A project of the International Peace Academy

The Political Economy of Armed Conflict

Beyond Greed and Grievance

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Contents

Foreword

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THE QUESTION OF HOW BEST TO EFFECTIVELY ASSIST TRANSITIONS FROM PROtracted war to lasting peace is of tantamount importance to the international community. Throughout the 1990s, it became increasingly clear from the United Nations' experiences in Angola, Cambodia, and Sierra Leone that the economic dimensions of contemporary internal conflicts, highlighted by—but scarcely limited to—the role of so-called conflict diamonds and other easily exploitable natural resources, have acquired new relevance to peacemaking and peacebuilding. We know that globalization has enabled rival factions, through licit and illicit commercial networks, to better access international markets, and thus to finance civil wars. But until recently, there were few answers for policymakers as to what kinds of tools and strategies could be deployed by the international community to address the flow of economic resources that feed conflict or to engage the economic interests of elites, their internal supporters, and their external economic clients to support the conditions in which peace could be achieved.

Recognizing that a greater understanding of the role of economically driven behavior in generating and sustaining internal armed conflicts was critical, the International Peace Academy (IPA) cosponsored a conference in London in 1999, out of which flowed the now widely cited volume *Greed and Grievance: Economic Agendas in Civil Wars*. The conference and volume proved instrumental in highlighting the importance to conflict resolution of this vector of policy research, as well as the need for further empirical study and policy development. In response, the IPA initiated the three-year Economic Agendas in Civil Wars (EACW) project in September 2000.

The first phase of the project, of which this volume is the culmination, focused on empirical and conceptual research into the economic

3

Oil, Drugs, and Diamonds: The Varying Roles of Natural Resources in Civil War

MICHAEL L. ROSS

ACCORDING TO SEVERAL RECENT STUDIES, WHEN STATES RELY MORE HEAVILY ON the export of natural resources, they are more likely to suffer from civil war. But are all types of commercially valuable natural resources—including oil, hard-rock minerals, gemstones, timber, agricultural commodities, and illegal drugs—equally likely to lead to civil war? Do different types of resources have different effects on conflict?

This chapter is a modest effort to describe how different types of resources have influenced recent conflicts, as well as to develop hypotheses that can be tested in future studies. It begins by showing that of all major types of natural resources, diamonds and drugs are most strongly associated with the civil wars that occurred between 1990 and 2000. The second section offers seven hypotheses about how three characteristics of natural resources—their lootability, their obstructability, and their legality—are likely to influence civil wars. The hypotheses are illustrated by evidence from fifteen recent conflicts in which natural resources played some role (documented in Table 3.1). The chapter concludes with a discussion of the implications of these hypotheses for different types of natural resources.

This chapter advances four main arguments. First, resources have sharply different effects in separatist conflicts compared to nonseparatist conflicts. Second, the impact of a particular resource largely depends on whether or not it is "lootable"—that is, whether it can be easily appropriated by individuals or small groups of unskilled workers. Third, lootable resources—such as diamonds and drugs—are more likely to ignite nonseparatist conflicts, which once begun are harder to resolve; but they pose little danger of igniting separatist conflicts. Finally, unlootable resources—like oil, natural gas, and deep-shaft minerals—tend to produce separatist conflicts, but seldom influence nonseparatist

conflicts. In sum, lootable resources negatively affect nonseparatist conflicts, and unlootable resources negatively affect separatist conflicts.

This chapter illustrates but does not test these arguments, and the hypotheses that undergird them. The hypotheses were derived from the fifteen case studies. To determine whether they are valid beyond these scenarios—and hence have predictive and not just descriptive value—they should be tested with a different data set.

Civil Wars Among Resource-Rich States

There is good evidence that resources and civil wars are causally linked.[1] Several studies have found a strong statistical correlation between a state's reliance on the export of natural resources, and either the likelihood it will suffer from civil war,[2] or alternatively, the duration of a civil war once commenced.[3]

There is also good evidence at the case-study level that natural resources have contributed to the onset, duration, and intensity of many civil wars. An earlier study by Michael Ross, drawing on case studies of thirteen conflicts between 1994 and 2000, confirms this conclusion, and also finds that natural resources tend to influence separatist conflicts differently than they influence nonseparatist conflicts, further distinguished by the lootability of a resource.[4] But are all natural resources equally at fault? Are some types of resources more likely than others to generate, or lengthen, civil conflict?

One way to address these questions is to observe a sample of civil wars in which resources played some role, and take note of what types of resources were involved. Table 3.1 summarizes information about twelve civil wars, plus three low-level conflicts, that occurred between 1994 and 2001 and have been causally linked to the exploitation of natural resources in case studies.[5] The resources most frequently linked to civil conflict are diamonds and other gemstones (seven conflicts, all of them civil wars); oil and natural gas (seven conflicts, six of them civil wars); illicit drugs (five conflicts, all of them civil wars); copper or gold (four conflicts, two of them civil wars); and timber (three conflicts, all of them civil wars). Legal agricultural crops played a role in two conflicts (both civil wars), although in each case other natural resources played larger roles.

While this type of analysis has some value, it is unsatisfying in at least two ways. First, some types of natural resources are more common than others; this alone might explain why there are more civil wars in states that produce oil (which is a relatively common resource) than in

Table 3.1 Civil Conflicts Linked to Resource Wealth, 1994–2001

	Duration	Type	Resources
Afghanistan	1978–2001	Lootable	Gems, opium
Angola (UNITA)	1975–	Both	Oil, diamonds
Angola (Cabinda)[a]	1975–	Unlootable	Oil
Burma	1949–	Lootable	Timber, gems, opium
Cambodia	1978–1997	Lootable	Timber, gems
Colombia	1984–	Both	Oil, opium, coca
Congo Republic	1997	Unlootable	Oil
Democratic Republic of Congo	1996–1998	Both	Copper, coltan, diamonds, gold, cobalt, coffee
Indonesia (Aceh)	1975–	Unlootable	Natural gas
Indonesia (West Papua)[a]	1969–	Unlootable	Copper, gold
Liberia	1989–1996	Lootable[b]	Timber, diamonds, iron, palm oil, cocoa, coffee, marijuana, rubber, gold
Papua New Guinea[a]	1988–	Unlootable	Copper, gold
Peru	1980–1995	Lootable	Coca
Sierra Leone	1991–2000	Lootable	Diamonds
Sudan	1983–	Unlootable	Oil

Source: Figures on conflict duration taken from Paul Collier and Anke Hoeffler, "Greed and Grievance in Civil War," Policy Research Working Paper no. 2355 (Washington, D.C.: World Bank, 2001).

Notes: Italic denotes separatist conflict.

a. Conflict did not generate 1,000 battle deaths in any twelve-month period.

b. Since the resources in Liberia's conflict were overwhelmingly lootable, I classify it as "lootable" rather than "both."

states that produce copper (which is a less common resource). What we would like to know is whether civil wars occur at anomalously high rates among the producers of a given commodity. For example, do civil wars occur more frequently among oil producers than among nonproducers, more frequently among copper producers than among nonproducers? Second, there may be subtle causal links between civil wars and natural resources that are difficult to observe in case studies; for this reason some conflicts may have been wrongly excluded from Table 3.1.

One simple way to address these problems is to observe whether civil wars occur at different rates among states that are highly dependent, moderately dependent, or minimally dependent on the export or production of a given resource. If civil wars occur at above-average rates among states that are highly dependent on a given resource, it would imply that the resource is tied to the occurrence of conflict.[6]

Table 3.2 shows a simple tabulation of civil war rates between 1990 and 2000, by level of resource dependence. Resources are divided into four categories, as used by the World Bank: oil, gas, and other fuel-based

minerals; nonfuel minerals, excluding gemstones; food-based agricultural exports; and nonfood agricultural exports, including timber but excluding illegal drugs.[7] The cross-tabulations show the civil war rates among countries that ranked in the top, middle, or bottom third of all states in the ratio of resource exports to gross domestic product (GDP) in the midpoint year of 1995.[8] Between 1990 and 2000, 32 out of 161 countries surveyed had civil wars; this means that for any random country, there is an approximately 20 percent chance that it suffered a civil war at some point in the 1990s.[9] As Table 3.2 shows, civil wars occurred at slightly lower rates among states that were highly dependent on resource exports in all four categories.[10]

One reason why there is no obvious correlation in this table between resource dependence and civil war rates is that other factors—most important, income per capita—are not controlled for. A second reason is that these standard four categories exclude (or in the case of timber, fail to isolate) several types of resources that have been most visibly linked to conflict in the media: diamonds, timber, and illicit drugs. To address the first shortcoming, Table 3.3 adjusts the figures in Table 3.2 by dividing the ratio of resource exports to GDP by each

Table 3.2 Civil War Rates 1990–2000, by 1995 Ratios of Resource Exports to GDP

	Oil and Gas	Minerals[a]	Food Crops	Nonfood Crops
Top Third	.146	.122	.133	.100
Middle Third	.208	.146	.166	.100
Bottom Third	.188	.195	.133	.233

Sources: For civil war occurrences, Paul Collier and Anke Hoeffler, "Greed and Grievance in Civil War," Policy Research Working Paper no. 2355 (Washington, D.C.: World Bank, 2001). All other data taken from World Bank, *World Development Indicators 2001* (Washington, D.C.: World Bank, 2001), CD-ROM.

Note: a. Nonfuel minerals, not including gemstones.

Table 3.3 Civil War Rates 1990–2000, Adjusted for GDP per Capita

	Oil and Gas	Minerals[a]	Food Crops	Nonfood Crops
Top Third	.207	.172	.241	.207
Middle Third	.166	.133	.166	.166
Bottom Third	.100	.138	.033	.067

Sources: For civil war occurrences, Paul Collier and Anke Hoeffler, "Greed and Grievance in Civil War," Policy Research Working Paper no. 2355 (Washington, D.C.: World Bank, 2001). All other data taken from World Bank, *World Development Indicators 2001* (Washington, D.C.: World Bank, 2001), CD-ROM.

Note: a. Nonfuel minerals, not including gemstones.

country's income per capita, producing a figure that simultaneously reflects both resource dependence and per capita wealth. In this table, resource-dependent countries are at a notably higher risk of civil war. There is no obvious difference among types of resource dependence, as all seem to make conflicts more likely once per capita income has been accounted for.[11]

Tables 3.4, 3.5, and 3.6 address the second shortcoming. Table 3.4 shows the civil war rates among timber-producing states, measured in four different ways—each representing an effort to determine whether timber production or export is in some way correlated with the incidence of conflict. The first column of numbers divides states by the quantity of commercial timber (i.e., industrial roundwood) they produced from both natural forests and plantations in 1995. Thus these data may suggest whether conflict became more likely when more commercial timber was harvested. Of course, other things influence the amount of timber produced, such as the size of the country: the United States and Russia cut more timber than Gabon or Honduras, but this reflects in part their greater size. Hence the second column, timber per capita, divides states by the volume of timber they produced per capita. Once again, states that are more timber-intensive do not seem to face a higher risk of civil war; in fact, they appear to face a lower risk.

Perhaps, however, civil war becomes more likely as states grow more dependent on the export of unprocessed timber. The third column in Table 3.4 divides states by the value of their unprocessed timber exports as a ratio of their GDP—making these data comparable to the figures in Table 3.2.[12] As in Table 3.2, there is no obvious correlation between a country's reliance on the commodity and the likelihood that it suffered a civil war in the 1990s. Finally, the fourth column adjusts the figures in the third column by dividing them by GDP per capita, to

Table 3.4 Civil War Rates 1990–2000, by 1995 Timber Production and Exports

	Timber Production	Timber per capita	Timber Exports per GDP	Adjusted for GDP per capita
Top Third	.116	.047	.111	.194
Middle Third	.250	.273	.243	.189
Bottom Third	.250	.318	.270	.243

Sources: For civil war occurrences, Paul Collier and Anke Hoeffler, "Greed and Grievance in Civil War," Policy Research Working Paper no. 2355 (Washington, D.C.: World Bank, 2001). For timber production and export figures, Food and Agriculture Administration Statistics Database (FAOSTAT), http://apps.fao.org/. For GDP figures (measured in purchasing power parity), World Bank, *World Development Indicators 2001* (Washington, D.C.: World Bank, 2001), CD-ROM.

account for the influence of income on civil war. Even here, however, there is no evidence to suggest that greater timber dependence is associated with higher rates of conflict. This appears to contradict accounts like those of Michael Klare, who suggests that timber production or export is linked to civil conflict.[13]

Table 3.5 shows civil war rates by production of three other commodities that are commonly faulted for "fueling" civil wars: diamonds, coca, and opium. The first column lists the civil war rates among diamond producers and nonproducers, with the second column distinguishing the production of alluvial diamonds—that is, diamonds that can be extracted from riverbeds and alluvial plains, typically at a minimal cost. Although the numbers are small, the civil war rate among diamond producers (five wars in eighteen states) is anomalously high—and among the producers of alluvial diamonds (four wars in eight states), it is exceptionally high.

The third column of Table 3.5 compares the civil war rates among coca and opium producers with rates among nonproducers.[14] I combine opium and coca producers for several reasons: they are an overlapping group of countries; the production of these drugs is highly similar in land use, transportability, and value per weight; and it is easier to make inferences about larger categories of states than about smaller categories. The civil war rate is much higher among the drug-producing states than among nonproducers.

Finally, Table 3.6 records the civil war rates among states that, according to Interpol, were primary producers, secondary producers, or nonproducers of cannabis—a drug that is more widely grown, is less penalized against, and has a much lower value-to-weight ratio than coca or opium products.[15] Although the civil war rate is higher among primary producers than among secondary producers, this finding appears somewhat fragile statistically, because nonproducers have a higher civil

Table 3.5 Civil War Rates 1990–2000, by 1995 Diamond and Drug Production

	Diamonds	Alluvial Diamonds	Opium and Coca
Producers	.278 (5/18)	.500 (4/8)	.444 (4/9)
Nonproducers	.188 (27/143)	.183 (28/153)	.184 (28/152)

Sources: For civil war occurrences, Paul Collier and Anke Hoeffler, "Greed and Grievance in Civil War," Policy Research Working Paper no. 2355 (Washington, D.C.: World Bank, 2001). For diamond production, Ronald F. Balazik, "Industrial Diamonds" (Washington D.C.: U.S. Geological Survey, 1998). For opium and coca production, UN Office for Drug Control and Crime Prevention, "World Drug Report, 2000" (New York: Oxford University Press, 2000).

Table 3.6 Civil War Rates 1990–2000, by Cannabis Production

Primary Source Countries	.300 (3/10)
Secondary Source Countries	.132 (9/68)
All Other Countries	.241 (20/83)

Sources: For civil war occurrences, Paul Collier and Anke Hoeffler, "Greed and Grievance in Civil War," Policy Research Working Paper no. 2355 (Washington, DC: World Bank, 2001). For cannabis production, UN Office for Drug Control and Crime Prevention, "World Drug Report, 2000" (New York: Oxford University Press, 2000).

war rate than secondary producers, and because dropping just a single civil war from the category of primary producers would no longer create an anomalously high rate.

The analysis in this section is exceedingly simple in statistical terms, and has several important limitations: it only considers civil wars that occurred in the 1990s, not before; it is purely cross-sectional, and does not include a time-series dimension; it does not properly control for other factors that influence civil war rates; it compares civil war rates among the top, middle, and bottom thirds of countries rather than examining the continuous effect of resource dependence on civil war risks; and it compares decade-long civil war rates to levels of resource dependence in 1995, the year for which the greatest quantity of data are available.

Despite these limitations, the data suggest three things. First, there is no obvious difference in the civil war rates among states dependent on the four general categories of natural resources. Second, higher rates of timber production and export do not appear to be linked to higher rates of civil wars. Finally, there is a strong association between civil war and both the production of diamonds—especially alluvial diamonds—and the production of drugs, especially coca and opium. What accounts for this pattern?

Few prior studies have addressed this question. An important exception is Philippe Le Billon, who makes two key distinctions: between those that are proximate to a national capital (and hence easier for governments to capture) and those that are distant (and hence easier for rebels to hold); and between "point-source" resources, which are concentrated in a small area (and therefore more easily controlled by a single group), and diffuse resources, which are scattered over a larger area (and hence harder for any single group to capture).[16] These two categories, Le Billon suggests, yield a fourfold typology of conflict: point-source resources near the capital create violent incentives to control the

state, and hence produce coups d'état; point-source resources far from the capital produce secession movements; diffuse resources near the capital lead to rebellions and rioting; and diffuse resources far from the capital lead to "warlordism," areas of de facto sovereignty with economies built around the resource itself. The Le Billon study provides an important precedent for the analysis below.

Seven Hypotheses on Resources and Conflict

This section develops seven hypotheses about the ways that natural resources tend to influence civil wars. It suggests that the role played by any natural resource depends largely on its lootability, and to a lesser extent on its obstructability and its legality.

A resource's lootability is the ease with which it can be extracted and transported by individuals or small teams of unskilled workers.[17] Drugs, alluvial gemstones, agricultural products, and timber are relatively lootable; deep-shaft minerals and gemstones, oil, and natural gas are relatively unlootable.

A resource is obstructable if its transportation can be easily blocked by a small number of individuals with few weapons; it is relatively unobstructable if it can only be blocked with many soldiers and heavy equipment. A resource's obstructability is in part a function of its physical characteristics. Resources that have a high value-to-weight ratio, such as gemstones, coca, and opium, are usually transported by air and are difficult to obstruct, since they can be flown out of remote areas. Resources with a lower value-to-weight ratio that must be transported by truck or train—like minerals and timber—are moderately obstructable, if they must cross long distances. Resources that are transported in liquid form and travel long distances through above-ground pipelines (e.g., oil and natural gas) are highly obstructable, since pipelines are continuously vulnerable to disruption along their entire length. A resource's location also helps determine its obstructability: if an oil field is in a remote, landlocked location, it is highly obstructable; if it is located near a port or offshore, it is relatively unobstructable.

Finally, most resources can be legally traded on international markets; drugs—coca, opium, cannabis, and their derivatives—are the main types of illegal natural resources.[18] Figure 3.1 categorizes most types of resources according to these criteria, which yield seven hypotheses about the social and political consequences of resource extraction, summarized in Table 3.7.

Figure 3.1 Natural Resources, by Lootability, Obstructability, and Legality

	Lootable	Unlootable
Highly Obstructable	—	Onshore, remote oil and gas
Moderately Obstructable	Agricultural products Timber	Deep-shaft minerals
Unobstructable	**Coca** **Opium** Alluvial gems	Deep-shaft gems Offshore oil and gas

Note: **Bold** denotes illegal resources.

Table 3.7 Hypotheses on Resources and Civil War

1. The more lootable a resource is, the more likely it is to benefit local peoples and the poor.
2. The more unlootable a resource is, the more likely it will lead to separatist conflicts.
3. The more lootable a resource is, the more likely it is to benefit a rebel group; the more unlootable it is, the more likely it is to benefit the government.
4. The more lootable the resource, the more likely it is to create discipline problems inside the army that controls it.
5. The more lootable the resource, the more likely it is to prolong nonseparatist conflicts.
6. If a resource is obstructable, it is more likely to increase the duration and intensity of conflicts.
7. If the resource is illegal, it is more likely to benefit the rebels—unless the government is willing to endure international sanctions.

Hypothesis 1: The more lootable a resource is, the more likely it is to benefit local peoples and the poor.

This first hypothesis does not directly address the issues of conflict, but it provides the basis for the other hypotheses that do. The extraction of highly lootable resources relies more heavily on the use of unskilled labor; the extraction of unlootable resources relies more heavily on skilled labor and capital. Hence lootable resources are more likely to generate income for local communities, and for unskilled workers—for example, the poor. Unlootable resources are more likely to produce revenues for skilled workers, for those who provide the requisite capital, and for the government. In developing countries, where skilled labor and capital tend to be scarce, these factors are more likely to come from outside the region—possibly from other countries.

If true, this hypothesis implies that the extraction of lootable resources such as alluvial gems, drugs, timber, and agricultural products is more likely to have a popular local constituency than is the extraction of unlootable resources such as oil, gas, and deep-shaft minerals. This

also means that efforts to stop the flow of lootable resources are more likely to face opposition from local communities, and to harm low- and moderate-income sectors of the economy.[19]

Hypothesis 2: The more unlootable a resource is, the more likely it will lead to separatist conflicts.

This hypothesis follows directly from the previous one. If a resource is highly lootable, it is more likely to generate direct benefits for the poor, and to benefit local peoples; if it is relatively unlootable, it is more likely to generate revenues for skilled workers (who are less likely to originate from the region), the extraction firm, and the government—and hence to produce grievances about the distribution of resource wealth. This has important consequences for separatist conflicts, which in resource-rich areas are commonly incited by grievances over the distribution of resource revenue.

Figure 3.2 divides the six separatist conflicts from Table 3.1 into those involving lootable resources and those involving unlootable resources. The nine nonseparatist conflicts from Table 3.1 are similarly divided for comparison. Of the six separatist conflicts, five feature unlootable resources: the Cabinda conflict in Angola (over oil); the Aceh conflict (over natural gas) and the West Papua (Irian Jaya) conflict in Indonesia (over copper and gold); the Bougainville conflict in Papua New Guinea (over copper); and the conflict in Sudan (over oil).[20] In each of these five cases, grievances over the distribution of resource wealth have helped spark or exacerbate the conflict. Just one separatist conflict features lootable resources: Burma, where rebel groups have used opium and gemstones to fund themselves, but the production of those goods has not in itself caused separatist grievances.

Hypothesis 3: The more lootable a resource is, the more likely it is to benefit a rebel group; the more unlootable it is, the more likely it is to benefit the government.

If a resource is highly lootable, whichever party controls the surrounding territory can use it for funding. But if it is unlootable, it is more likely to benefit the government, since the government is more able to credibly provide the security guarantees necessary to attract and maintain the requisite skilled labor and capital. Both sides in a conflict can benefit from controlling an area that produces alluvial diamonds or drugs, but only the government is likely to benefit from controlling an area that produces oil or copper.

Figure 3.2 Lootability and Separatism

	Separatist	Nonseparatist
Lootable	Burma	Afghanistan Angola (UNITA)[a] Cambodia Colombia[a] DRC[a] Liberia Peru Sierra Leone
Unlootable	Angola (Cabinda) Indonesia (Aceh) Indonesia (West Papua) Papua New Guinea Sudan	Angola (UNITA)[a] Colombia[a] Congo Republic DRC[a]

Note: a. Conflict entails both lootable and unlootable resources.

Skeptics may point out that a rebel army still profits from gaining control of an unlootable resource, since this action will deny resource revenues to the government. This is true, but an unlootable resource will still be of less value to the rebels than a lootable resource. Imagine that a rebel army captures from the government an unlootable resource. The net change in the government's revenue from this event is the amount of annual revenue lost in exploiting this resource, plus the amount of annual revenue gained by the rebels, which is zero since they cannot extract the resource. Now imagine that the rebel army captures a lootable resource from the government, which produces the same revenue as the unlootable resource above. In this case, the loss to the government's revenue is doubled, since the rebels can now exploit the resource. Hence lootable resources should be more valuable than unlootable resources to the rebels; unlootable resources should be more valuable than lootable resources to the government.

Figure 3.3 shows that the cases in Table 3.1 are consistent with this pattern.[21] In all ten conflicts over lootable resources, resource revenues flowed to either the rebels exclusively, or to both sides. In the eight cases with unlootable resources, revenues went exclusively to the government in four cases, to both sides in four cases, and to the rebels exclusively in none. Of the four conflicts in which unlootable resources produced revenues for both sides, in two cases (Colombia and Sudan) it was because long oil pipelines made the resource obstructable, and hence susceptible to holdups (see Hypothesis 6).

It is also notable that in the three conflicts with both lootable and unlootable resources—Angola (UNITA), Colombia, and the Democratic

Figure 3.3 Which Side Earns Revenues from Resource Wealth?

	Rebels	Government	Both Sides
Lootable	Afghanistan (gems) Cambodia Liberia Peru DRC[a]	—	Afghanistan (opium) Angola (gems) Burma Colombia (drugs) Sierra Leone DRC
Unlootable	—	Angola (oil) Angola-Cabinda Indonesia-Aceh Indonesia–W. Papua	Colombia (oil) Congo Republic Sudan DRC[b]

Notes: a. Including coltan, gold, coffee, and timber.
b. Including cobalt and kimberlite diamonds.

Republic of Congo—in two cases (Angola and the Democratic Republic of Congo), the government has continuously controlled the unlootable resources, while the rebels have periodically controlled the lootable resources. In the third case (Colombia), the leftist guerrillas as well as the right-wing paramilitaries have raised money from both resources.

Hypothesis 4: The more lootable the resource, the more likely it is to create discipline problems inside the army that controls it.

If a resource is unlootable—such as oil or natural gas—then it will most likely help fund the military of the side that controls it through a centralized process. Unlootable resources must be managed by large firms or state-owned enterprises, which will generate revenues for the government; these in turn will be appropriated to military forces through some type of budgetary mechanism. This centralized process should help give commanding officers fiscal tools to help them maintain control over lower-ranking officers and soldiers.

If a resource is lootable, however, it is less likely to generate funds for the government. It also creates opportunities for soldiers of all ranks to earn money by extracting or transporting the resources themselves, or extorting money from others who do.[22] The result is likely to be a reduced level of discipline and central control in the armed forces of the party that controls the resource.

There is only sporadic data on discipline problems within government and rebel forces. It is noteworthy, however, that of the fifteen cases in this sample, there were five cases in which a breakdown of military cohesion was so severe that some units defected to the other side, or did battle with each other. Four cases involved lootable resources: Cambodia (among the rebels), the Democratic Republic of Congo (among the rebels), Liberia (among the rebels), and Sierra Leone (on the government side). The fifth case, Sudan (among the rebels), involved oil, an obstructable resource.

Hypothesis 5: The more lootable the resource, the more likely it is to prolong nonseparatist conflicts.

There are three rationales behind this hypothesis. The first is based on Hypothesis 3. When resource revenue flows to the rebels, it is likely to prolong a conflict, since the rebels are typically the weaker party, and without this funding they are more likely to be forced to the negotiating table or extinguished. Conversely, if resource revenue accrues to the government, it is likely to shorten a conflict by bringing about a quicker victory or settlement—provided that the government is the stronger party.[23] If both parties carry out resource looting, the net effect should be to lengthen the conflict, since combat is likely to continue as long as the weaker party does not run out of money. Hence unlootable resources are more likely to shorten a war, by strengthening the stronger side; lootable resources are more likely to lengthen a war, by strengthening the weaker side, or both sides. The second rationale is based on Hypothesis 4. Discipline problems—which should be more strongly associated with lootable resources—are also likely to lengthen conflicts by making it harder for commanding officers to impose the terms of a settlement on their own forces.[24] There is also a third possibility: that wartime resource exploitation will become so profitable for rebels that they prefer war to peace. Again, this is more likely if resources are lootable—and hence can generate profits for rebels—than if they are unlootable.

This hypothesis only applies to nonseparatist conflicts. As James Fearon points out, separatist and nonseparatist conflicts appear to have substantially different characteristics: separatist conflicts tend to last longer, and often continue even when the separatist movement is at an overwhelming financial disadvantage.[25] This may be because separatist movements can often sustain themselves indefinitely in a territory dominated by members of their own ethnic group, where government forces are considered alien.

This is a difficult hypothesis to investigate empirically, in part because so many of the conflicts in this sample are ongoing—meaning that we do not know much about their ultimate duration. One way to examine the hypothesis is to put this problem aside and compare the

duration of nonseparatist conflicts over lootable resources to those over unlootable resources. Table 3.8 shows this comparison. The only nonseparatist conflict with unlootable resources—the 1997 war in the Congo Republic, which lasted just four months—is also the briefest conflict.

This hypothesis can also be examined indirectly by determining whether any of these three causal processes—resource exploitation by the weaker side, discipline problems that impede a settlement, and resource profiteering that impedes a settlement—have occurred in the fifteen cases. While this will not tell us if these conflicts have actually been lengthened by resources, it can tell us if any of the three processes, which I argue are likely to lengthen the conflicts, have occurred.

Table 3.9 codes the fifteen conflicts according to whether or not the three processes have occurred. Since three conflicts include both lootable and unlootable resources, these conflicts are each listed twice, and the effects of each type of resource are coded independently. I included both the separatist and nonseparatist conflicts in this table to provide additional data on the incidence of these three processes, even though the hypothesis only applies to nonseparatist conflicts.

Table 3.9 shows that resource revenues went to the weak side in nine out of nine conflicts over lootable resources, but in only five of nine conflicts over unlootable resources. In two of these five cases (Angola and the Democratic Republic of Congo), the unlootable resource still benefited the government (Hypothesis 3), but at junctures when the government was the weaker party. In two other cases (Colombia and Sudan), the weak side profited from an unlootable resource (oil) due to its obstructability.

Major discipline problems were observed in five of the nine conflicts over lootable resources, but in none of the conflicts over unlootable

Table 3.8 Duration of Nonseparatist Conflicts

	Type	Period	Duration (years)
Afghanistan	Lootable	1978–2001	23
Cambodia	Lootable	1978–1997	19
Peru	Lootable	1980–1995	15
Sierra Leone	Lootable	1991–2000	9
Liberia	Lootable	1989–1996	7
Angola (UNITA)	Both	1975–	26+
Colombia	Both	1984–	17+
Democratic Republic of Congo	Both	1996–	5+
Congo Republic	Unlootable	1997	<1

Table 3.9 Resources and Duration of Conflict

	Weak Fund	Discipline	Incentive
Lootable Resources			
Afghanistan (opium, gems)	Yes	No	No
Angola-UNITA (gems)	Yes	No	No
Burma (gems, opium)	Yes	No	Yes[a]
Cambodia (gems, timber)	Yes	Yes[a]	No
Colombia (coca)	Yes	Yes	No
Democratic Republic of Congo (gems, coltan, gold)	Yes	Yes	Yes
Liberia (gems, etc.)	Yes	Yes	Yes
Peru (coca)	Yes	No	No
Sierra Leone (gems)	Yes	Yes	No
Unlootable Resources			
Angola-UNITA (oil)	Yes	No	No
Angola-Cabinda (oil)	No	No	No
Colombia (oil)	Yes	No	No
Congo Republic (oil)	Yes	No	Yes[a]
Democratic Republic of Congo (cobalt, copper)	Yes	No	Yes
Indonesia–Aceh (gas)	No	No	No
Indonesia–W. Papua (copper)	No	No	No
Papua New Guinea (copper)	No	No	No
Sudan (oil)	Yes	No	No

Notes: Italic denotes separatist conflicts. The conflicts are coded "yes" for weak fund if the weaker side received revenues from the extraction, transport, or sale of resources, and "no" otherwise; "yes" for discipline if the presence of resources created substantial discipline problems within the military force that controlled it, and "no" otherwise; and "yes" for incentive if the resource created an economic incentive for one side or the other that undermined a proposed peace agreement. Note that in two cases, Burma and the Congo Republic, the resource appeared to create an economic incentive in favor of a peace settlement; and in the case of Cambodia, the discipline problems created by the resources led to a quicker end to the conflict.

a. Made the conflict shorter.

resources.[26] The evidence is somewhat harder to interpret regarding the third process. Resources appeared to create an economic incentive that undermined peace treaties in Liberia and the Democratic Republic of Congo.[27] In the former case, the resources were lootable; in the latter, they were both lootable and unlootable. In two other cases, Burma and the Congo Republic, resource wealth appeared to create incentives that hastened a settlement.[28] It is difficult to draw any general conclusions about this final dynamic.

In short, there is indirect evidence that both lootable and unlootable resources may trigger at least two processes that prolong conflicts, and that—as Hypothesis 5 suggests—lootable resources tend to trigger these processes more frequently than unlootable resources.

Hypothesis 6: If a resource is obstructable, it is more likely to increase the duration and intensity of conflicts.

There are two reasons why this may be so. First, obstructable resources are subject to holdups, a tactic that benefits a weaker party in its campaign against a stronger opponent, and hence will tend to lengthen a conflict. The most easily obstructed resource, oil, has been a factor in five of the fifteen conflicts in the sample. In three cases the oil has been offshore and hence impervious to holdups (Angola-Cabinda, Angola-UNITA, and the Congo Republic); but in the other two cases (Colombia and Sudan), rebels have bombed pipelines to extort money from the government or oil firms, and to disrupt the government's revenues.[29]

In Colombia, for example, the country's oil must be transported to the coast from the unstable interior through two exceptionally long pipelines.[30] In 2000 the pipelines were bombed ninety-eight times. Colombia's rebel groups have used these attacks to extort an estimated U.S.$140 million annually; this windfall has enabled one group, the National Liberation Army (ELN), to grow from fewer than 40 members to at least 3,000.[31]

Obstructable resources can also have a second effect: a government may anticipate that its resources will be subject to holdups by aggrieved local peoples, and decide to act preemptively by using terror and repression against them. Here we might not witness a full-blown civil war—if the repression is "successful" in the government's eyes—but nonetheless have a large number of resource-related casualties. Such preemptive campaigns have occurred in the Indonesian province of Aceh, where a natural gas facility was threatened by a proseparatist movement; and even more lethally in Sudan.

Sudan has witnessed both holdups by the rebel group and preemptive repression by the government. Sudan's oil reserves are located in the country's south, a region with long-standing separatist aspirations. The north's efforts to gain access to the south's oil have been a major source of grievance, which has been evident in both the rhetoric and the actions of the Sudan People's Liberation Army (SPLA): it has issued complaints that the north is stealing the south's resources, and between 1983 and 1999 it repeatedly demanded that work cease on a pipeline that would take oil from wells in the south to a refinery in the north. It also periodically attacked the workers and equipment associated with pipeline construction. These attacks helped the SPLA to fund itself by extorting money from Western oil firms that wished to protect their equipment.[32]

To counter the rebels, the government has tried to forcibly create a cordon sanitaire around the pipeline, and to clear whole populations

from the oil fields. Clearances in the upper Nile region began in 1980, halted in the mid-1980s when oil development temporarily ceased, then commenced anew in the late 1990s when oil development resumed. Since early 1999 the government has used summary executions, rape, ground attacks, helicopter gunships, and high-altitude bombing to force tens of thousands of people from their homes in the oil regions. It has also razed houses, destroyed crops, and looted livestock to prevent people from returning. Although foreign observers have often been prevented from entering the affected areas, the pattern of displacements has been documented by both a special rapporteur for the UN Commission on Human Rights and several nongovernmental organizations.[33]

Hypothesis 7: If the resource is illegal, it is more likely to benefit the rebels—unless the government is willing to endure international sanctions.

There are strong international sanctions against the production of illegal natural resources—for example, coca, opium, and cannabis; these sanctions are more effective against states than against nonstate entities, like rebel movements. If illegal substances are cultivated in a country suffering a civil war, it will be hard for the government's forces to profit from their presence, since they are likely to be subjected to international sanctions; a rebel group should be less responsive to international sanctions and hence should be more likely to seek funding from drug sales. This should not hold true, however, for governments that are willing to endure international sanctions, and pursue autarkic economic policies.

There are just four drug-producing states in the sample, which makes it difficult to know if this is a valid generalization. Table 3.10 lists these states, along with the side that benefited from the drug trade. In one case (Peru), only the rebels systematically raised money from the drug trade. In the other cases, both sides earned money from drugs—in two cases (Afghanistan and Burma) because the government was willing to endure international sanctions, and in the third case (Colombia) because drug revenues were collected by paramilitary forces, which were allied with the government but sufficiently independent from it (at least nominally) to allow the government to avoid international sanctions.

Implications and Conclusions

The aim of this chapter is to help determine whether some types of natural resources are more closely tied to civil wars than others, and if so,

Table 3.10 Which Side Profits from Illegal Drugs?

	Substance	Beneficiary
Afghanistan	Opium	Both
Burma	Opium	Both
Colombia	Coca, opium	Both
Peru	Coca	Rebels

why. The first section, using simple cross-tabulations, showed that alluvial diamonds and illegal drugs appear to be more strongly linked to civil war than other resources; that timber is not associated with civil war; and that other categories of natural resources are about equally tied to civil wars. The second section used evidence from fifteen recent civil wars to develop hypotheses about why this pattern may hold. I argued that three qualities of any natural resource—most important, its susceptibility to low-cost extraction, or "looting"—tend to influence the incidence and duration of civil wars. The data also suggested that different types of resources have different consequences for separatist wars than for nonseparatist wars. Below I describe the implications of these seven hypotheses for both unlootable and lootable resources.

Unlootable Resources

Unlootable resources include oil, natural gas, and all types of deep-shaft minerals.[34] The seven hypotheses have both positive and negative implications for states with unlootable resources; in general, the good news concerns nonseparatist conflicts and the bad news concerns separatist conflicts.

The good news is that unlootable resources should make nonseparatist conflicts briefer, because they tend to be of greater benefit to the government. If the government is the stronger party—which is true in most of the fifteen cases presented here—this should hasten the end of the conflict by bringing about a quicker government victory. On the other hand, if the government is the weaker party, but still receives revenues from unlootable resources—as in the case of Angola in 1993–1994, and in the Democratic Republic of Congo in 1997–1998—it may prolong the conflict by averting the government's defeat.

The bad news about unlootable resources is that they are more likely than lootable resources to cause separatist conflicts; moreover, separatist conflicts tend to last longer than nonseparatist conflicts. Five separatist conflicts in this sample were in part caused by grievances over the distribution of resource wealth; such grievances appear more

likely to arise over unlootable resources than over lootable resources. In cases where the resource is obstructable—in particular, when it must travel through a long, above-ground pipeline—it creates a further class of problems, by presenting rebel groups with an unceasing flow of extortion opportunities.

These two dangers—that unlootable resources will be a source of grievance (in separatist conflicts), or a source of finance (if they are obstructable)—are depicted in Figure 3.4. The upper-right quadrant contains nonseparatist conflicts with an obstructable resource; in this cell, natural resources should be a source of rebel finance (because they are obstructable) but not a source of rebel grievance (because they are not separatist conflicts). The Colombia case fits this description closely.

The lower-left quadrant contains cases where the resource cannot be used for finance (since it is relatively unobstructable) but where it is a source of grievance (since it is found in a province with separatist aspirations). Each of the four cases in this cell are persistent, long-running conflicts in which violence has been minimal—generally producing fewer than 100 deaths per year. This pattern is consistent with a conflict over a long-standing grievance (the perceived maldistribution of resource revenues), in which the separatist group does not have a major source of finance, and hence is unable to fight a war that produces a large number of casualties.

The conflict in the Indonesian province of West Papua (formerly Irian Jaya) provides an illustration. Indonesia invaded the former Dutch colony in 1962, and later annexed it; a small proindependence army, the Organisasi Papua Merdeka (OPM), has been active since around 1965. In the early 1970s a U.S. firm, Freeport-McMoran, began to operate a major copper mine on the southern part of the island; since then, the mine has been a further source of grievance for the island's indigenous

Figure 3.4 Conflicts Involving Unlootable Resources

	Separatist (→ grievance)	Nonseparatist (→ no grievance)
Obstructable (→ finance)	Sudan	Colombia[a]
Unobstructable (→ no finance)	Indonesia (Aceh) Indonesia (W. Papua) Papua New Guinea Angola (Cabinda)	Angola (UNITA)[a] Congo Republic DRC[a]

Note: a. Has both lootable and unlootable resources.

population. The mine has intermittently been the target of OPM attacks. Proseparatist propaganda, including that generated by the OPM, argues that West Papua's resource wealth is wrongfully appropriated by the central government, and that Papuans would be wealthier if the province were independent. The government's military operations around the mine site, in turn, have led to human rights violations and have further heightened anti-Indonesia sentiment. There is no indication, however, that the OPM has used resource looting or extortion around the mine site to fund itself. Moreover, resource wealth has helped the stronger side in the conflict—the Indonesian military—not the OPM, which remains small and ill equipped. The OPM has perhaps several hundred "hard-core" members, and several dozen firearms—mostly old and rusted weapons from World War II. The conflict generates fewer than 100 casualties a year.

The upper-left quadrant of Figure 3.4 contains the most troubled category of conflicts: separatist conflicts over obstructable resources, in which an unlootable resource becomes both a source of grievance and a source of finance. There is, fortunately, just one state from the sample that fits into this cell: Sudan.

The lower-right quadrant includes states with unlootable, unobstructable resources engaged in nonseparatist conflicts. These three cases—Angola (UNITA), the Congo Republic, and the Democratic Republic of Congo—feature conflicts in which the resource is neither a source of grievance nor a source of finance via extortion. Two of these conflicts (Angola and the Democratic Republic of Congo) have both lootable and unlootable resources, and it has largely been their lootable resources that have made these conflicts long and bloody. The only case that has unlootable, unobstructable resources exclusively—the Congo Republic—was an unusual conflict, in that the opposition group received funding from a foreign oil firm and expected an imminent takeover of the government. After a four-month war, financed in part by this payment, the opposition group was proven right.

Lootable Resources

Alluvial gemstones and agricultural crops, including drugs, are all lootable resources. Diamonds and drugs were strongly associated with civil conflict in the 1990s, and are commonly viewed as the most troublesome resources. But this chapter suggests that there is another side to these commodities: they also tend to produce more widespread benefits for local peoples, and the poor, than do unlootable resources. The seven hypotheses have positive and negative implications for countries with

lootable resources. In this case, the positive implications are for separatist conflicts, the negative for nonseparatist conflicts.

The good news is that lootable resources do not seem to generate separatist conflicts. Since lootable resources produce more revenues for unskilled workers, and for local peoples, they also seem to generate fewer grievances. There are six separatist conflicts in the sample. Five entail grievances over unlootable resources (see Figure 3.2).

The bad news about lootable resources is that they appear to prolong nonseparatist conflicts, due to two factors: their tendency to benefit rebel groups, and their tendency to cause discipline problems in the army that exploits them. These two effects have helped produce long, chaotic civil wars in eight of the fifteen cases in the sample: Afghanistan, Angola, Cambodia, Colombia, the Democratic Republic of Congo, Liberia, Peru, and Sierra Leone. If the resource is also illegal, this makes it even more likely to favor the rebel side.

For these reasons, lootable resources appear to create more complicated civil wars, with greater fragmentation and shifting alliances among the armies that control the resource. They may also be harder to resolve, due to this fragmentation, and because the widespread benefits they produce may make sanctions harder to implement and more costly for poor and local peoples.

In short, this study suggests that some resources are more dangerous to exploit than others; and that different resources are associated with different types of conflicts: unlootable resources are more likely to produce separatist conflicts, and lootable resources are more likely to produce nonseparatist conflicts. These patterns appear to hold true for the fifteen conflicts in the sample; to know whether they are true for a larger set of conflicts, they would have to be subjected to further testing, especially with a different data set. Still, they may hint at the complicated and contradictory effects that a country's natural resource endowment may have organized violence occuring inside its own borders.

* * *

Appendix 3.1 Diamond and Drug Producers, 1995

Diamond producers: **Angola,** Australia, Botswana, Brazil, Central African Republic, China, **Democratic Republic of Congo,** Côte d'Ivoire, Ghana, Guinea, **Liberia,** Namibia, **Russia, Sierra Leone,** South Africa, Venezuela, Zimbabwe.

Alluvial diamond producers: **Angola,** Brazil, Central African Republic, **Democratic Republic of Congo,** Côte d'Ivoire, Ghana, **Liberia, Sierra Leone.**

Opium producers: **Afghanistan, Burma, Colombia,** Laos, Mexico, Pakistan, Vietnam.

Coca producers: Bolivia, **Colombia, Peru.**

Cannabis producers: **Afghanistan, Cambodia, Colombia,** Jamaica, Morocco, Mexico, Nigeria, Pakistan, South Africa, Thailand.

Sources: Ronald F. Balazik, "Industrial Diamonds" (Washington, D.C.: U.S. Geological Survey, 1998); UN Office for Drug Control and Crime Prevention (UNOCCP), "World Drug Report, 2000" (New York: Oxford University Press, 2000).

Note: **Bold** denotes countries that experienced civil wars in the 1990s.

Notes

I am grateful to Karen Ballentine, Philippe Le Billon, and Jake Sherman for comments on an earlier draft.

1. Like most scholars, I define civil wars as conflicts that occur within the recognized boundaries of a single state; involve combat between the state and at least one organized rebel force; and result in at least 1,000 deaths during a single calendar year. I use the database assembled by Paul Collier and Anke Hoeffler to determine when civil wars have occurred. See Paul Collier and Anke Hoeffler, "Greed and Grievance in Civil War," Policy Research Working Paper no. 2355 (Washington, D.C.: World Bank, 2001).

2. Paul Collier and Anke Hoeffler, "On the Economic Causes of Civil War," *Oxford Economic Papers* 50, no. 4 (October 1998): 563–573; Collier and Hoeffler, "Greed and Grievance"; Indra de Soysa, "Natural Resources and Civil War: Shrinking Pie or Honey Pot?" paper presented at the International Studies Association, Los Angeles, March 2000; and Ibrahim Elbadawi and Nicholas Sambanis, "How Much War Will We See? Estimating the Prevalence of Civil War in 161 Countries, 1960–1999," *Journal of Conflict Resolution* 46, no. 2 (June 2002): 307–334.

3. James D. Fearon, "Why Do Some Civil Wars Last So Much Longer Than Others?" paper presented at the World Bank–UC Irvine conference on "Civil Wars and Post-Conflict Transition," Irvine, Calif., May 18, 2001.

4. Michael L. Ross, "How Does Natural Resource Wealth Influence Civil War? Evidence from 13 Case Studies," paper presented at the World Bank–UC Irvine conference on "Civil Wars and Post-Conflict Transition," Irvine, Calif., May 18, 2001.

5. Ibid.

6. Collier and Hoeffler suggest that the relationship between resource dependence and civil wars is curvilinear, so that the danger of civil war peaks when resource dependence reaches a relatively high level, but declines at the very highest levels. Other scholars estimate the relationship between resource dependence and civil war to be linear. Both estimates would predict a higher civil war rate among the top one-third of resource-dependent states than among the middle and bottom thirds. Collier and Hoeffler, "Greed and Grievance."

7. World Bank, *World Development Indicators 2001* (Washington, D.C.: World Bank, 2001), CD-ROM.

8. I chose 1995 because it is the year for which the greatest quantity of data are available, by far. By comparing 1995 levels of resource dependence to decade-long civil war rates, I am increasing the danger of endogeneity—that is, that causation may be running in both directions. On the problem of endogeneity in assessing the relationship between natural resources and civil conflict, see Ross, "How Does Natural Resource Wealth Influence Civil War?"

9. Collier and Hoeffler, "Greed and Grievance." Of these 161 states, 15 failed to produce any data on their export of natural resources, leaving a sample of 146 states with 29 civil wars for Table 3.2. The rate of civil wars in this smaller sample, however, is identical to the rate in the larger sample: 19.9 percent.

10. I use the period 1990–2000 because it is easier to use in analyzing more recent conflicts. The end of the Cold War may have produced an unusually large number of resource-related wars during this decade, since it may have forced combatants in some developing countries (such as Cambodia, Afghanistan, and Angola) to replace funding from superpowers with funding from natural resource exploitation. See David Keen, *The Economic Functions of Violence in Civil Wars* (Oxford: Oxford University Press for the International Institute for Strategic Studies, 1998).

11. Collier and Hoeffler find that oil is somewhat more closely tied to conflict than mining and agricultural products—although their database does not appear to include diamonds or drugs. Collier and Hoeffler, "Greed and Grievance."

12. Note that the first and second columns measure the quantity of timber harvested, while the third and fourth measure the value of timber exports, as a fraction of GDP.

13. Michael Klare, *Resource Wars: The New Landscape of Global Conflict* (New York: Metropolitan Books, 2001).

14. I define "nonproducers" as states that produced five or fewer tons of opium and coca.

15. "Primary producers" are the main sources of internationally traded cannabis, while "secondary producers" export lesser amounts.

16. Philippe Le Billon, "The Political Ecology of War: Natural Resources and Armed Conflicts," *Political Geography* 20, no. 5 (June 2001): 561–584.

17. I am borrowing the concept of lootability from Collier and Hoeffler, "Greed and Grievance," and Le Billon, "Political Ecology of War," although the definition is my own.

18. There is also an illegal international trade in endangered species and their products; I have found only one instance of their sale by military forces. See Ros Reeve and Stephen Ellis, "An Insider's Account of the South African Security Forces' Role in the Ivory Trade," *Journal of Contemporary African Studies* 13, no. 2 (July 1995): 227–244.

19. I am grateful to Karen Ballentine for pointing out this implication.

20. Other prominent examples from earlier decades are the Biafra rebellion in Nigeria, and the Katanga rebellions in the Democratic Republic of Congo.

21. Note that for conflicts in which both lootable and unlootable resources

mattered (Angola, Colombia, and the Democratic Republic of Congo), I have listed separately which party generated money from which resource.

22. Le Billon makes a similar point. Le Billon, "Political Ecology of War."

23. An important assumption is that conflicts will tend to last longer when the two sides have more equal resources. This assumption is supported by evidence from interstate conflicts. D. Scott Bennett, and Alan C. Stam III, "The Duration of Interstate Wars, 1816–1985," *American Political Science Review* 90, no. 2 (June 1996): 239–257.

24. Fearon, "Why Do Some Civil Wars Last So Much Longer Than Others?"; and Ross, "How Does Natural Resource Wealth Influence Civil War?"

25. Fearon, "Why Do Some Civil Wars Last So Much Longer Than Others?"

26. Note, however, that in the case of Cambodia, these discipline problems led to an earlier end to the conflict when a rebel faction defected to the government side in order to retain its access to timber and gems.

27. Stephen Ellis, *The Mask of Anarchy: The Destruction of Liberia and the Religious Dimension of an African Civil War* (New York: New York University Press, 1999); UN Panel of Experts, "Report of the Panel of Experts on the Illegal Exploitation of Natural Resources and Other Forms of Wealth of the Democratic Republic of Congo," S/2001/357, UN Security Council, April 12, 2001.

28. Bertil Lintner, *Burma in Revolt* (Bangkok: Silkworm Press, 1999).

29. Obstructable resources are similar to lootable resources, since small bands of unskilled troops can use them to generate revenues.

30. One pipeline, operated by BP Amoco, is 444 miles long; the other, operated by Occidental Petroleum, is 485 miles long.

31. Thad Dunning and Leslie Wirpsa, "Andean Gulf? The Political Economy of Oil and Violence in Colombia," paper presented at the University of California, Davis, conference on "The Wars in Colombia," May 17–19, 2001, mimeo.

32. Edgar O'Ballance, *Sudan, Civil War, and Terrorism, 1956–1999* (New York: St. Martin's Press, 2000); and G. Norman, *Sudan in Crisis* (Gainesville: University Press of Florida, 1999).

33. UN Commission on Human Rights, "Situation of Human Rights in the Sudan," draft report, 57th sess., E/CN.4/2001/L.11/Add.3, April 21, 2001; and Christian Aid, *The Scorched Earth: Oil and War in Sudan*, 2001, www.christian-aid.org.uk/indepth/0103suda/sudanoil.htm (accessed September 1, 2001). It is important to acknowledge that the Sudanese civil war does not conform to simple "separatist," "Muslim versus non-Muslim," or "north-south" descriptions. Often these divisions have been blurred: the northern Muslim government has sometimes made alliances with non-Muslim Dinka or Nuer militias in the south, while the rebels have sometimes been allied with northern Muslim groups that have fallen out of favor with the government. According to a report by Amnesty International, "during the last few years, more people have lost their lives in inter-factional fighting amongst Southerners than in armed encounters with government forces." Amnesty International, "Oil in Sudan: Deteriorating Human Rights," Report no. AFR 54/01/00ERR, May 3, 2000, p. 3.

34. This includes diamonds that are deposited far underground—often called kimberlite diamonds.

PART 2

Case Studies