit it from trading in diamonds.	
Ghana	No	Yes	Birim River Basin		
Lesotho	No	No		Yes	Mokhotlong, Maluti Mountains
Zimbabwe	Yes			Yes	Zvishavane in South Central Zimbabwe
The Republic of Congo (Congo Brazzaville)	No	Yes		Removed from the Kimberley Process participants list and is under UN sanctions to prohibit it from trading in diamonds.	