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Sustainable Prevention of Resource Conflicts

Case Study and Scenarios on Copper and Cobalt in the Democratic Republic of Congo
(Report 3.2)

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Sustainable Prevention of Resource Conflicts

Case Study and Scenarios on Copper and Cobalt in the Democratic Republic of Congo (Report 3.2)

by

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List of abbreviations

BGR	German Federal Institute for Geosciences and Natural Resources
CONIS	Conflict Information System
CSR	Corporate Social Responsibility
DFID	Department For International Development
DRC	Democratic Republic of Congo
EU	European Union
FARDC	Forces Armées de la République Démocratique du Congo (Armed Forces of the Democratic Republic of Congo)
GTZ	German Society for Technical Cooperation
HIK	Heidelberg Institute for International Conflict Research
HIPC	Highly Indebted Poor Countries
HRW	Human Rights Watch
ICG	International Crisis Group
INICA	Initiative for Central Africa
IPIS	International Peace Information Service
ICF	International Currency Fund
MONUC	Mission de l'Organisation des Nations Unies en République Démocratique du Congo (United Nations Mission to the Democratic Republic of Congo)
NATO	North Atlantic Treaty Organisation
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Cooperation and Development
PPP	Public Private Partnerships
RAID	Rights & Accountability in Development
UN	United Nations
UNDP	United Nations Development Programme
USA	United States of America
USAID	United States Agency for International Development
WBGU	Scientific Advisory Board of the German Federal Government on Global Environmental Change

1 Introduction

The Democratic Republic of Congo has enormous economic potential thanks to its raw material wealth. However, since 1996 (if not before) DR Congo has been seen as a classic example of the linkage between the exploitation of raw materials and the financing of war. The UN Panel of Experts on the Illegal Exploitation of Natural Resources in DR Congo points out that the history of Congo since colonial times has been marked by systematic abuse of natural and human resources (UN Panel 2002). The UN Panel of Experts and the work of NGOs have helped to reveal rebels, senior military figures and private companies as profiteers from the exploitation of raw materials and to identify channels of financing the violent conflict in Congo since 1996 (see reports from the UN Panel, Pole Institute, Global Witness, HRW). Foreign companies mining, trading in or processing raw materials in DR Congo have also been regularly criticised as sharing responsibility for the ongoing violence, principally in the eastern Congo (UN Panel 2002, Cuvelier/Raeymaekers 2002, RAID 2004).

Practically every major escalation in conflict in recent years between the various players in Congo has been connected to the management of, or the (legal or illegal) revenues from, natural resources, particularly from mining. This observation was also backed by data from the HIIK's CONIS information system. In 2008, eight of nine conflicts in Congo related at least in part to resources – five being violent and three non-violent (HIIK 2008). Following the coltan boom of 2000/2001, it now primarily profits from the mining and sale of the tin oxide ore cassiterite which continue to serve as the key means of financing violence (see Garrett 2008).¹ In DRK it is not only the mining and sale of coltan and cassiterite which represents a nexus of conflict and resources however. Alongside timber, diamonds, oil and gold, it is above all the mining and sale of copper and cobalt from the so-called copper belt in the south-east of the southern province of Katanga which is making the security situation in the province unstable. Both copper and cobalt are key raw materials with regard to economic development trends in future technologies: Copper is much in demand among other reasons because of its high electrical conductivity. Cobalt is an essential component material in a range of applications including batteries, superalloys and synthetic fuels.

The report is divided into a case study section and four scenarios. The case study analyses the current status quo of the conflict/resources nexus, focusing on potential conflict risks as well as opportunities arising from the situation in 2010. Building on that foundation, the following four scenarios describe various possible developments through to the year 2020. At the end of each scenario the characteristic features of the descriptors are summarised again in tabular form. The conclusions draw together the

¹ The conflict/resources nexus in DRK is often equated with the mining and sale of coltan, a niobium/tantalum ore also used by warring parties as a source of finance (see below).

findings from the case study and scenarios to present the main conflict risks arising in relation to raw material exploitation.

2 Case study: Cobalt and copper in Congo

Congo's copper belt is home to significant reserves of high-quality copper and cobalt.² Notwithstanding its fragile statehood and almost total lack of infrastructure, Congo is the world's largest exporter of cobalt.

Figure 1: Map of the province of Katanga in south-eastern DRC



Source: ICG 2006

Katanga remained largely untouched by the wars between 1996 and 2003.³ Nevertheless, the political, social and economic situation in Katanga was – and remains – under strain (see International Crisis Group 2006). The copper belt brings together a number of factors which resulted in that instability and which, in

² The copper belt extends from Zambia across southern DRC – passing by way of the towns of Lubumbashi, Likasi and Kolwezi – to Angola.

³ The main reason for this is that rebel leader and later President (up to 2001) Laurent-Désiré Kabila, the father of current President Joseph Kabila, came from Katanga.

combination, have frequently led to violence, and indeed are likely to continue doing so. The factors are:

- weak state structures (principally with regard to the rule of law);
- neo-patrimony paired with corruption and patronage;
- widespread poverty and high unemployment;
- high levels of immigration from other provinces;
- desolate economic infrastructure;
- large number of manual prospectors ('creuseurs');
- resumption of industrial production by foreign investors; and
- fluctuating copper and cobalt prices.

The conflicts in Katanga are numerous but at a low level of violence. Due to the generally tense situation, however, these conflicts may erupt into violence at any time, as recurred most recently in 2008 by the actions of groups of angry creuseurs against mining corporations (Spittaels/Hilgert 2008). Accordingly, the Congo-based Pole Institute asserts: "As mining constitutes a much larger part of economic activity in South Katanga than in [the eastern Provinces] Kivu, mining conflicts are much more important and become much more vicious" (Johnson/ Tegera 2005: 6).

The following sets out the raw material related conflict trends in relation to Katanga, taking the current situation as the starting point. Based on the factors within the conflict/resources nexus, the predominant conflict constellations in this context are identified and analysed.

2.1 Resource type and strategic relevance

Copper is one of the oldest metals to have been used by humans, and still today it remains a key raw material for industrial production processes thanks to its good conductivity of heat and electricity. It is used, for example, in building construction, transport, electrical cables and products, as well as in machines. The outstanding property of copper which makes it so hard to replace is its electrical conductivity.

Copper ores occur relatively frequently in the Earth's crust. According to the USGS (2008), worldwide copper reserves total approximately 490 million tonnes and the reserve base is 940 million tonnes.⁴ Chile is the largest copper ore producer, well ahead of Peru, USA, China, Indonesia, Kazakhstan and Australia (see Angerer et al. 2009). Forecasts predict that demand for copper will continue to rise: Angerer et al. (2009: 250) estimate that it will triple by 2030, and state: "Most future technologies are inconceivable without copper". A mobile phone contains about 9 – 16 grams of copper. At the same time, the potential for recycling copper products is very high (2005 in Germany: 54%). Moreover, potential substitutes are available for some applications in the form of aluminium, titanium, fibre-glass and plastic (BGR 2005).

⁴ Reserves are the economically and technically exploitable portion of the reserve base at the given point in time.

Cobalt is a material found alongside copper and other ores in the Earth's crust. It is considered harmful to health, and should be subject to safety regulations in handling (Angerer et al. 2009). Its potential uses are wide-ranging, though it is (and will be) in demand particularly for batteries, superalloys and, in future, for synthetic fuel needed primarily for high-tech and leading-edge technologies (European Commission 2010).

DR Congo is the world's leading source of cobalt, producing 41 percent of the total mined globally, followed by Canada (11%) and Zambia (9%) (data from 2008, European Commission 2010).⁵ In view of this importance of Congo to global production, allied to the country's instability and the economic significance of the material, cobalt is classed as a "vulnerable raw material" (Angerer et al. 2009: 258) and as "critical" for the EU (European Commission 2010: 6). The largest percentage of global demand regionally comes from Europe (30%). Cobalt is an expensive metal (the price doubled in 2004), as a result of which the incentive for recycling is high. Substitution is currently only possible based on major reductions in output (BGR 2005).

Copper and cobalt in Congo

The 300 kilometre long central African copper belt extends from Zambia through DR Congo to Angola. In Congo, the copper belt runs along the Congo/Zambia and Congo/Angola borders through the southern province of Katanga. Congo's copper belt contains about one third of the world's cobalt and high quantities of copper (6% the global reserves) as well as other raw materials including zinc, uranium, silver and germanium (Berke et al. 2007). The copper and cobalt main mining areas in Katanga are around the towns of Lubumbashi, Likasi and Kolwezi. Copper and cobalt are mined principally in the form of heterogenite (ore enclosing copper, cobalt, zinc and other metals) located 15 to 30 metres below ground. Congo's copper/cobalt ores are mined both underground and in open-cast mines, and are classed as very high-quality. Nevertheless, Congo is considered to be underexplored (Berke et al. 2007).

State-owned mining company Gécamines (Générale de Carrières et des Mines) had dominated the industrial mining and processing of the minerals in Katanga.⁶ Due to mismanagement, Gécamines production figures fell steadily through the 1970s, until ultimately, in the 1990s, the company effectively collapsed. Since that time the ores in Katanga have been mined manually by creuseurs. Under Joseph Kabila the economy was liberalised in order to rescue the state-owned businesses from bankruptcy and mobilise revenues for the state. During and after the war, numerous licences for raw material exploitation were awarded, often as joint ventures with Gécamines. Gécamines is currently undergoing fundamental restructuring with the aid of the World Bank (see World Bank 2008), which has initially resulted in the dismissal of more than 10,000 miners who for the most part are now earning a living as illegal creuseurs

⁵ DR Congo even accounts for 71% of European cobalt imports (in 2007; European Commission 2010).

⁶ Gécamines concessions cover an area of more than 30 000 m² and are spread around the towns of Kolwezi, Likasi and Lubumbashi, with reserves of approximately 30 million tonnes of copper and 3 million tonnes of cobalt (Fatal Transaction 2006).

(Global Witness 2006: 10, Braeckman 2008). Industrial production is increasingly being resumed thanks to the renewed commitment of foreign investors and the regeneration of Gécamines. Industrial and non-industrial mining currently co-exist (see below).

The raw materials of Katanga have been, and are, the most important and lucrative export commodities for the Congolese government. At present almost half of the state's total revenues come from the Katanga raw material sector (according to data from the Mining Minister of Katanga, Barthelemy Mumba Gama; Wild 2008). However, the relative shortage of copper and cobalt means their prices are subject to severe fluctuation. After being mined, the ores are sold to trading companies (with manually prospected ores usually being traded by way of intermediaries). They are exported either directly or following processing (Fatal Transaction 2006). According to the 2002 Congolese Mining Code, officially the materials must be processed in the country, so that the economy can profit from that source of value creation. The raw materials of Katanga are mainly exported via Zambia and then transported by train or truck to the ports of Durban or Dar Es Salaam. Two thirds is shipped to China, the rest to other countries in the Far East, Europe and the USA. A point of note is that the entire economy of Katanga is focused on the mining, sale, processing and shipping of raw materials. The productivity of the raw material sector is well below its potential however. The reasons for this are set out in the next section on the prevailing political, social and economic conditions.

2.2 Political, social and economic conditions

DR Congo is considered not only to be a classic example of a conflict/resources nexus, but also in terms of the fragility of the state, based on a number of interlinked factors. As listed in box 1, Congo is low – or even last – in the worldwide rankings in every category of data presented here as indicators of the prevailing political, social and economical conditions.

Box 1: Bewertung des politischen, sozialen und ökonomischen Umfeldes der DRK in Indizes

<u>Failed State Index 2008⁷</u>		Rang 6 von 177 Staaten
Rang 1 = fragilster Staat		
<u>The Worldwide Governance Indicators Project 2008⁸</u>		
• Voice and Accountability	8.7	
• Political Stability	2.4	
• Government Effectiveness	1.4	
• Regulatory Quality	8.3	
• Rule of Law	1.4	
• Control of Corruption	3.9	
Werte in Prozent. 100% = beste Bewertung		
<u>Freedom House 2008⁹</u>		
• Political Rights Score	5	
• Civil Liberties Score	6	
• Status	Not Free	
Wertung von 1-7. Wertung 1 = höchste Freiheitsstufe		
<u>Human Development Index 2008¹⁰</u>		Rang 177 von 179 Staaten
Rang 1 = höchste Entwicklung		
<u>Corruption Perceptions Index 2008¹¹</u>		Rang 171 von 180 Staaten
Rang 1 = geringste Korruption		
<u>Doing Business 2009¹²</u>		Rang 181 von 181 Staaten
Rang 1 = bestes Umfeld für Geschäftstätigkeiten		

In the following specific factors influencing political, social and economic conditions are considered in more detail. In order to trace out the current conflict processes in Congo, a brief overview is initially presented of the recent history of conflict in Congo and in the province of Katanga.

⁷The indicators applied cover social, economic and political aspects. Details: Foreign Policy / Fund for Peace 2008.

⁸ (World Bank Group 2008)

⁹Indicators: Political rights (Electoral Process, Political Pluralism and Participation, Functioning of Government); civil liberties (Freedom of Expression and Belief), Associational and Organizational Rights, Rule of Law, Personal Autonomy and Individual Rights) (Freedom House 2008).

¹⁰ The rankings relate to data from 2006. Indicators: HDI value; Life expectancy at birth; Adult literacy rate; Combined primary; secondary and tertiary gross enrolment ratio; GDP per capita (UNDP 2008).

¹¹ (TI 2008).

¹² Indicators: Starting a business; Dealing with construction permits; Employing workers; Registering property; Getting credit; Protecting investors; Paying taxes; Trading across borders; Enforcing contracts; Closing a business (International Bank for Reconstruction and Development / The World Bank 2008).

*History of conflict in Congo and the province of Katanga***Box 2: Database KOSIMO/CONIS**

- Conflicts in 2008
- Non-violent (no longer violent) conflicts
- 6 violent conflicts
- 1 violent conflict in northern Katanga
- 8 conflicts result at least in part from resource issues (including the conflict in Katanga)

Source: Heidelberg Institute for International Conflict Research

DR Congo has been systematically exploited by dictators and their supporters since the country gained independence from its colonial masters. Brief phases of investment and development (under Mobutu Sese Seko and Laurent-Désiré Kabila) were followed by lengthy periods marked by corruption, patronage and warfare. In the 1990s and early 2000s, civil war parties, numerous rebel groups and local militias (Mai-Mai, etc.) were joined by forces from nine neighbouring countries in the battle to share in Congo's resource wealth. The security situation in Congo – in particular its eastern provinces – is still today extremely tense as a result of attacks by rebels, militias, marauding Congolese soldiers and criminals. The conflict has claimed some four million victims in total over the last two decades: by direct violence and, above all, by displacement, hunger and disease. Consequently, the conflict in Congo around the turn of the millennium was the most costly in terms of human losses since the Second World War. The province of Katanga (between the 1970s and the 1990s known as Shaba) has always been a hotbed of secessionist tendencies, not least owing to its raw material wealth (see Ngoie/Omeje 2008). In the early 1960s through the birth years of the country's independence, the secessionism in Katanga was suppressed with the aid of military assistance from the UN. The first Shaba crisis occurred under the rule of Mobutu in 1977, and the second came in 1978. On each occasion the violent bid for autonomy was suppressed with foreign military assistance (mainly from Belgium, France and the USA). The last time to date when voices were raised in favour of autonomy for Katanga was in the final decade of Mobutu's rule in the 1990s, accompanied also by ethnically motivated conflicts between Katangans and immigrants from other provinces of DRC.

At present Katanga is relatively calm compared to the Kivu provinces in the east of the country. There are, however, regular isolated attacks by Mai-Mai militias in northern Katanga and by Congolese soldiers throughout the province.¹³ There is a limited military presence in the copper belt. Many of the forces have been deployed for re-integration training (Brassage) to other areas of Katanga. However, the soldiers are paid extremely poorly – if at all. This provides incentives to procure an illegal

¹³ An annual update on violent attacks in Katanga is provided on the Internet at <http://www.ipisresearch.be/natural-resources.php>.

(additional) income from raw materials. One possibility in this respect is "taxing" of raw materials by setting up road-blocks or, more rarely, occupying mines (Spittaels/Hilgert 2009: 9). The presence of marauding gangs likewise poses a security problem, though less so in Katanga than in other parts of the country (Spittaels/Hilgert 2009). Despite the limited presence of the aforementioned violent parties, they do add to the general feeling of insecurity among the local populace. Other sources of conflict are detailed in the section relating to the various conflict constellations.

Development status of the state, the economy and society at large

After over 40 years of dictatorship, democratic elections were held in Congo in 2006. Incumbent Joseph Kabila was re-elected as President. Despite the elections, the Democratic Republic is classed as a fragile state in which the key functions of government (security, welfare and rule of law) are not being fulfilled, or are being fulfilled only in part. In fragile states, governmental institutions co-exist alongside neo-patrimonial rulership structures. For Congo this means that government office is exploited as a means of self-enrichment, backed by patronage networks (see Ngoie/Omeje 2008). The extensive corruption all across the country resulted in the disappearance of 1.3 billion Dollars in government funds between the 2006 elections and mid-2008. That represents more than the country's official total revenues for 2007 (Johnson 2008, Kodi 2008). The centralist state structures, the lack of clarity in allocation of functions among government agencies, the restricted budgets of governmental institutions and, not least, the criminal networks of political, economic and military elites explain the limited ability and lack of willingness of many government officials to perform their duties.

Congo is lagging far behind in terms of its development as a welfare state, and without more intensive effort will attain none of the MDGs (Millennium Development Goals) (UNDP 2009). Among the Congolese population, high levels of poverty and unemployment prevail, alongside low educational standards and short life expectancy. People make a living primarily from agriculture or by informal work, particularly in manual prospecting. State mining company Gécamines had in the past performed a welfare role in Katanga. Since the collapse of the company in the early 1990s, transport infrastructures, schools, hospitals etc. have been maintained to the best of their abilities by the Katangans themselves, or by civic groups. Since industrial production has been resumed, the Katangans expect the companies involved to provide such services. One company employee commented: "We do run the risk of being viewed as a substitute for the government and there's a lot of challenges managing the expectations of local communities" (England 2006). In some isolated cases, and to a very limited extent, the companies are meeting that need, though they regard the Congolese government as being principally responsible for doing so (Business Day 2008).

The Worldwide Governance Indicators Project adjudges the rule of law to be practically non-existent in Congo (see also Kodi 2008). The country does have laws which on paper conform to international standards, but there is a lack of enforcement. This is primarily attributable to the government's lack of monopoly of powers, the centralist system, a

shortage of funds and expertise, as well as corruption and patronage. The lack of enforcement of laws is a serious problem, as it creates a climate of immunity from prosecution, which in turn leads to insecurity. In the mining sector, a Mining Code in line with international standards (Code Minier) was passed in 2002. It reorganised the relationships between the various players in the formal and informal mining industry, as well as seeking to attract new investors based on liberalisation.¹⁴ It provides for a future government role as a regulator of the mining sector rather than as an operator. It also established processes to combat corruption (IWF 2002, World Bank 2008, Global Witness 2004). The law remains largely unenforced in the industrial mining province of Katanga. Consequently, the estimated 100,000 to 300,000 people engaged in manual prospecting continue to suffer from a lack of stability in terms of employment security and status, and the conditions for economic development could hardly be worse. The DRC is ranked last in the Doing Business Atlas for 2009, and comes 173rd out of 181 countries in the subcategory relating to the implementation of treaties (International Bank for Reconstruction and Development/The World Bank 2008).

Among the major obstacles to investment are: inadequate infrastructure; bottlenecks in the financial sector; inflexible formal labour market; high taxes; virtual impossibility of asserting property rights; corruption; bureaucracy (Berke et al. 2007).

For industry, the situation is currently being made more difficult by reviews of already awarded mining licences. Two commissions of enquiry (2005 and 2007) came to the conclusion that of over 60 contracts not one was legally enforceable and a third of them would have to be annulled (Braeckman 2008). According to critics, the more than 30 joint venture contracts involving Gécamines contained provisions severely unfavourable to Gécamines, and thus to the Congolese state (World Bank 2008; Global Witness 2008). Contracts also entailed tax breaks or exemptions lasting as long as 30 years for some companies, resulting in substantial loss of revenue for the state (Braeckman 2008). The current reviews relate to existing contracts with Western and Far Eastern companies. They include the at least 9 billion US Dollar agreement between Congo and a Chinese consortium. Critics of this deal highlight in particular the lack of transparency as to how it came about and regarding its provisions, as well as the long-term tax exemptions granted to the Chinese investors in return for infrastructural assistance (World Bank 2008).

Mining companies should officially pay mining levies (2.5% on copper, 0.5% on cobalt), 30% corporation tax, 2 to 5% import duty and 1% tax on exports (Berke et al. 2007).¹⁵ The enforcement of existing laws and regulations remains inadequate throughout Congo however. In Katanga, this creates loopholes for companies, who frequently fail to pay all their statutory levies in full (Misser 2008). Raw material smuggling takes place in some cases. Despite the new rules relating to the processing of ores aimed at increasing government revenues, generating development and diversification and

¹⁴ The reforms to the mining sector are part of the EMRP (Emergency Multi-sector Reconstruction Programme) of the World Bank and the International Currency Fund (Berke et al. 2007).

¹⁵ See detailed listing of levies in the raw material sector under World Bank 2008: 19.

creating jobs, in 2007 some 90% of the exported raw materials remained unprocessed (INICA 2007).¹⁶ Moreover, export controls are being undermined by corruption. Governor of Katanga Moïse Katumbi, who was elected in 2007, claims that the situation has improved in this regard however. He states that export revenues rose from 21 million US\$ in 2006 to over 152 million US\$ in 2007 (Business Day 2008). The provincial government is also attempting to more effectively enforce the law stipulating that only processed ore may be exported, and in 2007 placed a temporary ban on exports of unprocessed cobalt ore (Reuters 2008). As a consequence, large numbers of small-scale refineries were established within a very short space of time, run by entrepreneurs from China, India and the Gulf states. Critics claim that government officials were bribed to award planning permission to build the refineries and that the refineries are contributing to contamination of the ground-water (Braeckman 2008).

Despite the poor investment climate, driven by high raw material prices up until the financial crisis hit in mid to late 2008 many existing companies have resumed production in the copper belt, or new businesses have located to the region. The companies are responding to the special challenges in Congo in very different ways: "The fundamental problem is there's no government, no rule of law. It means the companies have to take on roles they would not do in any other country, dealing with transparency and corruption, seeing the police are trained and not committing human rights abuses" (England 2006).

In Katanga there is not only a legal raw materials industry however. As in all other parts of the Democratic Republic of Congo where raw materials are easily accessible for exploitation, political and economic uncertainties in Katanga have favoured the establishment of informal employment and the creation of criminal and shadow-state networks. Some 80% of the total official exports of copper and cobalt in 2006 were mined manually (World Bank 2008) and 40 to 60% of them illegally (Hayes et al. 2007). A major role in this process is played by criminally organised intermediaries, comprising "a small group of political and military elites and business people from DR Congo and other countries" (Berke 2007: 44). They profit from:

- theft;
- misappropriation of public revenues;
- undervaluation of raw materials;
- smuggling;
- falsification of invoices;
- tax evasion; and
- active and passive bribery (Berke et al. 2007: 45).

The legal and illegal systems are inseparable (see Westerkamp et al. 2009). On the one hand, there are mutual interdependencies, such as due to the purchase of illegally/manually mined ores by authorised businesses; on the other hand, there is

¹⁶ There is no adequate or reliable data on export volumes. Congolese raw material exports are estimated based on other countries' import data (INICA 2007).

competition between the two systems for the mines, such as between those profiting from illegal mining and the companies engaged in legal mining operations.

Economic development in Katanga is restricted solely to the raw materials sector. It offers quick profits for the state and for business without need of high investment. There is no effective diversification of the economy being promoted. Fluctuations in copper and cobalt prices and demand elicit a direct response by the companies concerned, resulting in their production either being intensified or stopped accordingly – with corresponding consequences for employees, component suppliers and the population at large. The working conditions and standards of occupational health and safety for the hundreds of thousands of creuseurs are catastrophic. They work with no appropriate equipment or safety gear, in unsecured mines (both open-cast and underground), in a climate which poses a risk of harm to health and without any financial security in the event of being unable to work (such as due to illness).

Neither the government nor business takes adequate responsibility for the welfare of workers (Global Witness 2006). Nevertheless, manual – and mostly illegal – work in the copper belt does offer a source of income, not only for the creuseurs themselves but also for their families.¹⁷ This also applies with regard to children who, according to estimates, account for up to 40% of the manual workforce (World Bank 2008). Due to the lack of economic diversification, even better qualified staff is unable to find employment other than manual work in the mines. According to United Nations estimates, one in five people is depending on mining (Wild 2008). The new Mining Code stipulates that creuseurs must be licensed, and may only work in licensed mines. However, in 2007 only about one in five of all miners held such a permit, and very few mines were licensed for manual exploitation (Berke et al. 2007).

The mining sector in Katanga is no longer offering the employment prospects that it once did. Since late 2008/early 2009, due to the fall in the price of copper and the reduced demand for cobalt in the wake of the global economic crisis, markets for the manually mined ore in the Far East have virtually disappeared. It is estimated that 200,000 creuseurs have so far lost their jobs. The formal mining sector is also suffering from the price drop. By the end of 2008 around three quarters of all mining companies had been shut down (Misser 2009). According to Katangan Mining Minister Barthelemy Mumba Gama, up to 300,000 jobs were lost in total (Wild 2008).

The region as a whole is additionally suffering from so-called "Katanga Syndrome" – far-reaching and systematic environmental destruction due to the consequences of non-sustainable (and unregulated) mining of non-renewable raw materials. The environmental degradation is destroying eco-systems, contaminating fertile land and bringing about loss of biodiversity, soil erosion and pollution of the air and water (WBGU 1996). The consequences for the population extend from harm to health to enforced migration (see Global Witness 2004). Existing environmental regulations are inadequate in terms of preventing and mitigating those consequences – and above all they are inadequately enforced (World Bank 2008).

¹⁷ Each creuseur feeds approximately ten other family members (Misser 2009).

The fluctuating trends in the industrial and manual mining sector in Katanga are also causing massive social change. The same patterns are being seen in Katanga as in other mining regions of Congo: marginalisation of agriculture; precarious employment conditions and family circumstances; falling rates of school attendance; increasing criminality and violence; increasing prostitution and lasting environmental degradation (see Tegera 2002, Tegera/Johnson 2005). Profits from the raw materials sector are being privatised and losses socialised.

2.3 Conflict scenarios

The fate of Congolese society is closely linked to the conflict/resources nexus. All areas of social life are overshadowed by the state of the raw materials sector. Conflicts arising between players within Congolese society are usually linked to the country's resources. Resources are linked to conflict in two areas (USAID 2005):

- distribution of mining assets and profits;
- access to, execution and ceasing of mining projects; as well as the social and ecological consequences of mining.

There are conflict constellations between various players in the two areas. The players in the conflict/resources nexus in Katanga can be classified into the following groups:

- government (Kinshasa, Katanga);
- business (Far East, West);
- profiteers from informal mining;
- local populace, creuseurs;
- immigrant workers from other provinces;
- financial institutions (investors).

The fragile political, social and economic conditions in Katanga have created a high degree of uncertainty and dissatisfaction among the population at large. "In a province which has always been prone to secessionist tendencies, widespread poverty and unemployment, a general feeling of lawlessness and futurelessness, underinvestment in education and health care, and environmental issues serve as a breeding ground for violent conflict." (Fatal Transaction 2006: 39). Moreover, a lifestyle has grown up in the mining regions which is far removed from traditional social structures, values and norms. This state of affairs thus means that there is a lack of the social cohesion which is a key factor in terms of conflict prevention and reduction.

Any change in the situation perceived as being unfavourable to one of the groups concerned might well lead to rapid escalation in smouldering or new conflicts. There are non-violent and violent conflicts in Katanga in both areas. The following sets out the various conflict constellations between or within the groups involved in the aforementioned areas.

2.3.1 Conflict constellations relating to the distribution of mining assets and profits

Players

- Government
- Business (Far East, West)
- Financial institutions
- Local populace

In order to ensure transparency in the mining sector, prior to beginning raw material extraction the government, business and the affected local populace should ideally be brought together in a consultative process. This is not the case in Katanga, as a result of which a lack of transparency in awarding contracts and failure to consult the affected local populace (World Bank 2008) is creating a line of conflict between government and business on the one hand and the local populace on the other.¹⁸ The Katangans hope to profit from the investment being made by foreign companies.¹⁹ Yet the existing contracts primarily seek to ensure that the companies concerned make high profits based on extensive tax breaks, while the local populace must for the most part suffer the negative environmental consequences of production operations. "This situation has created deep resentment among the population of Katanga, not only towards the government, but also towards the foreign companies who are perceived as playing a predatory role and 'stealing' the country's natural resources." (Global Witness 2006: 34). The consequence of this uneven distribution of income is dissatisfaction, or even resentment, among the population of Katanga towards the government and the companies concerned.

Another conflict constellation prior to beginning raw material extraction is currently coming to a head between Western and Far Eastern – especially Chinese – companies. These non-violent conflicts arise from commercial competition among the companies for the raw materials of Katanga. There are differing views as to how this trend should be judged: While some point out the new development opportunities being opened up by China's investment, other talk of a new wave of colonialism (Beekmans 2008). The strategy underlying this form of cooperation is based primarily on rapidly implementing infrastructure projects in return for access to raw materials. The attractions of these constellations for Congo reflect the country's macroeconomic situation, whereby it is forced to spend a third of its budget every year on interest payments on its over 10 billion Dollars of debt. DR Congo would actually qualify for the International Currency Fund's HIPC (Highly Indebted Poor Countries) debt-relief initiative, but it is at present unable to comply with the economic and fiscal

¹⁸ The DR Congo is a candidate for the EITI. The aim of the EITI is to create transparency in the raw materials sector with regard to payment flows between business and government and to the allocation of funds. This process has currently come to a standstill in Congo (Lempa 2008).

¹⁹ "People are not against foreign companies but are against the way the foreign companies came in." (interview with Hubert Tshiswaka Masoka in England 2006).

preconditions (German Foreign Ministry 2008). At the same time, it is claimed that only about a third of the promised international reconstruction aid has actually been provided to date (Braeckman 2008). Even without the problem of corruption, rapid (re)construction of (welfare) state services in the enormous country would be very difficult. Consequently, China's offer to provide billions in investment in Congolese infrastructure in return for raw materials – in short, "raw materials for infrastructure" – appears to represent one way out of the situation.²⁰

Critics of the agreements, however, point out that China has imposed no conditions on the Congolese government for the provision of such investment, whereas international financial institutions link the granting of loans to a range of conditions, from environmental compliance to good governance criteria.²¹ Critics further claim that Chinese companies are even less inclined to comply with international employment, social and environmental standards than western businesses, but are largely able to avoid any public opposition (Eveleens 2008, see also Asche/Schüller 2007 and 2008).

Criticism has also arisen that the Chinese commitment in Congo has to date had little positive social effect. Chinese workers are employed both in the mines and on infrastructure projects. And Chinese companies are importing all the material they need for their projects and economic activities from China. As a result, Chinese business is making a very limited contribution in creating new jobs for the Katangans or in boosting demand for local markets and suppliers. Thus the Chinese commitment has obviously raised a great many hopes which have remained unfulfilled. One consequence can be seen in the regular reports of violence and crime against Asian nationals (Misser 2009).

The government's distribution of revenues from raw material extraction also entails major potential for conflict (INICA 2007). By establishing a culture of rent-seeking, corruption and immunity from prosecution in Congo (World Bank 2008), the state and its institutions are not fulfilling the expectations of the Katangan people that they should profit from the province's raw material wealth. So, according to Berke et al., "No correct and proper appropriation of state revenues [...] through the current structures is guaranteed." (2007: 51). According to the law, 40% of revenues from the raw materials sector should be directed back into the province. This is not happening to date. Consequently, Katanga's Governor is setting forth the idea that the government in Kinshasa is purposely holding back economic growth in Katanga in order to suppress secessionist tendencies (Braeckman 2008).

²⁰ This approach includes the construction of 3,500 kilometres of roads and railways, 31 hospitals, 145 polyclinics, universities and schools (Braeckman 2008).

²¹ As part of DR Congo's debt relief, the ICF is demanding that the new indebtedness resulting from the contracts with China (as DR Congo is guaranteeing the Chinese loans) should be integrated into the Congolese budget (Ostheimer 2008).

2.3.2 Conflict constellations relating to access to, execution and ceasing of mining projects and to the social and ecological consequences of mining

Players

- Government
- Business
- Profiteers from informal mining
- Local populace/ creuseurs
- Immigrant workers from other provinces

Mining is leading to simmering conflicts which in many cases are escalating into violent attacks. Conflicts are arising between government, business, profiteers from informal mining, creuseurs and the local populace. There are multiple lines of conflict between these various players which are not clearly distinguishable from one another. In the view of some NGOs, the following grievances in Katanga are increasing resentment among the population against the government, the companies and immigrant workers which can regularly spill over into violence (Global Witness 2006, Spittaels/Hilgert 2009):

- inadequate enforcement of laws and regulations (e.g. Code Minier);
- failure to take responsibility for the working conditions of creuseurs;
- behaviour of the companies' security staff against creuseurs.

The inadequate enforcement of laws and regulations is reflected in the failure to take responsibility for the welfare of the local populace and thus also for the working conditions of creuseurs. The working and living conditions of the creuseurs provide a breeding-ground for the conflict/resources nexus. According to NGOs, there is a lack of willingness on the part of the state and of business to address this problem: "The risks are well-known to the authorities and to the companies buying from these mines; yet by the end of 2005, fatal accidents were still occurring regularly and the government had not adopted any strategy of prevention." (Global Witness 2006: 26). Moreover, the mining and processing of raw materials entails severe environmental damage. As there is a lack of essential regulation – or existing regulations are inadequately enforced – the consequences of mining are additionally worsening the living conditions of the people of Katanga. The health-endangering and unsafe living conditions are causing resentment on the part of the manual workers especially. This is resulting in conflict with three different parties/groups:

1. Government

The provisions in the Mining Code regulating manual, informal mining exhibit major deficiencies (Global Witness 2006). They offer workers no reliable protection, and provide no means for them to organise in order to assert their rights. There are also reports that activists seeking to expose corruption in the mining sector are being threatened by state agencies (Global Witness 2006). This is engendering a tense situation in the mining regions which can escalate rapidly into violence on the part of

the government and the creuseurs. There have been repeated clashes between police and creuseurs, resulting in fatalities and injuries (Eveleens 2008).

2. Immigrant workers from other provinces

The opportunity to work in the mines of Katanga attracts many Congolese from other provinces. As a result, the population of Katanga is very varied in ethnicity. The consequences of this trend include reports of ethnically motivated violence against immigrants. The most serious confrontations to date occurred in 1992 and 1993, when the Governor of Katanga at the time and his youth militia murdered more than 5,000 people from Kasai, and over a million people were forced to flee Katanga (ICG 2006).²² That incident continues to have repercussions in the region around the town of Kolwezi where it took place. So tensions persist between the indigenous population and immigrants which regularly erupt into violent attacks (Spittaels/Hilgert 2009: 8): "Tensions between native Katangans and Kasaians have now crystallised into a new, violent rivalry" (ICG 2006: 6). Further evidence of the tension-inducing role of ethnicity is provided by a suggestion from the Mayor of Lubumbashi in May 2008 that the mobility of migrants should be restricted by a visa system for non-Katangans (Spittaels/Hilgert 2009). Misser further states that in the wake of the economic crisis there is a risk of "a renewed wave of ethnic pogroms" (2009).²³

3. Company

The business operations of the extracting companies and refineries in the copper belt have a major influence on the prospects for the Katangan people. There are high expectations, in particular, linked to job creation and improvement of the social infrastructure. The companies themselves are free in their operations compared to other regions, but at the same time they are exposed to specific risks from a fragile environment. Conflicts arise in this context in particular when the companies fail to take adequate account of the specific circumstances in Katanga – whether before, during or after completion of raw material extraction and/or processing. The security risks are addressed primarily by the deployment of security personnel, though they may become a conflict risk in themselves, depending on their conduct.

The greatest conflict risk in this context, however, is entailed by the competition for revenues and land rights. The resumption of industrial production means that industrial and non-industrial mining are co-existing in a largely unregulated manner, and illegal, manual mining is being increasingly eliminated. The consequences are recurrent violent confrontations between manual/illegal creuseurs and the companies'

²² The former Governor is currently back in a leading political post as the speaker of Katanga's parliament (Misser 2009).

²³ This history of conflict also indicates the risk of exploiting ethnicity for gain (Ngoie/Omeje 2008).: "The creuseurs are easily manipulated for political or commercial purpose and agitating them against a company or the larger community is a constant and underlying threat in all efforts to regulate the trade" (Hayes 2007: 39)

security staff. One example was the expulsion of creuseurs from an Anvil mine in 2006. This confrontation reportedly led to at least four fatalities (two creuseurs and two company employees). In response to subsequent protests against the company, the mine police opened fire on demonstrators (Global Witness 2006).

The situation between the companies and creuseurs is currently threatening to become even worse due to two additional factors. Firstly, industrial mining requires much fewer personnel, some of whom are even brought in by the foreign firms themselves (particularly the Chinese). This means that no positive effect is felt in combating unemployment (Braeckman 2008). Secondly, following the decline in demand and drop in price of copper and cobalt within just a few months hundreds of thousands of Katangans lost their jobs. The medium-term security effects of those two factors are barely possible to estimate at present. In the short term, more social tensions and increasing criminality are to be expected (Misser 2009). The UN Mission MONUSCO (formerly MONUC) is also planning to set up a commission of experts in order to gain a more accurate picture of the security situation in Katanga. MONUSCO states: "The social and economic consequences of the global crisis are being severely felt in Katanga province." (Afrol News 2008).

2.4 Interim conclusions

Katanga, as the economically most important province of the Democratic Republic of Congo, exhibits a high potential for resource conflict. A lack of participation in the distribution of profits and available jobs as well as serious environmental destruction (impacting also on subsistence agriculture) has caused major uncertainty and resentment among the population. This means smouldering or new conflicts may escalate rapidly. Further factors adding to the uncertainty are the effects of global trends, in particular fluctuations in raw material prices and economic crisis. Despite their widespread nature, conflicts in Katanga's copper belt are currently at a low level of violence compared to the conflicts in eastern Congo.

All the groups involved in Katanga are in some way linked to the raw materials sector – either in that they live in the mining regions, work in the raw materials sector, or are seeking to benefit from its profits. The conflicts primarily occur locally and to a limited extent. There are nevertheless also a number of global dimensions, not least because the mining industry feeds into global supply chains and responds to global market trends.

The causes of the conflicts in the copper belt are explained by the context. The fragile political, social and economic conditions are a breeding-ground for deep-seated uncertainty and dissatisfaction among the population at large. The government is performing inadequately in the provision of core state services – security, rule of law and social welfare. At the same time, political and commercial elites are grabbing the profits from the raw materials sector. Patronage and systematic abuse of government office for personal enrichment are key factors hampering political control. While profits are being largely privatised in this way, the negative consequences are being felt by society at large.

Owing to the low level of economic diversification, the only employment open to the population apart from agriculture is informal manual work in the mines. There is effectively no means of asserting rights against the state or obtaining legal recourse against businesses. The freedom enjoyed by businesses is dictated primarily by a lack of legislation – or where laws are in place, by a failure to enforce them – as well as by a lack of infrastructure and by the employment and social welfare expectations of the local populace.

Owing to the concentration of the economy on the raw materials sector, and in particular the export of copper and cobalt, the region is highly susceptible to price fluctuations and shifts in demand (which may also occur, for example, due to concerted recycling measures in dominant consumer countries). The restricted range of options open to the various players means they now have little ability to adapt to such changes.

Whether – and how – raw material mining and processing in Katanga will affect the security situation depends above all on the answers to the following questions:

- Can the link between public office and personal enrichment in Congo be cut, and will the problems of corruption and patronage be systematically addressed?
- Will the Congolese government and the provincial government in Katanga fulfill their governance obligations, particularly with regard to security and rule of law?
- Are the companies and financial institutions operating in Katanga willing to take responsibility and comply with the law, even if it is not enforced by the Congolese state?
- Can the economy in the region be diversified and open up prospects for generation of revenues beyond the mining sector?

3 Scenarios relating to copper and cobalt in Katanga (DR Congo)

RAW MATERIAL SHORTAGE		
C O O P E R A T I O N □	Scenario I: Development with obstacles Central government: bends to national/international pressure. International community: commits to improving stability in the country. Promotes socio-economic development. Winners in the informal sector: defend themselves with violence. Katangans: actively protest against prevailing conditions in Congo. High degree of solidarity.	Scenario II: Impending secession Central government: outdated structures are retained (corruption/patronage). Positions of power secured by repression. Provincial government: feels cheated by central government. Foreign investors: mostly withdraw. Katangans: options greatly restricted; violence often becomes the only means of expressing opinion.
	Overall dynamics Internal/external pressure causes the government to change its policies to introduce more democracy and sustainability. Spoilers can be defeated.	Overall dynamics Status quo as per 2009 with secessionist tendencies in Katanga.
	Scenario III: "Poor but peaceful" Central government: anti-corruption President. Promoting stability. Foreign investors: low levels of investment due to recession. International community: supports President.	Scenario IV: Regional destabilisation Central/provincial government: warring against each other to gain political power and influence/profits from raw materials. International community: withdraws support from Congo. Neighbouring countries intervene in the war. Winners in the informal sector: dominate the civil war economy. Katangans: are refugees.
	Overall dynamics Recession worsens the situation in Congo, which can be held in check by restructuring of state institutions and combating corruption.	Overall dynamics The international community withdraws due to recession and war. War for power and profits from raw materials destabilise the entire region.
RAW MATERIAL SURPLUS		C O N F L I C T

3.1 Scenario I: Development with obstacles in 2020

Global economic development

The boom in emerging economies such as India and China interrupted by the economic crisis is resumed in the early 2010s. The global economic recovery and the ongoing development of leading-edge technologies has led to a strong resurgence in demand for copper and cobalt, reaffirming the judgement of the United States Geological Survey citing cobalt as a key strategic metal (USGS 2005). The potential substitute materials for copper and cobalt remain restricted. Despite increased recycling rates, demand for high-quality primary materials remains high in 2020. Efficiency in use of the metals can be improved in industrialised nations, but the gains achieved are more than wiped out by a lack of progress in key developing and emerging economies. This results in significant price rises which at times go well beyond the levels seen prior to the global economic crisis of 2008/2009.

Developments in Congo and Katanga

With the end of the economic crisis, industrial production is resumed. This is done in the same way as immediately after the war back in 2003. New refineries are built and mines are recommissioned into production. National and international laws, regulations and standards protecting people and the environment continue to be ignored. This results in an incident in 2013 which costs the lives of 20,000 people and renders extensive areas of land in and around Kolwezi uninhabitable. Drinking water supplies are contaminated by toxic waste from a refinery. People die from poisoning and the water is permanently polluted.

The incident occurs at a time marked by greater public sensitivity to environmental issues around the globalised world. Public outrage about the human and ecological disaster, allied to concerted lobbying by human rights and environmental groups, increasingly forces politicians and business to take a proactive role in ensuring better socio-ecological standards are adopted. Among the consequences of this, the OECD guidelines for multinational corporations are enacted as legally binding laws in the organisation's member-states, complete with effective monitoring and sanctions mechanisms. For companies it becomes essential for the sake of their reputation to do business in an actively sustainable manner. Even Chinese companies follow the global trend towards greater sustainability and sensitivity to the local impact of their operations. There has previously been severe international criticism of their conduct in this respect. The governments of the companies operating in Congo as well as creditor institutions also pass on the pressure to the Congolese government, urging it to create conditions for the establishment of a sustainable system.

The Kolwezi disaster has after-effects within Congo too: The people form protest movements not only about the disaster but generally against their poor living conditions, the precarious security situation and government corruption. An alliance is created between a wide variety of civic initiatives to fight against the prevailing

conditions. The Governor of Katanga supports the popular movement, even against the resistance within his own ranks.

Congo's President and some members of its parliament accede to the national and international pressure. The international community takes the opportunity to act and in 2014 – under the leadership of the African Union, and with the support of the UN and the EU – instigates a new seven-year national assistance programme for Congo titled "Implementing Good Governance". The programme's approach is to address the people first and foremost, supporting their participation. The aim of the programme is to establish a peaceful, stable, democratic state founded on the rule of law.

After a few years the programme delivers its first positive effects in the raw materials sector. The reforms to the raw materials sector generate a substantial increase in government revenues, among other reasons, but essentially, because a review of mining contracts has rescinded the tax exemptions of up to 30 years granted to some companies and increased the government's share in joint ventures.

Some resistance to the political and economic changes also emerges however. The major barrier is posed by the existing criminal structures made up of elite figures from the political, business and military spheres. Before the new era was initiated they were among the country's political and economic winners. They band together into an alliance and try to retain their old rent-seeking structures. Applying guerrilla tactics, they carry out repeated attacks on active mines, attempting to take them over. These attacks threaten the still emerging trend towards a more stable rule of law and security in Congo. However, after two years – thanks to a number of concessions made to the rebel warlords' followers and to concerted action by FARDC and MONUSCO – the warlords' networks are finally broken up and the ringleaders are brought to justice. Shortly before, MONUSCO had been strengthened and restructured by way of a "last resort". 30,000 UN soldiers are now stationed in particularly insecure areas across the country.

Developments in Katanga

In Katanga, the situation for the local people has finally changed for the better thanks to the protests following the human and ecological disaster of 2014 and the setbacks in relation to the Good Governance Programme. For the first time, the people have a voice with which to influence their own governance. The Katangans are filled with a sense of solidarity and national pride. The payment of a decent living wage to civil servants means poverty-driven corruption can be reduced, but it remains a difficult task to convince everyone in Katanga, and indeed across Congo, that public office should not be primarily exploited as a means of personal enrichment.

Summary

In 2020, following some periods of uncertainty, a substantially positive economic and social trend has taken hold. Based on a 'carrot-and-stick' approach, national, regional and international players – in conjunction with the combined efforts of the Congolese people – have succeeded in preventing the disintegration of the state and opening the way to stability and prosperity.

Trends in the descriptors - Development with obstacles in 2020	
1. Consumer demand	
Potential for substitution/ Recycling rate/ Efficiency gains	Remain low for both raw materials
Strategic appreciation (with a view to economic and technological development)	Global economic and technological development has led to a strong rise in demand
2. Producer supply	
Number of suppliers/ Raw material distribution	Copper: broad spread. Cobalt: DR Congo dominating the market
Investment in mining capacities globally	High
Investment in mining capacities in case study region	Investments by foreign firms mostly in joint ventures with state-owned mining companies
Profitability of mining	High
Quantity globally	Copper high, cobalt lower
Quantity in case study region	Approximately 6% of global copper deposits and over 30% of cobalt
Quality in case study region	Very good quality
1. Producer behaviour	
State provision of security, welfare, rule of law	Rising steadily thanks to the international restructuring programme
Distribution of profits and losses	Increasingly more just
Rent-seeking (corruption, criminality/informality, militarisation)	Restricted
Exploitation of raw materials for political gain	
Economic diversification	Increasing
Guidelines for socio-ecological standards/ Corporate social responsibility	Being implemented/ Improving and being monitored
History of conflict	Long-standing history of conflict throughout Congo. Low level of conflict in Katanga. Security situation improving
Relations between producer and consumer countries beyond the raw material market (cultural/political relations)	Shifting from supplicant to partner
2. Consumer behaviour	
Foreign/economic/security/development policy to safeguard (strategic) raw materials	Pressure leads to international programme
Relations between consumer and producer countries beyond the raw material market (cultural/political relations)	See above

3.2 Scenario II: Impending secession

Global economic development: The global economic trend is as described in scenario I.

Developments in Congo

An amendment to the constitution enables Joseph Kabila to remain in office as President of the country until 2020. Democratic structures have not been able to take hold in Congo, and infringements of human rights are an everyday occurrence. Corruption and patronage remain widespread in all political and administrative agencies of the state and are undermining the country's development. The provision of state services, such as health care and education, to the Congolese people is woeful.

The multiplicity of problems in Congo and the sheer size of the country have so far rendered the half-hearted attempts by the international community to strength peace, democracy and development futile. To initiate the peace process in Congo, the international community had accepted as far back as the turn of the millennium that warlords and rebels are an integral part of the political power system and that organised crime structures will remain embedded in the country's political, economic and military spheres. The structures in question have not been eliminated, however, and the culprits have gone unpunished.

The government's budget remains dependent on revenues from raw material exports and financial support from bilateral and multilateral investors. Owing to poor budget control and lack of government cohesion, Congo is increasingly losing the trust of investors and is unable to benefit from international debt-relief programmes. Moreover, the ICF objects to the insufficiently amended Sino-Congolese contracts, which continue to incorporate loans from China and so entail billions in new indebtedness for Congo (Ostheimer 2008).

Developments in Katanga

There is strong demand for the raw materials of the copper belt thanks to the high-quality ores it produces, and lively competition ensues between the 'old' players in the West and the 'new' players on the market, principally from China. However, the long-term tax exemptions granted to extracting companies and the ongoing problems of raw material smuggling mean that far lower revenues are generated for the state from the raw materials sector than would otherwise be possible. The social benefits and infrastructure measures introduced by the Chinese companies are not maintained by the state as the years pass by, and increasingly fall into disarray. The state remains very limited in its ability to fulfill its social welfare obligations. The players involved in raw materials management plan only on a very short-term basis. The state and business are unable – or unwilling – to invest in economic diversification.

The perceptions of the Katangan people are changing. When industrial production was first resumed, for most of them economic development brought hope of an improvement in their living conditions. The people hope to profit from the competition for Katanga's raw materials. Local and regional government, civil society and the people themselves regard themselves as being proactive players in shaping the future of the raw material sector.

This emancipation phase does not last long however, because socio-economic and ecological conditions deteriorate markedly, based on a variety of factors. Most Katangans still see manual work as 'creuseurs', or prospectors, as being their sole means of supporting themselves and their families. Children, too, are forced to help out, and still account for about 40% of the total workforce (World Bank 2008). As a result of internal migration, and based on the hope of obtaining work, the population of Katanga is concentrated in the tented cities around the copper and cobalt mines – a situation which entails wide-ranging social problems. The only alternative to working as a creuseur is subsistence farming. Yet opportunities in that respect are diminishing, too, as a result of internal migration and the spread of environmental destruction due to the resumption of industrial production.

The government remains unable to enforce laws regulating the mining sector such as the Code Minier. The systems for licensing mines and creuseurs remain inadequate, and as a result most creuseurs work illegally. These workers have no security against enforced displacement, nor do they enjoy any occupational health and safety protection. National and international efforts to achieve transparency and combat corruption have failed to have any lasting impact. Socio-ecological standards remain voluntary.

The long-standing poor living conditions are causing rising resentment among the local Katangan people, who are increasingly gathering in potentially violent crowds. Many see no alternative to open – in some cases violent – protest. The government responds to these protests with repressive measures which further exacerbate the people's sense of impotence. The government increases its military presence in the region. The inadequately trained and underpaid Congolese soldiers are virtually beyond control, however, and attempt to profit themselves from the province's raw material wealth. MONUSCO has been withdrawn, and the judicial system is unable to punish crime due to corruption and lack of capacity. In view of the worsening situation, the companies increase their security precautions and resort to violent methods. They are prosecuted and sentenced – if at all – only in show-trials, as happened back in 2004 in the case of Anvil employees (Global Witness 2007).

The crisis situation in Katanga poses a dilemma for the companies. On the one hand, they are interested in Katanga's high-quality raw materials. On the other hand, the risks posed by the socio-political situation have become almost incalculable. Financial institutions and insurers refuse to grant loans or secure investments. As a result, Katanga attracts only highly risk-taking entrepreneurs who are primarily interested in extracting and quickly exporting the raw material. As the government remains unable to enforce laws regulating the mining sector, the informal raw materials sector spreads and the criminal networks boost their influence.

The dissent between the government in Kinshasa and the provincial government of Katanga grows steadily because the politicians in Katanga feel they have been cheated. This leads to a resurgence of old secessionist tendencies in the province, additionally prompted by the commercial profiteers and by the Katangan people, who regard the immigrant workers as intolerable competition.

Summary

The government, economy and society of Congo remain in a highly fragile condition in 2020. Congo is in a phase between war and peace. This ongoing situation is no longer discernible as a transitional state, moving away from fragility, uncertainty and lawlessness towards sustained peace. Instead, the conflict situation has been consolidated, and is threatening to erupt into open war based on secessionist tendencies in the province of Katanga. The essential characteristics of bad governance in Congo based on neo-patrimonial rulership structures are preventing the country from developing in any way and are narrowing the people's options. The problems of the raw materials sector in the copper belt remain the same as they were back in 2009: its profits are still being privatised and its losses socialised.

Trends in the descriptors - Impending secession	
1. Consumer demand	
Potential for substitution/ Recycling rate/ Efficiency gains	Remain low for both raw materials
Strategic appreciation (with a view to economic and technological development)	Global economic and technological development has led to a strong rise in demand
2. Producer supply	
Number of suppliers/ Raw material distribution	Copper: broad spread. Cobalt: Less concentration on DR Congo than in 2009
Investment in mining capacities globally	High
Investment in mining capacities in case study region	Investments by foreign firms mostly in joint ventures with state-owned mining companies
Profitability of mining	Only low levels of investment are required to generate high profits
Quantity globally	Copper high, cobalt lower
Quantity in case study region	Approximately 6% of global copper deposits and over 30% of cobalt
Quality in case study region	Very good quality
1. Producer behaviour	
State expenditure on security, welfare, rule of law	The basic functions of the state are still being inadequate fulfilled
Distribution of profits and losses	profits are being privatised by a small political and commercial elite and losses are being socialised
Rent-seeking (corruption, criminality/informality, militarisation)	The various players are engaging in a very high degree of rent-seeking. The informal sector is gaining further in importance as a result
Exploitation of raw materials for political gain	
Economic diversification	remains low
Guidelines for socio-ecological standards/ Corporate social responsibility	exist to some extent, but are not enforced. No sanctions are imposed on infringements
History of conflict	Long-standing history of conflict throughout Congo. Low level of conflict in Katanga.
Relations between producer and consumer countries beyond the raw material market (cultural/political relations)	Divided relationship with Western powers; relationship with Far Eastern powers characterised by pragmatism
2. Consumer behaviour	
Foreign/economic/security/development policy to safeguard (strategic) raw materials	Western industrialised nations providing modest assistance to Congo, linked to conditions. Involvement of Far Eastern powers is pragmatic
Relations between consumer and producer countries beyond the raw material market (cultural/political relations)	See above

3.3 Scenario III: "Poor but peaceful" in 2020

Global economic trends

The global economic situation does not recover in the years between 2009 and 2020. No real upturn is generated by growth in emerging and development economies or by increased demand from high-tech industries.

Copper and cobalt producers respond to the low demand accordingly, keeping investment in both existing mines and new production facilities at low levels. The profitability of mining remains at a low over a period of 10 years. No investment is made in recycling or in any intensive search for high-quality substitute materials because of the low level of profitability.

Owing to its widespread availability from Congo, demand for copper is weak. In the case of cobalt, on the other hand, Congo remains the most important source for consumers based on its quality and quantity. Nevertheless, the prices of both raw materials are at a low level.

Developments in Congo

Congo suffers particularly badly from the long-lasting economic crisis because of its heavy dependence on raw material exports. Even in the early years of the crisis, many of the companies which had only just established operations in Congo pull out again. No further measures in 2010 follow on from the initial emergency funding from the ICF to stave off national bankruptcy in 2009. The Democratic Republic of Congo remains bankrupt for two consecutive years.

Globally, the recession resulted in greater attention to, and acceptance of, the need for regulatory mechanisms to control economic trends. Political and economic initiatives aimed at establishing transparency and socio-ecological standards, as well as at combating corruption, gain increasingly in support. The pressure on countries such as DR Congo to accept and enforce such standards grows stronger.

The state is highly fragile. The provision of state services to safeguard security, welfare and the rule of law now fails not only due to deficiencies in governance but also because of a lack of funds. There is great uncertainty among the population at large. The highly inclusive, internationally backed and monitored presidential election in 2011 is won by a political newcomer. Louise Muyenge is seen by the Congolese public as a charismatic and highly committed woman of the people, untainted by the country's civil war past.

Her election as President marks the beginning of a new era in Congo. This goes hand-in-hand with major international backing and the global implementation of an economic policy attuned more closely to aspects of sustainability. The government does not have much to distribute, but it undergoes fundamental restructuring of all its institutions. The greatest ill threatening the stability and development of Congo is the

mentality of corruption and patronage, established over a period of more than 40 years, which has even found its way into everyday language: "ezali eloko ya Leta, ya moto te" means roughly "public goods belong to no one" (Kodi 2008: 17). Thus, corruption in Congo is not just driven by need; it is by now almost a requirement: "Those who refused to partake in corrupt activities were derided by their community and considered as misfits and as utopians who dreamt about changing the world. They were advised to steal like everybody else" (Kodi 2008: 17). The ratification of key regional and international anti-corruption treaties, such as under the auspices of the African Union or the SADC (Southern African Development Community), and the adaptation and enforcement of national anti-corruption laws marked a first important step in the battle to eliminate this mentality. The inclusion of civil 'grass-roots' organisations, public transparency and financial assistance of international investor organisations are delivering initial country-wide successes in the fight against corruption in politics and government institutions. As a lawyer, President Muyenge places great value on establishing the proper rule of law, and she is pushing on with the decentralisation of government.

However, the low level of revenues from the raw materials sector mean that these changes of vital importance to the country's development are progressing only very slowly. Moreover, the profiteers in the informal sector are rebellious. However, they are gradually losing their power base due to disharmony amongst themselves, diminishing financial resources and a lack of broad public support. The possibility of new income is opened up to the country by the monetisation of its extensive forests as part of the international climate protection regime. The REDD ("Reducing Emissions from Deforestation and Degradation") protocol institutes a global fund to reward reductions in deforestation. However, it takes until 2020 to establish the basic governance structures capable of ensuring that Congo will utilise the financial rewards provided to fund public assets and nationwide development programmes rather than seeing it disappear down murky channels.

Developments in Katanga

In the years during which Katanga's industrial landscape laid unused, business and the Congolese government came to an agreement regarding concession agreements. With some concessions to the companies concerned, the agreements were amended in favour of the government. The additional revenues from a higher share in concession income and from taxation are suppressed by the low raw material prices however.

The Congolese government makes efforts to ensure that additional steps along the value creation chain are carried out in the country. This policy creates formal jobs for people in Katanga, because it is stipulated that at least half the employees in each business must be Congolese. Thanks to the elimination of bureaucracy, the creation of transparency and establishment of the rule of law, Katanga has not only become more attractive to businesses; it is also qualifying for loans from financial institutions once again.

The formalisation of the economy and the enforcement of laws provides companies with more stringent requirements as to their conduct. As a result, the companies are

increasingly complying with socio-ecological standards imposed by the Congolese government. Monitoring, evaluation and sanctions mechanisms are introduced and enforced in respect of commercial activities. The spread of Katanga Syndrome – synonymous with environmental degradation – can be stemmed. People previously employed in the mines are provided with assistance in the form of funding and know-how from international investors – in some cases public-private partnerships (PPPs) with mining companies – to revitalise unused land for farming.

The revenues generated by raw materials and loans from financial institutions are used, among other purposes, to meet the state's core obligations: providing security and social welfare, and maintaining the rule of law. It is also ensured that 40% of revenues flow back into the province, thereby damping down any secessionist tendencies.

During the long-lasting recession, the tented cities around the mines in Katanga are largely broken up. Migrants return to their homes. In many instances, ancient village structures broken up by the extensive internal migration are revitalised, re-establishing social cohesion and obligation. The remaining creuseurs are allowed to do their work legally by being assigned concessions and selling their product legally on a specially created market. This also helps to undermine the criminal networks which previously controlled the sale and transportation of these raw materials. Public representatives are accepted as stakeholders. They are kept informed, and are able to participate in decision-making processes. Further concerted efforts and education are required, however, to finally eliminate the chronic, poverty-driven corruption.

Summary

The problem of profits being privatised and losses being socialised has been largely eliminated. The quality of life of the Katangan people has improved markedly. They are able to send their children to school; have better health care; and can work legally. Systematic immunity from prosecution is likewise a thing of the past. These changes have greatly expanded the options open to the people of Katanga in dealing with problems which occur. Nevertheless, Katanga – like all of Congo – is just at the beginning of its journey towards becoming a stable democracy, and it continues to suffer the effects of the long-lasting economic recession. The global promotion of forestry protection embedded in the international climate protection regime (REDD) is taking effect slowly, but is opening up new prospects. The task of completely eliminating the socially deep-rooted mentality of neo-patrimony, corruption and patronage is a lengthy process.

Trends in the descriptors - "Poor but peaceful" in 2020	
1. Consumer demand	
Potential for substitution/ Recycling rate/ Efficiency gains	Remain low for both raw materials
Strategic appreciation (with a view to economic and technological development)	Low due to recession
2. Producer supply	
Number of suppliers/ Raw material distribution	Copper: broad spread. Cobalt: DR Congo dominating the market
Investment in mining capacities globally	Low
Investment in mining capacities in case study region	Investments by foreign firms mostly in joint ventures with state-owned mining companies
Profitability of mining	High
Quantity globally	Copper high, cobalt lower
Quantity in case study region	Approximately 6% of global copper deposits and over 30% of cobalt
Quality in case study region	Very good quality
1. Producer behaviour	
State provision of security, welfare, rule of law	Rising slowly – due to recession - but steadily
Distribution of profits and losses	More just.
Rent-seeking (corruption, criminality/informality, militarisation)	Severely restricted
Exploitation of raw materials for political gain	
Economic diversification	Increasing. REDD as a climate protection policy framework offers new prospects for DRC
Guidelines for socio-ecological standards/ Corporate social responsibility	Being implemented
History of conflict	Long-standing history of conflict throughout Congo. Low level of conflict in Katanga. Security situation improving after eliminating spoilers
Relations between producer and consumer countries beyond the raw material market (cultural/political relations)	Shifting from supplicant to partner
2. Consumer behaviour	
Foreign/economic/security/development policy to safeguard (strategic) raw materials	Low level of efforts due to recession
Relations between consumer and producer countries beyond the raw material market (cultural/political relations)	Strong improvement towards equality

3.4 Scenario IV: Regional destabilisation in 2020

Global economic trends

Starting in 2015, there are clear signs of a rapid upturn in emerging economies such as India and China. Demand for copper in particular, but for cobalt too, rises accordingly. This is due primarily to speculation on a sustained boom in the emerging economies. Raw materials experts predict the regional recovery from the economic crisis to spread globally. No far-reaching global economic development occurs however. Moreover, the upturn in the emerging economies proves not to be sustained. As a consequence, the speculation bubble bursts in 2018.

The high prices of copper and cobalt driven by strong demand have led to improvements in efficiency and high recycling rates in the established industrialised nations. Investment in technological research has delivered high-quality substitute materials. The wide variety of different suppliers largely prevents the possibility of dependence on any single producer. This is being achieved primarily by opening up new sources based on biomining of copper and exploitation of deep-sea cobalt resources. Raw material supply is thus dramatically increased. In 2020, the collapse in demand is matched by higher levels of supply from many vendors – of copper especially – resulting in low raw material prices.

Developments in Congo

Attempts to stabilise the Congolese state are made in vain by many different parties: The UN fails in its attempt to support Congo in restoring its territorial integrity by means of the MONUSCO blue-helmet mission. As a consequence, the mission is pulled out in late 2011. International initiatives such as EITI and anti-corruption treaties under the auspices of the African Union or SADC merely pay lip-service to the need for change; there is a lack of financial resources and political will at national and international level. Attempts to enforce existing national laws, such as the *Contrat de Gouvernance* (CDG) or the *Code Minier*, break down due to the structural weakness of governance in Congo. Joseph Kabila is re-elected President in 2012. The international community regards him as a corrupt despot, however, as a result of which he loses most of his support. Even the low levels of income from the raw material sector continue to be privatised rather than being used to stabilise the country. Resentment among the population grows accordingly. The Congolese people suffer massively under the recession as well as from insecurity, oppression and lawlessness in their country.

The drive to decentralise the country's government has failed. The government in Kinshasa and the provincial government of Katanga are increasingly confrontational, accusing each other of misappropriating funds. The security situation in Katanga has become highly explosive during the recession. There are attacks on mining companies, protests against the government, as well as social unrest and widespread criminality in the urban centres. At the first signs of rising copper and cobalt prices, the Governor of Katanga entered into an alliance with Angola and Rwanda, aimed at bringing about

Katanga's secession from Congo. For the first time since the Shaba crises of the 1970s, there are now once again serious efforts to achieve autonomy in the province of Katanga. A civil war breaks out between the Congolese government under Kabila, aided by Zimbabwe, and the provincial government backed by Angola and Rwanda. The UN and the AU do not intervene militarily. The European Union, too, stands back. The situation is extremely confused. Even for international observers, it is difficult to identify which side represents the lesser evil for the people. The fighting spreads towards Kinshasa as well as eastwards. The newly intensified security situation in the Kivu provinces and Ituri causes Uganda and Burundi, together with Rwanda, to intervene militarily in the eastern border region.

As the war rages from 2016 onwards, millions of refugees look for an escape within their own country and in the neighbouring countries of Angola and Zambia, and later also in Rwanda, Uganda, Sudan, Burundi and the Central African Republic. A humanitarian crisis breaks out in the refugee camps within Congo and in the neighbouring countries, and spreads to nearby villages and towns due to supply shortages and social tensions.

Developments in Katanga

The socio-economic situation for the population in Katanga fluctuates widely. After the end of the civil war in 2003, industrial production is resumed and contracts are signed with international investors entailing unfavourable conditions for the Congolese. China's investments in Katanga result in tens of thousands of Chinese workers being drafted in to the copper belt. This not only has an impact on the landscape of Katanga due to their business operations, the sheer number of Chinese immigrant workers also alters the social fabric in the towns nearby the mines. As the economic crisis hits, the Chinese companies begin pulling out of the mining business from late 2008 onwards. This leaves hundreds of thousands of creuseurs with no income, because it had been mainly Chinese traders and refineries who had been buying up their ores. With the short-term copper and cobalt boom beginning in 2015 Katanga enjoys a brief renaissance of mining activity, though overshadowed by the impending civil war between the provincial government and the central government in Kinshasa. As the speculation bubble bursts and war breaks out in 2019, all industrial production in Katanga once again ceases. As a result, virtually all mining operations are controlled by the military and militias as a key element of the civil war economy. Consequently, manual prospecting booms again in some mining areas. The working conditions of all creuseurs are bad, and some are forced to work in the mines by the militias. As Congo has remained a vital exporter of cobalt even in the global recession, the EU and USA overlook the poor human rights situation in order to preserve their import source.

Summary

In 2020 there is once again war in Congo. The province of Katanga, which had in fact been relatively calm in two past wars, has for four years now been the focal point of an armed struggle between the central and provincial governments and their respective foreign allies. The war and its consequences – including the millions of refugees – has

politically destabilised the whole of central Africa. In Katanga, a civil war economy has become established. For the people of Katanga, as for the entire Congolese population, these developments represent a catastrophic humanitarian crisis which costs the lives of hundreds of thousands of people.

Trends in the descriptors - Regional destabilisation in 2020	
1. Consumer demand	
Potential for substitution/ Recycling rate/ Efficiency gains	Very high
Strategic appreciation (with a view to economic and technological development)	Speculation bubble in 2015/16. Otherwise low
2. Producer supply	
Number of suppliers/ Raw material distribution	Broad spread due to exploitation of new deposits
Investment in mining capacities globally	High during the speculation bubble
Investment in mining capacities in case study region	Very low due to war
Profitability of mining	High
Quantity globally	Reserves greatly increased
Quantity in case study region	Approximately 6% of global copper deposits and over 30% of cobalt
Quality in case study region	Very good quality
1. Producer behaviour	
State provision of security, welfare, rule of law	Non-existent
Distribution of profits and losses	Heavily asymmetrical
Rent-seeking (corruption, criminality/informality, militarisation)	Medium-to-high
Exploitation of raw materials for political gain	
Economic diversification	Extremely low
Guidelines for socio-ecological standards/ Corporate social responsibility	Practically non-existent
History of conflict	Long-standing history of conflict throughout Congo. Katanga the focal point of the new regional war
Relations between producer and consumer countries beyond the raw material market (cultural/political relations)	
2. Consumer behaviour	
Foreign/economic/security/development policy to safeguard (strategic) raw materials	Low level of involvement
Relations between consumer and producer countries beyond the raw material market (cultural/political relations)	Restrained

4 Conclusions

The scenarios depict very differing paths into the future, running along the conflict constellations already thrown up in the fall study. Particular risk factors in terms of violent conflict are, firstly, the question as to how profits and losses from mining are distributed. Tensions can arise at both local and national level if the population at large, certain population groups or a specific region or province regards itself as being disadvantaged by the undertaking. Secondly, a number of escalation risks arise from the specific mining activities – that is to say, for example, where small-scale prospectors ('creuseurs') are driven out by industrial mine operations, or where the social and ecological effects have a major impact on the lives of the local populace.

With regard to both conflict constellations, the key question of central importance to future trends is whether good governance can be established. Scenarios 1 and 3 show how initiatives can help to improve the quality of governance, while in scenarios 2 and 4 the fragile state disintegrates further – in one scenario (4) even leading to a new war on a regional scale. At the same time, the scenarios demonstrate that a range of positive trends determining good governance entail some setbacks caused by active 'spoilers' within the country, failure of the international community and investors to provide assistance, or price fluctuations and effects of international raw materials markets. International raw materials markets, in particular, may produce positive trends in the scenarios based on stability and negative trends resulting from dramatic fluctuations. By contrast, the actual price level is not the key factor in this context. The behaviour of the consumer countries may also promote instability, for example by implementing extensive recycling initiatives which lead to a fall in demand.

Another major influencing factor is the response of the international community: In scenarios depicting a trend which culminates in more stability and security in 2020, the international political community is active and has maintained a continuous commitment in promoting and backing national measures. A further key factor is the extent to which international businesses fulfill their social responsibility and avoid negative impact being felt by their activities ("Do no harm"). Central to this are support for the rule of law and transparency.

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