

Helpdesk Research Report: Resource Management and Conflict

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Query: What does the available literature say about the links between the management of mineral resources and conflict?

Enquirer: DFID

1. Overview
2. Understanding the 'resource curse' and conflict
3. Links between resource management and conflict
4. Additional information

1. Overview

There is an extensive literature dedicated to examining the links between the **abundance** of mineral resources and the incidence and duration of violent conflict. While the 'resource curse' thesis has become well-known, claims that an abundance of natural resources increases the likelihood of conflict have been widely disputed.¹ Beyond the case study literature, there is relatively little research that focuses specifically on the links between the **management** of mineral resources and violent conflict (i.e. how various approaches to managing mineral resources affect the likelihood of conflict).

The curse of abundance

Two main models are used to explain the resource curse thesis: a *rent-seeking* model (having resources will encourage greedy rebels to fight for resources) and a *rentier state* model (having resources breaks the social contract between the state and the population, which leads to a weak administration, or in some variants of this approach, to authoritarianism) (Di John 2007). The most well-known pieces of research are large cross-country econometric studies, led by Collier and Hoeffler (2004), Fearon and Laitin (2003) and Ross (2001). These studies, mostly conducted in the late 1990s and early 2000s, have found that the abundance of natural (and particularly mineral) resources increases the likelihood of conflict. This work has been critiqued on a number of grounds:

- **Robustness.** The evidence from various studies is contradictory. Ross's (2004) analysis of 14 econometric studies finds that primary commodities as a whole cannot be robustly linked to civil war onset and duration.
- **Problems with data-sets.** Econometric studies use different proxies, code conflicts in different ways and use different conflict thresholds. One major issue has been confusion between *dependence* – the proportion of GDP derived from mineral resources - and *abundance* – the stock of a resource in the ground) (Ross 2004, Basedau and Lay 2009).
- **Poor measurement of resource data.** Many studies relied on the World Bank's World Development Indicators, whose data on mineral exports are unreliable (Ross 2006).

¹ The 'resource curse' is 'the idea that abundance of natural resources, and in particular oil, causes poor growth and raises the incidence, intensity and duration of conflict' (Di John 2007, 961).

- **Problems of reverse causality/ endogeneity.** Many of the variables used to explain onset of civil war may be endogenous to conflict – so, for example, civil wars might in fact cause resource dependence rather than the other way round (Brunschweiler & Bulte 2009).

Beyond these methodological critiques, some authors have argued that the mechanisms used to explain the resource curse are not well understood. There is little reliable evidence to support any single resource curse mechanism over another (Humphreys 2005).

There is now widespread consensus that the relationship between violent conflict and the abundance of mineral resources is less robust than was initially thought (Ross 2006, Basedau and Lay 2009, Brunschweiler & Bulte 2009, Le Billon 2009).² Although it is difficult to make a convincing case that the abundance of mineral resources increases the likelihood of conflict *per se*, the evidence does suggest that the availability of highly profitable contraband can increase the duration of conflict in some cases (Di John 2007, 983). Some important studies have argued that empirical data is now of a higher quality, and many of the issues of endogeneity that plagued earlier studies have been overcome (Ross 2006, Le Billon 2009). There is some consensus that the links between resource abundance and incidence of violent conflict are clearer in the case of oil. Ross (2006) shows that both oil dependence and oil abundance are positively correlated with the risk of war.

The recent literature has used modified data-sets to examine more closely the specific contextual conditions that lead to violent conflict (Dunning 2005, Basedau and Lay 2009). The literature is now focused on assessing the contextual conditions as well as the exact causal mechanisms that determine whether or not the resource curse occurs, and the manner in which it does so (Basedau and Lay 2009). Recent work has identified a number of important variables, which have been disguised or ignored by the existing research:

- **The type and location of mineral resource.** The more general studies ignore important differences between different kinds of mineral resources. Some are more easily lootable than others – ‘distant’ and ‘diffuse’ resources such as alluvial diamonds are harder to control by central governments, and rebels can loot them more easily than deep shaft gems or off-shore oil production (Le Billon 2009). According to one recent study, if the resources are located inside a rebel controlled-area, the likelihood of conflict is doubled (Lujala 2010).
- **The quality of resource governance** may play an important role in understanding the incidence of conflict. This will depend on other social, economic and political characteristics of the country in question such as the level of development, relations between identity groups and the quality of state institutions (Basedau and Lay 2009).
- **The stability of revenue.** Dunning (2005) finds that the stability of revenue plays an important role in determining whether the discovery of natural resources promotes conflict.

While most current work is still largely reliant upon econometric methodologies, some authors such as Dunning (2005), Weinstein (2005) and Di John (2007) have utilised a more contextually-based political economy approach. The case-study literature has helped to explain why poor resource management or the discovery of natural resources has led to violent conflict in some cases, but not others. Recent work by Aspinall (2007) and Green (2010), for example, which looks at case studies from Aceh, Sudan and Mexico, stress that the discovery of natural resources only promotes conflict when these resources become entangled with processes of identity construction. Most of the more general studies on mineral resources have focused on oil and diamonds. The effects of other mineral resources such as copper, iron, coltan, cassiterite and lithium, have mainly been addressed in the case study literature.

The curse of management

Relatively little research has focused on the way in which various approaches to the management of mineral resources affect the likelihood of violent conflict. A number of prominent studies have examined various policy options for ‘escaping the resource curse’ by managing these resources most effectively.

² This point was expressed by all of the experts who contributed to this report.

Humphreys, Sachs & Stiglitz (2007) and Collier (2010) present a number of proposals for states to effectively manage natural resources relating to the involvement of the private sector in extractive industries, the management of revenues (for example, by setting up natural resource management funds) and various governance strategies. There have been few attempts to assess the impact of resource-management initiatives on the likelihood of conflict. Although there is some suggestion of a correlation between good resource management and peace, there is no clear causal link from existing data (Di John 2007). There have been some recent attempts to demonstrate a causal link between specific conflict prevention interventions in the field of natural resource management through a large cross-country study, but these attempts have so far been unsuccessful, largely because these initiatives are only one of many factors that determine conflict termination (Le Billon 2009).

The links between resource management and conflict can also be uncovered through case studies. In many countries, mineral resources have helped to fuel corruption, been used to support military expenditure, or driven local grievances in mineral producing regions – Sudan and Nigeria are perhaps the most prominent examples in the literature. Few studies provide a general analysis of the links between corruption, local grievance, securitization and mineral resources, or an assessment of how these effects are linked to different resource management strategies.

Swanson (2002) describes the case of Sudan, where rising oil revenues became intertwined with the government's security and military objectives. As Sudan became more reliant upon these revenues, it took more aggressive steps to protect resources, using oil wealth to enhance its military capabilities and to conduct a campaign of forced relocation against minority groups (Swanson 2002, 18). Another source of conflict has been a failure to share revenues with resource producing regions, which has been a major driver of conflict in the Delta region of Nigeria (Swanson 2002, 19). In certain contexts, these grievances have driven separatist conflicts, as occurred in the Cabinda region of Angola, Aceh in Indonesia and Biafra in Nigeria.

Another approach to understanding the linkages between resource management and conflict is to examine why certain resource-rich countries did not succumb to violent conflict. Here the most well-documented examples are Botswana and Zambia. Botswana's success in both maintaining peace and achieving stable growth rates has been attributed to good policy decisions (Auty 2008), but as Dunning (2005) has argued, these decisions were underpinned by the world market structure for diamonds, the degree of societal opposition to elites, and the prior development of the non-resources private sector. Di John's (2008) study of Zambia, describes how the country became highly dependent on income from copper mining after independence, a process that led to high levels of income inequality and later precipitated an economic crisis. Despite these risk factors, Di John argues that Zambia avoided conflict because the central state remained resilient – it maintained command of its coercive power and its power to undertake basic taxation.

The case of post-conflict Angola has been used to provide lessons for how natural resource management can be used to stave off a recurrence of conflict. Ng and Le Billon (2007) argue that Angola demonstrates how oil revenues can be used by elites to maintain power and that although these revenues have helped to avoid a recurrence of conflict, they have not yet laid the foundations for durable peace. Having said this, Angola has recently taken a few steps to increase social spending and increase transparency of its revenues. The Angolan case demonstrates how a gradual opening up of the political system and a fairer allocation of oil revenues can help to boost a regime's legitimacy and build a more lasting peace.

One overall conclusion that can be drawn from these case studies is that resource management alone cannot explain the onset or recurrence of violent conflict. In each case, conflict is driven by a complex array of institutional, historical and political factors.

2. Understanding the 'resource curse' and conflict

Econometric studies

Collier, P. and Hoeffler, A. (2004) 'Greed and grievance in civil war', Oxford Economic Papers, 56(4) <http://oep.oxfordjournals.org/content/56/4/563.abstract>

This paper examines the causes of civil war, based on a data-set that covers 161 countries and 78 civil wars between 1960 and 1999. It argues that primary commodity exports increase the likelihood of the onset of civil war and that a state's dependence on natural resources – measured as the ratio of primary commodity exports to GDP – has a significant influence on the likelihood that a civil war will begin in the next five years. The authors interpret this finding as being the result of opportunities provided by commodities for extortion, making rebellion more feasible and potentially more attractive. They suggest that resource dependence has a non-linear effect on conflict – it increases the likelihood of conflict until the resource-GDP ratio is 32% - after which point it diminishes the likelihood of conflict. When other variables are controlled for, a rise in resource dependence from zero to 32% increases the likelihood of conflict from 1% to 22%.

Ross, M., 2004, 'What Do We Know about Natural Resources and Civil War?', Journal of Peace Research, Vol. 41, No. 3, pp. 337-356 <http://jpr.sagepub.com/cgi/content/short/41/3/337>

This paper provides a review of 14 recent cross-country econometric studies and several qualitative studies, and uses this to generate some new conclusions about the existing literature on natural resources and conflict. It finds that there is little consensus between the various empirical studies on whether, how or why the abundance of natural resources is linked to war. It argues that two key patterns emerge from the data: first, that oil exports are linked to the onset of conflict (particularly secessionist conflict) and second, that 'lootable' commodities such as gemstones and drugs are correlated with the duration of conflict. The paper argues that little is known about the causal mechanisms that link conflict and natural resources. It identifies a number of inconsistencies in the other econometric studies and suggests that these are caused by differences in the way in which these studies code civil wars and handle the problem of missing data.

Ross, M., 2006, 'A Closer Look at Diamonds, Oil and Civil War', Annual Review of Political Science, Vol 9, pp. 265-300 <http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.polisci.9.081304.161338?cookieSet=1&journalCode=polisci>

This paper attempts to address the various methodological problems that have hampered the literature on natural resources and conflict (which have included measurement error, endogeneity, lack of robustness, and uncertainty about causal mechanisms). It does so by applying new measures and tests. It presents four main findings. First, the likelihood of violent conflict in countries that produce oil, gas and diamonds rose sharply from the early 1970s to the late 1990s as did the number of rebel groups that sold contraband to raise money. Second, oil, gas and diamond wealth are robustly correlated with the onset of civil war, although these correlations are based on a small number of cases, and the effects of resource wealth are sensitive to certain assumptions. Third, petroleum and diamond production are linked to civil war through at least three different mechanisms. Fourth, the only resource variable robustly linked to conflict duration is the 'contraband' measure, which includes gemstones, timber and narcotics.

Humphreys, M., 2005, 'Natural Resources, Conflict, and Conflict Resolution: Uncovering the Mechanisms', *The Journal of Conflict Resolution*, Vol. 49, No. 4, pp. 508-537
http://www.columbia.edu/~mh2245/papers1/MH8JCR05_paper.pdf

This paper identifies six potential causal mechanisms for explaining the link between natural resource abundance and conflict.

1. The 'greedy rebels' mechanism, employed by Collier and Hoeffler, argues that the opportunity to capture natural resources can motivate rebels to take up arms or continue fighting
2. The 'greedy outsiders' mechanism suggests that external actors will be willing to take up arms to capture natural resources
3. A 'grievance' mechanism may occur where the abundance of natural resources stunts growth (by promoting 'Dutch disease', price shocks of uneven distribution of revenues), which in turn creates grievances which triggers armed rebellion.
4. The 'feasibility mechanism' provides greater opportunities for rebels to finance an uprising against the state.
5. The 'weak state' mechanism suggests that resource abundance leads to poor state institutions, generating corruption and clientelism, which increases the risk of violent conflict.
6. The 'sparse network' mechanism claims that rentier economies develop shallow ties with the global economies and thus are unable to enjoy the 'thick' terms of exchange, which have been identified as conducive to peace and stability.

The paper uses fine-grained data to make four assertions. First, conflict onset is more responsive to the impacts of past natural resource production than to the potential for future production –which, it is argued, supports a 'weak states' rather than a 'greedy rebels' mechanism. Second, the impact of natural resources on conflict cannot be attributed entirely to the weak states mechanism. Third, there is more evidence to support the 'sparse networks' mechanism. Fourth, natural resources are associated with shorter wars, and natural resource wars are more likely to end with military victory for one or other side.

Basedau, M. and Lay, J., 2009, 'Resource Curse or Rentier Peace? The Ambiguous Effects of Oil Wealth and Oil Dependence on Violent Conflict', *Journal of Conflict Resolution*, Vol. 46, No. 6, pp. 757–776
<http://jpr.sagepub.com/cgi/content/abstract/46/6/757>

This study uses cross-country econometric analysis to demonstrate a U-shaped relationship between oil dependence and civil war onset – where high resource wealth per capita is associated with lower levels of violence. It criticises the early resource curse literature (especially the work of Collier and Hoeffler) and argues that the mechanisms for understanding the curse have been under-developed and, at times, contradictory. The authors stress that the theory of the rentier state is often neglected in the study of violent conflict and natural resources, and argue that rentier states that can use revenue from abundant natural resources to buy off potential rebels and enact large-scale distributive policies. As a result, they contend that rentier states are likely to be more stable politically and less prone to conflict. This theory, which is supported by their empirical analysis, suggests that the effects of resource abundance on conflict proneness are more ambivalent than suggested by the mainstream literature. Both resource wealth per capita and resource dependence need to be considered, since the availability of very high per capita revenues from oil allows governments to achieve internal stability.

Lujala, P., 2010, 'The spoils of nature: Armed civil conflict and rebel access to natural resources', *Journal of Peace Research*, Vol 47 (1), pp. 15-28
<http://jpr.sagepub.com/cgi/content/abstract/47/1/15>

This paper addresses the natural resource-conflict link by analysing how rebel access to natural resources affects conflict. Using new data on the location of hydro-carbons and oil and gas reserves, the study analyses how these spatial factors impact upon conflict duration. It finds that if resources are located in the conflict zone, the duration of conflict is doubled. In the case of oil, this effect occurs regardless of whether there has been production or not. The study suggests that oil production increases

the risk of conflict, although there is no increased risk if the production is off-shore. These findings are interpreted as supporting the view that natural resources are linked to violent conflict because they influence the incentives and opportunities of rebel groups.

Brunschweiler, C., and Bulte, E., 2009, 'Natural resources and violent conflict: resource abundance, dependence, and the onset of civil wars', *Oxford Economic Papers*

This paper challenges the widespread claim that natural resources promote conflict. It focuses on the important distinction between resource dependency (usually measured by GDP per capita that comes from natural resource-based industries) and resource abundance (estimates of resources in the ground). It argues that the typical measure for natural resources (levels of resource dependency) is, in fact, endogenous with conflict – conflict increases dependence on resource extraction. They find that resource abundance is associated with a reduced probability of the onset of civil war. They find that these results are robust to a range of specifications, and they conclude that there is no reason to regard resources as a general curse to peace and development.

Political economy and case study literature

Di John, J., 2007, 'Oil abundance and violent political conflict: A critical assessment', *Journal of Development Studies*, Vol. 43, No. 6, pp. 961 — 986
www.informaworld.com/smpp/.../content-db=all~content=a781534234

This paper assesses the claim that oil abundance raises the likelihood of violent conflict. It analyses three major mechanisms for explaining why oil-producing countries succumb to political violence: because they are poor economic performers, because they experience high levels of corruption and because they tend to produce authoritarian regimes. None of these three explanations are found to be convincing. The paper uses cross-country data, comparative studies and case study analysis, drawing in particular on the case of Venezuela, to challenge the three models. It argues that because political bargaining surrounding mineral rents is historically specific, the case study and comparative political economy approach will be most useful in furthering understanding about violence in poor resource-abundant countries. Future research should focus on how past government policies affect processes of growth and diversification of mineral-dominant economies. It should also analyse the political economy dynamics of regional conflict zones and the way in which changing patterns of production and distribution of arms in the post-Cold War period exacerbate ongoing violent conflicts in mineral-dependent economies.

Weinstein, J., 2005, 'Resources and the Information Problem in Rebel Recruitment', *Journal of Conflict Resolution* 2005; 49; 598 <http://jcr.sagepub.com/cgi/content/abstract/49/4/598>

This paper examines how the resource base of a rebel group impacts upon its membership, structure and behaviour. It analyses how resource endowments shape the character and conduct of rebel groups. It identifies a 'rebel resource curse', which makes it possible for leaders to recruit on the basis of short-term rewards and which leaves rebel groups flooded with opportunistic cadres who demonstrate little long-term commitment to the organisation's goals. In resource-poor environments, by contrast, leaders attract new recruits by drawing on social ties to make credible promises about the private rewards that may be associated with victory. These findings are based on an examination of the National Resistance Army in Uganda and Renamo in Mozambique, with additional observations drawn from the Eritrean People's Liberation Front and the Revolutionary United Front of Sierra Leone.

Dunning, T., 2005, 'Resource Dependence, Economic Performance, and Political Stability', *Journal of Conflict Resolution*, Vol. 49, No. 4, pp. 451-482 <http://jcr.sagepub.com/cgi/content/abstract/49/4/451>

This paper examines the choices made by political rulers regarding the future growth path of the economy in the context of natural resource abundance. It compares Zaire under Mobutu (1965-97), Indonesia under Suharto (1965-98) and Botswana during the same period. In all of these cases, political elites face a trade-off between the potential long-term benefits of economic diversification and the potential short term risks such a strategy might entail. In Botswana, revenues from Kimberlite diamonds were very stable, due to Botswana's unique relationship with the De Beers company. As a result, Botswana did not need to diversify its economy but chose to because of the mature and stable nature of political elites in that country. In Indonesia and Zaire, by contrast, revenue flows were more volatile. In Indonesia, Suharto pursued diversification alongside growth-enhancing and poverty reduction strategies. In Zaire, Mobutu shunned diversification because he judged that it risked weakening his grip on power. Ultimately, political leaders' decisions were underpinned by three variables: the world market structure for the resource, the degree of societal opposition to elites, and the prior development of the non-resources private sector. The paper stresses the need for conditional theories of the resource curse.

Aspinall, E., 2007, 'The Construction of Grievance', *Journal of Conflict Resolution*, vol. 51, no. 6, pp. 950-972 <http://jcr.sagepub.com/cgi/content/abstract/51/6/950>

When and under what circumstances does natural resource extraction give rise to violent conflict? This paper analyses the separatist conflict in Aceh, Indonesia. It argues that natural resource exploitation promoted conflict in Aceh only because it became entangled in wider processes of identity construction and was reinterpreted back to the population by ethnic political entrepreneurs in a way that legitimated violence. Rather than any intrinsic qualities of natural resource extraction, the key factor was the presence of an appropriate identity-based collective action frame.

War raged in Aceh province in Indonesia, from the mid-1970s until it was brought to an end by a peace deal in 2005. The foundation of the main guerilla group, the Free Aceh Movement (GAM), in the mid-1970s coincided with the development of Aceh's Arun natural gas fields. GAM leaders and other Acehnese dissidents emphasised their exploitation, and exploitation of other natural resources, in their condemnations of the Indonesian government.

The situation in Aceh indicates that natural resource exploitation gives rise to conflict when it becomes entangled in wider processes of identity construction and is reinterpreted back to the population by political entrepreneurs in ways that legitimate violence. The particular mechanisms giving rise to an identity and collective action frame conducive to violence will vary widely from case to case.

Natural resources are only one field among many through which the conflict in Aceh was expressed and legitimated.

- The historical construction of Acehnese identity provided a bank of cultural references and historical memories with which to legitimate insurgency.
- Acehnese ethnic identity was territorialised and a sense of Acehnese entitlement developed. This sense of entitlement was inflamed by the increasingly authoritarian political conditions then prevailing in Indonesia.
- In this context, a counter-elite developed who extended and inverted the official discourse to stress Acehnese victimhood and exploitation by Indonesia.
- Claims about unjust exploitation of natural resources resonated powerfully in the Aceh conflict because they reinforced the discourse of deprivation that already infused Acehnese identity by the 1970s.

Acehnese grievances about natural resource exploitation only arose and became politically consequential for violence as part of a wider discourse of deprivation that positioned the Acehnese as victims of the Indonesian state.

Even in cases where natural resource grievances appear to be central to conflict dynamics, it is important to look at the processes by which those grievances arise in tandem with identity construction.

(Summary from GSDRC document library: <http://www.gsdrc.org/go/display&type=Document&id=3424>)

Green, A., 2010, 'Social Identity, Natural Resources, and Peacebuilding', paper presented at CAPRI Workshop on Collective Action, Property Rights, and Conflict in Natural Resources Management June 28 – July 1, 2010, Siem Reap, Cambodia
http://www.capri.cgiar.org/pdf/CAPRI_Conflict_Green.pdf

This paper examines how culturally and politically valuable resources are linked to relapses of or rebuilding after violent conflict. When natural resources become closely linked to group identities, 'wars of interest' can become intractable 'wars of value'. Drawing on case studies of post-conflict property administration in Aceh, Abyei (Sudan) and Chiapas (Mexico), the paper examines the particular challenges that linkages between social identities and natural resources pose for post-conflict natural resource management and the strategies used to address these challenges. It also examines the possible contribution of innovative approaches to property administration and proposes policy guidelines for managing the complexities between social identity, natural resource management and peacebuilding.

3. Links between resource management and conflict

General literature

Humphreys, M., Sachs, J. & Stiglitz, J. (eds.), 2007, 'Escaping the Resource Curse', Columbia University Press, New York <http://tiny.cc/plbkr>

This book analyses what governments and companies can do to effectively and fairly develop oil resources. Chapter 2 argues that privatisation can lead to a considerable loss of natural resource wealth for a state, without necessarily resolving resource management problems. The chapter proposes an optimal auction strategy, which is markedly different from those commonly employed in practice. Chapter 3 suggests an optimal strategy for evaluating the fiscal terms of oil contracts. Chapter 4 argues that the benefits that governments accrue from negotiations with private companies over oil revenues can depend greatly on the skills of the negotiators – a factor that is often overlooked. Chapter 5 discusses the merits of different auction designs. Chapter 6 highlights the importance of divorcing the pattern of earnings from expenditure patterns. In practice, governments are ill-advised to try to sell-off resource assets all at once. Chapter 7 demonstrates how the potential negative effect of oil resources on the rest of the economy can be avoided, by front-loading expenditure to much higher levels than many analysts suggest. Chapter 8 describes a range of political pressures that face governments with oil resources, and suggests that Natural Resources Funds are one solution to these problems.

Chapter 9 examines the options available to states for redistributing resource wealth and, in particular, how governments can stop mineral wealth increasing inequality. The chapter weighs up the advantages and disadvantages of decentralisation as a solution to these problems. Chapter 10 examines a number of ways in which state-society linkages can be strengthened in countries with natural resources. Chapter 11 examines the legal options for overcoming the various problems identified in the book. Chapter 12 concludes by outlining a research and policy agenda for natural resource management. It makes a number of policy recommendations for national governments:

- Condition deals on oil and gas revenues on future prices and other economic circumstances.
- Tailor the auction design to the context and ensure that negotiations are transparent.
- Governments should require that corporations post bonds to cover potential future environmental costs.
- Future mineral wealth should be calculated correctly.

- Stabilise expenditures.
- Use earnings for investment rather than consumption to avoid Dutch Disease.
- Take steps to avoid inequalities. Producing regions should not be burdened with environmental costs without receiving other benefits to offset these.
- Strengthen state-societies, for example, by promoting citizen oversight mechanisms.

It makes another set of recommendations for international donors:

- Provide national governments with access to skilled negotiators.
- Develop a third-party natural resource management service.
- Enforce stricter standards on multi-nationals.
- Create and maintain a global public information office on oil and gas revenues.

Le Billon, P., 2009, 'Natural Resource Types and Conflict Termination Initiatives', *Colombia Internacional*, Vol. 70, pp. 9-34 <http://colombiainternacional.uniandes.edu.co/view.php/481/1.php>

This paper examines the potential linkages between resource type and conflict termination. It reviews the existing literature, finding that existing studies demonstrate no robust relationship between natural resources and conflict, except in the case of oil. The paper reviews and finds varying levels of support for number of mechanisms that have emerged from the literature. It goes on to highlight a number of important factors determining the relationship between the characteristics natural resources and conflict including its accessibility, its mode of production, exploration and consumption, the materiality of the resource and its ownership. It identifies three main types of conflict termination instruments targeting resources: military interventions taking over the control of resource production areas from belligerents, economic sanctions against targeted belligerents, and revenue sharing between belligerents. The paper argues that there remains much debate about the effectiveness of these strategies, and more generally about the use of force, sanctions or negotiations. The empirical analysis suggests that military interventions are less effective in bringing conflicts to an end than the other two instruments. It finds that sanctions tend to be poorly implemented and that illegal lootable resources have been most effectively dealt with through revenue sharing mechanisms. It concludes that the kind of instrument used should not only be dictated by the type of resources, but also by the type of conflicts involved and the mechanisms at play in any particular case. Since there is no data to control for other variables that influence the termination of conflict, these findings should be treated as a hypothesis for future research, rather than a demonstration of causal links between conflict resolution mechanisms and outcomes.

Bannon, I. and Collier, P., 2003, 'Chapter One: Natural Resources and Conflict: What We Can Do' in Bannon, I and Collier, P. (eds.), 'Natural Resources and Conflict: Options and Actions', World Bank, Washington D.C. <http://tiny.cc/vbfay>

This chapter assesses the policy options for responding to violent conflicts driven by natural resource abundance. It starts by reiterating the claims presented by Collier and Hoeffler (2004). It argues that conflict in natural resource abundant countries can be averted by increasing growth, diversifying economies, reducing exposure to price shocks and improving global governance of natural resources. Improving global governance involves taking measures to restrict the illicit trade in mineral resources (a measure that is especially relevant in the case of diamonds), to reform ransom and kidnap insurance provision and to attract reputable companies to risky environments (such as Sierra Leone).

Collier, P., 2010, 'The Plundered Planet: Why We Must - and How We Can – Manage Nature for Global Prosperity', Oxford University Press, Oxford <http://tiny.cc/mrcyq>

This book argues that managing natural resources constitutes the most significant contemporary development and peacebuilding-related challenge. Collier stresses that the real measure is not simply the harm natural resources can do, but their harm relative to their potential. He draws on recent work (Collier and Goderis (2008)), which used new econometric techniques to demonstrate that in the long-

term an abundance of natural resources leads to lower levels of growth. Although this research does not directly address the links between conflict, it nevertheless suggest an important way in which natural resources may be linked to conflict. This relationship occurs above a certain threshold – with relatively small level of natural assets, the effects are largely benign - above this threshold, they drag it down. Similarly, Collier draws on recent work with Hoeffler to argue that resource revenues lead to worse governance. In Part II he outlines five steps to overcome these problems and to achieve successful natural resource management.

- Discovering natural assets (chapter 4). The majority of existing resource wealth in Africa is as yet undiscovered (the total undiscovered resources in Africa are estimated to be around \$240,000 per square mile).
- Government should capture these resources for society (chapter 5). Tax systems are under-developed in most developing countries so the government fails to capture revenue from the sale of resources. Transparent auctions are the best mechanism for addressing these problems.
- Natural resources should be allocated to the nation, not the local community. Local communities must be fully and generously compensated, with guarantees from the government and the resource-extracting company, but local people must not be permitted to monopolise resources.
- Natural resource revenue must be separated from other forms of revenue, because it is unsustainable (chapter 7). The current generation must leave equivalent value for future generations.
- Invest in infrastructure in the country rather than consumption.

Swanson, P., 2002, 'Fuelling Conflict: The Oil Industry and Armed Conflict', Programme for International Cooperation and Conflict Resolution, Fafo Report 378

www.unglobalcompact.org/docs/issues_doc/Peace.../Fueling_Conflict.pdf

This report examines the relationship between oil and armed conflict. It focuses on the question of how particular kinds of private sector activity and armed conflict are linked. In doing so, it compares the policies pursued by a range of oil-producers including Colombia, Angola, Sudan and Nigeria. It examines a number of ways in which the actions of private companies can contribute to conflict including by providing support to the regime and through the actions of private security companies. It recommends a number of policies for reducing the likelihood of violent conflict and presents a series of policy options for private sector engagement including implementing positive conditionality and co-operation with international organisations.

Case studies

Auty, R., 2008, 'Political Economy of African Mineral Revenue Deployment: Angola, Botswana, Nigeria and Zambia Compared', Working Paper 28, Real Instituto Elcano, Madrid

http://www.realinstitutoelcano.org/wps/wcm/connect/688e22804f018a599c45fc3170baead1/WP28-2008_Auty_Political_Economy_African_Mineral_Revenue_Deployment.pdf?MOD=AJPERES&CACHEID=688e22804f018a599c45fc3170baead1

This paper compares the experiences of Botswana, Zambia, Nigeria and Angola in managing revenues from natural-resources. It suggests that Botswana's relative success has resulted from cautious macro-economic policy, control of rent-seeking and concern for the welfare of the poorest. This was facilitated by favourable social conditions including low ethnic tension, the rejection of statist policies, the precarious nature of Botswana's mineral dependence, and the unusual stability of diamond prices. However, Botswana's success is qualified by its slow progress with economic diversification.

By contrast, the Zambian government drew on mineral rent to accelerate statist development in the late 1960s, which quickly distorted the economy and intensified mineral dependence. The government struggled to manage rent entitlements when copper prices plummeted after 1974. Ethnic rivalry exacerbated this problem by sustaining competition for rents that conflicted with economic reforms to

stabilise and restructure the economy. Ethnic tension was more potent in Nigeria, where military regimes used rent to appease regional ethnic groups at the expense of efficient domestic rent absorption. Angola's dynamic economy was quickly distorted by central planning and then ethnic conflict, which encouraged rent-seeking that repressed markets.

Di John, J., 2008, 'Zambia: State Resilience against the Odds: An analytical narrative on the construction and maintenance of political order', Crisis States, unpublished paper
<http://www.crisisstates.com/download/seminars/ZambiaANDiJohnFeb27.pdf>

This paper describes how, in spite of poorly managed copper resources and various other conflict risk factors, Zambia avoided violent conflict in the post-Independence period. Zambia became heavily dependent on copper during this period and suffered dramatic price shocks, which contributed to high levels of inequality and poverty in the country. In addition to these problems, Zambia also developed a heavy debt burden and experienced one of the worst HIV/AIDS epidemics in the world. The puzzle is explained by the resilience of the state in Zambia. Zambia maintained its tax-raising and coercive powers because of a relatively stable and inclusive bargain among political elites, which reduced opportunities for capital accumulation and political power outside the formal political system.

Ng, P., Le Billon, P., 2007, 'Post-Conflict Oil Governnace: Lessons From Angola', DIIS Report 2007: 8 <http://www.isn.ethz.ch/isn/Current-Affairs/Security-Watch/Detail/?fecvnodeid=129034&ord588=grp1&fecvid=21&ots591=0c54e3b3-1e9c-be1e-2c24-a6a8c7060233&v21=129034&lng=en&id=33995>

This paper examines oil governance in Angola before and after the end of the civil war in 2002. It draws key lessons from Angola's post-war oil governance to help guide policy in Sudan. It helps to explain why peace has held in Angola, and what problems remain. It identifies the governance of the oil sector as a central element of building a sustainable peace in the country. Angola's political system did not undergo any radical changes in the post-war period. The MPLA party has continued single-party politics and provided little room for opposition or for any mechanisms to challenge existing autocratic structures. Key factors in ensuring continued stability have included the fact that the government's won the war outright and high levels of economic growth (which have made Angola relatively immune to opposition both domestically and internationally). Oil revenues have been utilised in a limited way to finance processes of demobilisation, demilitarisation and reintegration.

4. Additional information

Author

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Websites visited

CAPRI CGIAR, Colombia Internacional, Commdev, Google, Google Books, Google Scholar, Informaworld, ISN Zurich, Sage Publications, Science Direct, UN Global Compact, World Bank

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