Conflict Minerals

Conflict minerals are those that are exploited, controlled, or used to finance the purchase of supplies by armed actors in a conflict. Commonly involved minerals include cassiterite and coltan, used in electronics, as well as diamonds and gold. These minerals are rarely the cause of the conflict they “support” but do affect its duration and intensity. Because conflict minerals are bought worldwide, there are international repercussions for economies, natural resources and security, and sustainable resource management on a global scale.

Conflict minerals have become a prominent subject through protest or awareness campaigns such as “blood diamonds” and “blood on your mobile.” Questions thus arise about how to define conflict minerals, and what national and international dynamics trigger what kinds of conflict, and how they can be minimized or avoided. According to the political economist and geographer Philippe Le Billon (2003, 216), conflict minerals are those minerals “whose control, exploitation, trade, taxation, or protection contribute to, or benefit from the context of, armed conflict.”

The actors directly involved in these activities can be warlords, rebel groups, a country’s regular national army, or renegade members of the army. The armed actors use the profits derived from conflict minerals to finance their purposes (e.g., purchasing weapons, ammunition, and supplies) and in some instances to enrich them. In such cases, conflict minerals are a main driver for perpetuating armed conflicts. Conflict minerals may thus not cause a conflict, but they are a factor in how a conflict evolves and how long it lasts.

As the minerals are usually sold to international customers, a number of external actors become indirectly involved in the conflicts by way of using the associated minerals.

Conflict Minerals and Security

Many of today’s conflicts are nontraditional, in the sense that they are typically not a military conflict between nations. Instead, most of them are internal violent conflicts involving secessionist groups or rebels opposing a government. Since the end of the Cold War, and with the onset of globalization, the characteristics of conflict have changed substantially. In 1994 the United Nations Development Program introduced the notion of “human security” to address the dimension of people and development rather than just territories and arms, leading some people to call these conflicts “new wars” (Kaldor 1999; Duffield 2001; Münkler 2002). Regardless of what these wars are called, socioeconomic factors play an increasingly important role in them; and mining activities producing so-called conflict minerals often form part of a region’s socioeconomic factors.

A scholarly debate on the link between natural resources and conflict emerged in the 1990s (Gleditsch 1997; Homer-Dixon 1995, 1999; Levy 1995; see also Myers 1989 and Pirages 1978). The debate first focused on the likelihood of an outbreak of violent conflict over a country’s richness in natural resources (Collier and Hoeffler 1998; Collier, 2000). The term “resource curse” was coined (Auyt 1993) to address poor economic performance of resource-rich countries. Research by the economists Paul Collier and Anke Hoeffler (2004) analyzed the incentives of those who aim to profit by starting a violent conflict that stems from characteristics of natural resources. Subsequent research broadened the focus of the debate to include state and military, as well as outside...
Table 1 shows large sums earned by the military from a North Kivu mine.

<table>
<thead>
<tr>
<th>Source</th>
<th>Earnings per Months ($US)</th>
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<tbody>
<tr>
<td>Mineral production of 250 tons per month going through the military</td>
<td>$1.14 million to $2.25 million</td>
</tr>
<tr>
<td>Taxes on diggers outside mines</td>
<td>$45,600 to $90,000</td>
</tr>
<tr>
<td>Taxes on porters going to Bisie</td>
<td>$3,300 to $16,800</td>
</tr>
<tr>
<td>Total from all known sources</td>
<td>$1.2 million to $2.4 million</td>
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Source: Global Witness 2010, 8.

The military in North Kivu province in the Democratic Republic of Congo levy taxes not only on the production of tin in the Bisie mine but on outside laborers and porters as well.

Economic actors (Snyder and Bhavnani 2005; Humphreys 2005), and the environmental dimension (Dinar 2011).

It can be concluded that the combination of open access to many natural resources and weakness of governments or institutions allows conflicts to arise far beyond normal market competition. “Lootable” commodities, in particular, offer to unscrupulous parties the means to enrich themselves and finance their operations. Such commodities are often categorized as contraband and contribute to prolonging wars (Ross 2004; Samset 2009; WTO 2010, 95).

The links between natural resources and violent conflicts can be seen as a dual relationship: “armed conflicts motivated by the control of resources, and resources integrated into the financing of armed conflicts” (Le Billon 2001, 580). Alternatively, the relationship can be considered two sides of the same coin: resource conflicts and conflict resources. While resource conflicts are caused at least partly by opposing interests fighting over a scarce resource, such as a particular mineral, conflict resources are mainly a means of carrying out a conflict which has other root causes (Le Billon 2001, 561; Mildner 2011, 13).

The Case of the Democratic Republic of Congo

Mining in the eastern Kivu regions (North and South) of the Democratic Republic of Congo (DRC) has often been viewed as a case of conflict over minerals. Owing to specific geological conditions—deposits are too small to be suitable for large-scale industrial mining—mining in eastern DRC is mainly artisanal and small scale. In this region, there is robust evidence showing how rebel groups are profiting from the minerals extraction and trade. For instance, a recent UN report (UNSC 2010) establishes evidence showing that Congolese national army units have gained control over mineral-rich areas in North and South Kivu provinces and are competing among themselves for control over such areas; moreover, they collude with armed groups in order to attack rival commanders.

Conflict Minerals as Part of a Broader Natural Resources Picture

Minerals are but one type of natural resource that can be linked to conflict. According to the UN Expert Panel, the armed groups in eastern DRC finance themselves through the illegal exploitation of other natural resources, such as timber, meat, and fish (UN IFTPA 2010). In Ivory Coast, rebels and the government both acquired funding for their fight from the cocoa business (Global Witness 2007; Guesnet, Müller, and Schure 2009). Klare (2001), Other analysts, such as Indra De Soysa (2002), and James D. Fearon and David D. Laitin (2003) underline the likelihood of war in countries that possess oil.
Macartan Humphreys (2005), as well as Oeindrila Dube and Juan Vargas (2006) point to agricultural commodities in general and coffee in particular as sources of conflict. According to the Heidelberg Institute for International Conflict Research’s 2010 conflict barometer, natural resources rank second as a source of conflicts worldwide. In this ranking, natural resources comprise extractive resources and agricultural products as well as land, habitats, and water (HIIK 2010). Research thus should increasingly look at the nexus between different natural resources and conflicts rather than spot single minerals.

The Social and Political Dimension

From the viewpoint of nongovernmental organizations (NGOs) that work with local communities, human rights are a major concern amid these natural resource–related conflicts. The NGO Global Witness defines conflict resources as a broad category embracing conflict minerals: “natural resources whose systematic exploitation and trade in a context of conflict contribute to, benefit from or result in the commission of serious violations of human rights, violations of international humanitarian law or violations amounting to crimes under international law” (Global Witness 2011).

This definition takes into account the different forms of violence surrounding minerals extraction and trade. It refers to situations of abuse, such as people being forced to work under slave-like conditions, threatened by armed overseers. Even if an armed conflict is not involved, minerals are often mined under violent conditions.

Furthermore, the extraction of natural resources can trigger new conflicts. At the local level of extraction sites, the livelihood of the residents of the area can be badly affected (e.g., by pollution of land, water, and air). If their grievances are ignored, this can spark violent protests and acts of sabotage and can lead into violent confrontations with security forces. At the national level, conflict over the use of revenues from natural resources can occur. This is particularly likely where nondemocratic governance is combined with corruption (Paes 2009, 5). Such conflicts have materialized, for instance, in the oil-abundant Niger Delta region in Nigeria.

The Environmental Dimension

Environmental consequences of mining can spark conflicts at the local level, mostly between residents and those exploiting the mineral (artisanal miners or a mining company). For instance, pollution may result from unsafe mine tailings and waste dumps, acid mine drainage, improper closure of pits and mines, dumping of toxic effluent into the water, mining waste, and the like. Landscape alterations are often irreversible, with secondary effects on local agriculture that will become both economically and environmentally devastating if peasants hire themselves out as diggers.

Sound planning through a Strategic Environmental Assessment (SEA) depends by and large on voluntary efforts, especially in countries with weak governments, legislation, and enforcement. International standards on such SEAs have been formulated (SEA-info.net 2011). Attempts to measure such environmental pressures along the life cycle of materials are called “ecological rucksacks” (Bringezu and Bleischwitz 2009).

In many cases, environmental pressures result from mining outside the requirements of law, failing to perform proper assessments, not having to comply with environmental laws and standards, and making no plans for their rehabilitation. As an example of such negative environmental impact, in the Kahuzi Biega National Park, one of the last resorts of mountain gorillas worldwide, mining activity itself destroys natural habitat and is exacerbated by the presence of armed groups controlling several areas. At the same time, local agriculture and subsistence farming suffer from lack of continuous activities and inappropriate interventions into local ecosystems.

Which Minerals Are Conflict Minerals?

The minerals most commonly involved in resource conflicts are cassiterite (tin), coltan (tantalum and columbite-tantalite), diamonds, gold, and wolframite (tungsten).

Cassiterite is needed to produce tin. It is also used in the manufacture of electronic goods, such as MP3 players. The world’s largest cassiterite producers are China and Indonesia, followed by Peru, Bolivia, and Brazil. For eastern DRC, however, cassiterite is the most important mineral in terms of quantity and price.

Coltan, the nickname of a mineral extracted in Central Africa, belongs to a group internationally known as tantalum. It is mainly used for capacitors in electronic devices, such as mobile phones, pagers, and personal computers. Future demand is expected to grow. For a long time Australia dominated the world market, but the production situation has changed significantly. Since late 2008, Africa (i.e., the lakes region including Mozambique) has become a major, if not the largest, supplier of tantalum on the world market, followed by Brazil and a few other suppliers.

Diamonds are used in jewelry and for some industrial applications. They were the first officially recognized conflict commodity, following observations of brutal civil wars in Sierra Leone, Liberia, and Angola. In response,
The Kimberley Process on certification emerged (see the section on Response Options, below).

Gold is used in jewelry, electronics, and dental products. It is also present in some chemical compounds used in semiconductor manufacturing. Major gold suppliers are South Africa, the United States, Australia, Russia, and Peru; and gold is an important export good in countries such as Uzbekistan, Ghana, and Papua New Guinea. For eastern DRC, almost all gold exports are illicit and undeclared; no reliable statistics are available. Wolframite, an important source of tungsten, has a wide range of uses. It is also used in the metals industry, wherein composites are used as a substitute for lead (e.g., in some gasoline refineries). Almost 78 percent of the world’s production of tungsten occurs in China, but Europe imports large shares from Kenya and Tanzania. Tungsten’s economic importance is very high, since substitutes are rarely available and impose much higher costs. This list of conflict minerals is incomplete, but it forms part of a wider context of natural resources that drive economic and political conflicts. Typically, conflict minerals (except diamonds and gold for jewelry) pass through a variety of intermediaries internationally before being purchased by multinational companies (e.g., electronic manufacturers) and consumers. Not all mineral suppliers, however, are involved in conflicts. In most cases, conflict regions act as buffer suppliers during peak times but not as main suppliers over a longer period. But rubies from Burma, which are being mined under inhuman conditions and profit the Burmese dictatorial regime, can be seen as a case where 90 percent of the world market originates from one conflict region.

Whether a given mineral and region are involved in conflict depends partly on prices, since price peaks attract revenue-seeking actors. Some conflicts—especially non-violent ones—are a typical side effect of most extractive industries and their commodities; hence, good governance, including sound environmental management practices and control as well as the respect of social standards, can influence the scale of conflict or whether it even arises. Good governance at the national level and within extractive industries and sustainable resource management is needed to prevent negative consequences of minerals extraction and related conflicts (Feil et al. 2010; Brinzeu and Bleischwitz 2010).

**International Interaction**

Since most of conflict minerals are indispensable for a number of high-tech applications including green technologies and sustainable energy (Graedel 2011), the dimension of international trade is of vital strategic importance (WTO 2010).

The recent discovery of minerals in Afghanistan (worth approximately US$1 trillion) suggests the possibility of extended conflicts in the future, potentially with severe international consequences. The US National Intelligence Council (NIC 2008) develops some gloomy scenarios about how international repercussions of such conflicts could jeopardize international security.

The mineral production facilities in Asia are probably the main routes for illicit mineral chains. Involvement of the Asian processing industry has been subject to investigations by UN Expert Panels and surveys (e.g., Resolve 2010). Accordingly, the consumer electronics assembly industry in China and other Asian countries can be seen as a main source of demand for conflict minerals, though many companies of Europe and the United States have also been named in reports as being involved—at least on a temporary basis. The end consumers of those products, however, are located worldwide.

**Response Options**

Countries’ current main options in responding to the conflicts related to minerals are to establish regulations aimed at enhancing transparency and due diligence, both in the extractive industries themselves and along international mineral chains (Bannon and Collier 2003). A Model Mining Development Agreement (MMDA) is available. Initiatives have been undertaken by:

- international organizations (OECD 2010; UN Interagency Framework Team for Preventive Action 2010);
- international and regional policy-makers (Analytical Fingerprint, Certified Trading Chains, the International Conference of the Great Lakes Region certification scheme in the Great Lakes Region of Africa, the STAREC plan to establish local marketplaces in the DRC);
- NGOs such as the Extractive Industries Transparency Initiative and Publish What You Pay;
- particular industries (e.g., iTSCi—an initiative driven by the smelting industry, and GeSI/EICC—an initiative driven by electronics industry); the International Council on Mining and Metals (ICMM) supports related activities; and
- advanced institutional hybrids such as the Kimberley Process for diamond certification with all major industries, governmental administrations, and NGOs involved.

In July 2010, the US government introduced legislation (the Dodd-Frank Act) requiring oil, gas, and mining companies registered with the US Securities and Exchange Commission to disclose tax and revenue payments made to host governments in the countries of...
operation. This law is still under discussion (as of September 2011) and would affect eight of the world’s ten largest mining companies. In June 2010, the Hong Kong stock exchange introduced a similar regulation for listed mining companies, which affects major players in the Asian market. The US law also requires companies that manufacture products containing cassiterite, coltan, wolframite, or gold to disclose whether these are sourced from the DRC or surrounding countries, and to demonstrate what steps are being taken to avoid sourcing from armed groups.

On 16 June 2011, the UN Human Rights Council endorsed the “Guiding Principles on Business and Human Rights: Implementing the United Nations ‘Protect, Respect and Remedy’ Framework” proposed by UN special representative John Ruggie, which provides guidance for businesses to act in accordance with human rights.

Taken together, these initiatives and forthcoming legal requirements lay the groundwork for establishing a minimum global standard of transparency for extractive companies and manufacturers of critical minerals. If well coordinated, properly enforced, and complemented by expanding civil society initiatives, these initiatives could set a precedent for greater transparency and accountability toward the goal of sustainable resource management (Bringezu and Bleischwitz 2009). Improved supply chain management and materials stewardship across industries will further strengthen these efforts. In a broader sense, all efforts to increase resource efficiency along the life cycle of products and minerals, as well as for economies, promote a business interest to lower demand for minerals (Bleischwitz, Welfens, and Zhang 2010) and decrease the ensuing conflict risks.

Tracing value chains in a comprehensive manner and according to standards of accountability will be challenging, given that many actors are involved. Besides profit-seeking behavior and vested interests entrenched in the conflict regions, many knowledge gaps downstream still prevail that also hinder effective regulation. It remains to be seen to what extent consumers will become engaged, as long as uncertainties and the tiny percentage of conflict minerals in any product make a consumer’s responsibility difficult to understand and accept.

For that reason, global governance with new and legally binding mechanisms seems necessary to promote accountability against corruption and in favor of sustainability. Proposals for an international metals covenant and an agreement for sustainable resource management have been made (Bleischwitz 2009; Wilts, Bleischwitz, and Sanden 2010). Following a suggestion made by Paul Collier and a fellow economist Anthony Venables (2010, 15), the anti-bribery legislation that the Organisation for Economic Cooperation and Development now requires of its membership could also be a requirement of World Trade Organization membership—a compliance issue for China and elsewhere.

National governance of conflict minerals in the respective regions—such as an effective mining law, general macroeconomic and political stability, and social sector reforms; a fair share of revenues between the local and national governments; and integrated land-use planning towards sustainable development—needs to be instituted as well.

**Outlook for the Future**

Conflict minerals continue to support financing of armed conflicts around the world, and especially in parts of Africa. While attention was initially focused on rebel groups financing their fights through extraction and trade in these minerals, it became clear over time that state armies sometimes use/abuse minerals in the same way. Since conflict minerals appear on the world market and in consumer goods, the private, public, and civil actors doing business in or purchasing their minerals from conflict regions carry a responsibility in how those minerals are handled. The economic dimension of the problem originates from low-cost supply-driven competition not covering the enormous social costs, and international trade hiding its responsibility through the World Trade Organization principle of neutrality toward process and production methods. High volatility (e.g., measured on an annual basis compared to other goods) aggravates the risks for producers and users.

The challenge for international business and policy makers to cope with these issues hence is enormous. In order to eliminate the conflicts surrounding the minerals discussed
here (as well as other minerals), governments and corporations must act on principles of social responsibility, good citizenship, and material stewardship—and they must initiate and adhere to certification and legal mechanisms—along every link in the material value chains (Bringezu and Bleischwitz 2009; Feil et al. 2010). The high probability of rising raw material prices, and greater efforts toward building a green economy, should promote international efforts toward sustainable resource management at a global scale.

Raimund BLEISCHWITZ
Transatlantic Academy Fellow, Wuppertal Institute

Lena GUESNET
Bonn International Center for Conversion

See also Bushmeat; Coltan; Electronics—Raw Materials; Gemstones; Gold; Heavy Metals; Minerals Scarcity; Mining—Metals; Mining—Nonmetals; Rare Earth Elements

The authors used the following sources for their data, in addition to those found in the Further Reading section:

• Armed Conflict Dataset, provided by Uppsala Conflict Data Program (UCDP) and the Centre for the Study of Civil Wars, International Peace Research Institute, Oslo (PRIO);
• Conflict Information System (CONIS, formerly KOSIMO) provided by the Heidelberg Institute for International Conflict Research, University of Heidelberg;
• Correlates of War (COW) established by Melvin Small and J. David Singer at the University of Michigan.

FURTHER READING


