

# Cobalt blues

Environmental pollution and human rights violations in Katanga's copper and cobalt mines



**Fleur Scheele & Esther de Haan & Vincent Kiezebrink**

April 2016

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# Colophon

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The Centre for Research on Multinational Corporations (SOMO) is an independent, not-for-profit research and network organisation working on social, ecological and economic issues related to sustainable development. Since 1973, the organisation investigates multinational corporations and the consequences of their activities for people and the environment around the world.



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SOMO in collaboration with Afrewatch, ACIDH and Premicongo

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Amsterdam, April 2016

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## Acronyms

|                   |   |
|-------------------|---|
| <b>3TG</b>        | Tin, tantalum, tungsten and gold  |
| <b>ACIDH</b>      | Action Against Impunity for Human Rights  |
| <b>CAMEC</b>      | Central African Mining and Exploration Company                                      |
| <b>CCCCMC</b>     | China Chamber of Commerce of Metals, Minerals and Chemicals Importers and Exporters |
| <b>Chemaf</b>     | Chemical of Africa Ltd.   |
| <b>CMC</b>        | China Minmetals Corporation   |
| <b>CMSK</b>       | South Katanga Mining Company  |
| <b>CNMC</b>       | China Nonferrous Metal Mining Group   |
| <b>COMILU</b>     | Compagnie Minière de Luisha   |
| <b>COVEC</b>      | China Overseas Engineering Corporation  |
| <b>DRC</b>        | Democratic Republic of Congo  |
| <b>EITI</b>       | Extractive Industries Transparency Initiative                                       |
| <b>ENRC</b>       | Eurasian Natural Resources Corporation  |
| <b>ERG</b>        | Eurasian Resources Group  |
| <b>EXACO</b>      | Société des Exploitants artisanaux du Congo   |
| <b>GECAMINES</b>  | Générale des Carrières et des Mines   |
| <b>MKM</b>        | Minière de Kalumbwe Myunga  |
| <b>MNC</b>        | Multinational corporation   |
| <b>NGO</b>        | Non-governmental organisation   |
| <b>NTFPs</b>      | Non-timber forest products  |
| <b>POM</b>        | Platform of civil society organisations intervening in the mining sector            |
| <b>Premicongo</b> | Protection des Ecorégions de Miombo – Congo   |
| <b>SEK</b>        | Société d’exploitation de Kipoi   |
| <b>SOMO</b>       | Centre for Research on Multinational Corporations                                   |
| <b>TFM</b>        | Tenke Fungurume Mining  |
| <b>UMHK</b>       | Union Minière du Haut Katanga   |
| <b>USGS</b>       | United States Geological Survey   |

## Summary

Each year the mining industry in the former province of Katanga, southern Democratic Republic of Congo (DRC), supplies the world market with substantial amounts of copper and cobalt. DRC produces about half of the world's cobalt, and is Africa's largest copper producer. Copper and cobalt mined in DRC is used in a vast number of consumer electronics as well in industrial applications all over the world. This research reports new evidence of human rights violations and environmental negligence and argues that abuses caused by Katanga's industrial mining industry are not only serious, but also structural. Addressing these crises demands engagement and commitment from all actors in the mineral supply chain.

The findings described in this report are based on fieldwork conducted by researchers in DRC supported by desk research from SOMO in Amsterdam which analysed the current conditions and realities for communities affected by industrial mining in Katanga. The field investigations took place at mining operations of Minière de Kalumbwe Myunga (MKM), Huachin, and Société d'Exploitation du Kipoi SA (SEK), a subsidiary of Australian Tiger Resources Ltd. The desk research included investigations into several other mining companies operating in the same areas.

### **Environmental and health rights violations**

In DRC, the production of copper and cobalt is inextricably linked to violations of peoples' right to a clean environment. One example of this is the discharge of contaminated wastewater from MKM's mining operations into the Dikanga River, which resulted in the water being unfit for human consumption by local communities. The contaminated water is within the Basse Kando, an area that has protected hunting reserve status – making it illegal to mine there – but where MKM and several other mining companies were nevertheless granted mining licenses by DRC's Ministry of Mines.

The close physical proximity of industrial mining operations to local towns and villages means that thousands of people are exposed to fumes, dust, noise, and effluent water generated by the mines, trucks, and processing facilities. Those people, who live within a few metres of the mines, including the Ruashi mine, are also exposed to air and noise pollution, as well as dust containing cobalt compounds. Thousands of trucks travel to and from the mines and related operations all day and through the night, exposing resident in the cities of Lubumbashi and Likasi to heightened air pollution and leaving them rightfully afraid of contracting lung diseases. Chronic exposure to such dust can lead to potentially fatal hard-metal lung disease. It can also lead to a variety of other pulmonary problems, including asthma, decreased lung function, and pneumonia. Previous research has shown that people living close to DRC's mines had 43 times the level of cobalt, five times the level of lead, and four times the level of cadmium and uranium in their urine than is considered normal.

### **Land and livelihood rights violations**

While wastewater from mining may pollute land and water, mining itself also requires huge swaths of land and vast amounts of water for its operations. In the cases researched for this publication, these land and water requirements for mining have resulted in the loss of livelihoods in affected communities. In the case of the Ruashi mine, for example, the mine's operators blocked access to a

road used by 3,000 people to access their primary water source, which they depended on for their everyday needs and overall livelihoods. Boss Mining's operation left the Kibembe and Luita rivers, which provided drinking water to local communities, in a polluted state. Both Ruashi and Boss Mining subsequently drilled wells to provide clean drinking water, but at the time of research those wells were either in a state of disrepair, or provided water of insufficient quality for human consumption.

In most of the cases researched in this report, the mining companies, in violation of DRC's law, failed to consult communities about their prospective mining operations. The few consultations that did take place did not provide information to the communities on the possible impacts of the mines. Additionally, under the Congolese Mining Code, it is the responsibility of the mining company to initiate and maintain constructive dialogue with communities affected by their projects. This research shows that the responsibility of the companies as prescribed in the Congolese Mining Code however, was systematically and structurally neglected.

To make way for the mines, actual construction of the copper and cobalt mines in DRC resulted in the forced relocation of local communities. In four of the cases discussed in this research, communities were relocated without adequate compensation, without being given new land and were sent to areas with poor soil. They were also relocated to areas without basic infrastructure or access to drinking water. The deforestation involved in Huachin's operations destroyed the livelihoods of surrounding communities that depended on the forest for their food. The combination of forced eviction with inadequate compensation and the subsequent loss of livelihood has serious consequences for people already in fragile economic situations.

### **Security and violent conflict**

Violence has occurred between the police or military and illegal miners trespassing on the mine sites. As the illegal miners flee, police open fire indiscriminately and have reportedly hit innocent civilians. Given that some communities live physically very close to mines and their operations, accidental deaths happen. Communities, including those near the Ruashi mine, have also faced physical danger when explosions caused by the mine's operations damaged homes and property, for which they received no compensation.

### **From Congolese violations to global supply chains**

This report presents research conducted by SOMO and three Congolese partner organisations, which shows how environmental and human rights violations happen structurally at industrial cobalt and copper mining operations in Katanga. Whilst the companies do not respect human rights, the rule of law and their obligations to communities whose lives are affected by the mines, DRC's government has also failed to enforce laws to protect its citizens and natural environments affected by mining operations.

The report also illustrates the extent to which cobalt produced in DRC ends up in China, where almost 70 per cent of it is used to produce rechargeable batteries. These Chinese-made rechargeable batteries end up in an array of products sold all over the world, the most notable of which are consumer electronics, such as smartphones and laptops. Given that DRC produces half of the world's cobalt, this means that products containing cobalt will most likely contain minerals produced in the country's Katanga province.

## Introduction

### Mineral exploitation in the Democratic Republic of Congo

The Democratic Republic of Congo (hereafter referred to as 'DRC' or 'Congo') is an important producer of tin, tantalum, tungsten and gold (the so-called '3TG'); as well as diamonds, copper, cobalt and other minerals. Congo is by far the world's main cobalt producer, and is the world's sixth largest copper producer (and Africa's largest).<sup>1</sup>

The mining and mineral processing sector is Congo's main source of state revenue, with a total contribution of US\$ 761 million in 2014.<sup>2</sup> It accounts for over 11 per cent of gross domestic product (GDP) and provides employment at least half a million people.<sup>3</sup> However, it is also associated with severe human rights violations.<sup>4</sup> Rebel-controlled mines have long served as a major source of income for violent conflicts in eastern Congo. The United States, in an attempt to stop the financing of these conflicts through the worldwide trade of 'conflict minerals', has adopted the Dodd Frank Act. This legislation, adopted in 2010, requires publicly listed companies to disclose their use of Congolese 3TG and ensure that their purchase of these minerals does not contribute to conflict in eastern Congo.

Unlike 3TG minerals, which are mostly produced in eastern Congo, most Congolese copper and cobalt is produced in the southern region of Katanga, a former province. Due to the relative level of peace in Katanga compared to provinces in eastern Congo, minerals from Katanga are not seen as 'conflict minerals'. The mines in Katanga are indeed not controlled by armed rebel groups. Nevertheless, the region is unstable, violent, and there is little rule of law.

Here, minerals are produced in artisanal (small-scale) mines as well as in industrial mines operated by mining companies. Many thousands of men, women and children work in atrocious conditions and for little pay in the unregulated, artisanal mines. Levels of insecurity are high, and violent clashes with the police occur regularly. The formal mining industry, controlled by Congolese state-owned and foreign companies, is associated with labour rights violations, community conflicts and land grabs. The industry as a whole creates considerable environmental damage, including biodiversity loss and deforestation, air pollution, and contamination of water with toxic and radioactive elements.

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- 1 Minor Metals Trade Organisation website, Cobalt Market Overview, no date, <<http://www.mmta.co.uk/cobalt-market-overview>>; Thomson Reuters GFMS Copper Survey 2015, 2015, download via <<https://forms.thomsonreuters.com/gfms/>> 2 November 2015.
  - 2 EITI 2014 Report DRC, December 2015, <[https://eiti.org/files/rapport\\_de\\_conciliation\\_itie\\_rdc\\_2014\\_-\\_final.pdf](https://eiti.org/files/rapport_de_conciliation_itie_rdc_2014_-_final.pdf)> 31 December 2015.
  - 3 Extractive Industry Transparency Initiative, Democratic Republic of Congo Overview, no date, <<https://eiti.org/DRCCongo>> 4 April 2016.
  - 4 Numbers from 2011. United States Geological Survey (USGS), 2012 Minerals Yearbook Congo Kinshasa [Advance Release], June 2014, <<http://minerals.usgs.gov/minerals/pubs/country/2012/myb3-2012-cg.pdf>> viewed 1 December 2015.

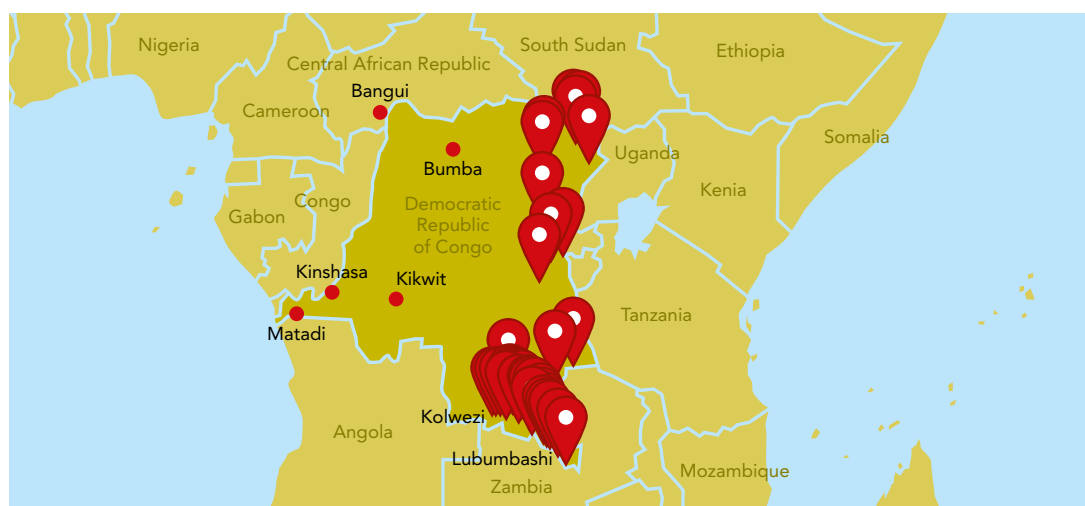


### Collaborative work of five organisations

In the past years, many cases of human rights violations at artisanal and industrial mining sites have been documented by local and international non-governmental organisations (NGOs). Focusing on industrial mining operations only, SOMO and its partners have specifically been conducting research on the impacts of these mines on local communities.

For this report, SOMO has been working intensively with three Congolese partner organisations and one Dutch environmental organisation.

**Figure 1: Democratic Republic of Congo with its main industrial mining sites**



*The south-eastern part shows Katanga, where copper and cobalt are produced. The conflict-ridden eastern region produces '3TG', often referred to as 'conflict minerals'. The USA has introduced legislation preventing companies from financing violent conflict through their 3TG supply chains. There is currently no other legislation from abroad regulating sourcing of minerals from Katanga.<sup>5</sup>*

This report draws on the combined experiences of these five organisations. Between 2010–2015, ACIDH, Afreewatch and Premicongo researchers visited communities living adjacent to the mines, to conduct interviews, organise focus group discussions, provide trainings on legislation, and stimulate communication between companies and communities.

5 Map from Carter Center, Congomines.org, <<http://www.congomines.org/map>> 2 March 2016.

## Research organisations

SOMO is a research and network organisation that strives for equitable economic development, sustainable business practices, and better protection of human rights in relation to the business activities of multinational corporations (MNCs). Its Multinationals in Conflict-Affected Areas (MCAA) programme is researching the impacts of MNCs on human rights in Conflict-Affected Areas (CAAs) and analyses how MNCs and conflicts influence each other. The ultimate aim of the programme is to prevent MNCs from contributing to conflict and human rights abuses in CAAs by increasing corporate accountability, improving government policies, and empowering civil society.

SOMO's long-time partner ACIDH (Action Against Impunity for Human Rights) has been fighting human rights violations in DRC since 2004, by influencing the reform of judicial institutions, promoting human rights, and organising and representing communities whose rights are being violated.

African Resources Watch (Afresource) is based in Lubumbashi, Katanga, DRC, and has been promoting equitable and just exploitation of natural resources in Africa since 2013. It does so by holding states and companies to account, as it believes that good governance in natural resources exploitation is the foundation of socio-economic stability for Africa's people.

Premicongo (Protection des écorégions de Miombo au Congo) is an environmental and human rights organisation that strives for sustainable governance of the forests of Katanga since 2002. It works in close collaboration with communities to protect the forest, develop reforestation projects, educate communities, authorities and companies, and to protect the natural environment against the detrimental effects of mining operations.

SOMO has also been working in collaboration with Friends of the Earth Netherlands (Milieu-defensie) on the environmental impacts of Congolese mining.<sup>6</sup> The collaboration with Friends of the Earth Netherlands led to the publication of *Katanga calling. Congolese cobalt and consumer electronics* in 2015.<sup>7</sup>

In collaboration with SOMO, these organisations have published various reports on community issues associated with industrial mining operations in Katanga. In the report *Unheard Voices* (2011),

6 Friends of the Earth Indonesia(WALHI) and the Netherlands(Milieudefensie), Grim portraits of tin mining on Bangka Belitung, Indonesia, 2014, <<https://milieudefensie.nl/publicaties/rapporten/grim-portraits-of-tin-mining-on-bangka-belitung-indonesia/view>> 2 November 2015.

7 Friends of the Earth Netherlands, SOMO, GoodElectronics Network, based on research by Premicongo, ACIDH and Afresource, "Katanga Calling. Congolese Cobalt and Consumer Electronics," May 2015, <<https://milieudefensie.nl/publicaties/brochures-folders/katanga-calling-congolese-cobalt-and-consumer-electronics>> 12 December 2015.

five cases were described by ACIDH.<sup>8</sup> After publication, ACIDH continued to follow the communities and companies featured in the report. Cases were followed up in various ways, including initiating dialogues between communities and companies; an OECD complaint against a company; and a court case against another. Continued support to communities was given in all cases.

Two new field research reports were produced in 2015 by Premicongo (on Chinese mining companies *Huachin* and *Minière de Kalumbwe Myunga* – report available online in English and in French), and by ACIDH and Afrewatch (on *Société d’Exploitation du Kipoi SA*, a subsidiary of Australian mining company *Tiger Resources Ltd*), whose report has not yet been published at the time of writing.<sup>9</sup> These reports have served as new input for this publication, alongside a report (set to be published later in 2016) about *Eurasian Research Group*, written by POM, a Congolese network of civil society organisations working on mining issues.

The picture below shows current copper and cobalt exploitation and exploration projects in Katanga. The approximate locations of mining operations described in this report are indicated.

**Figure 2: Mining sites and processing facilities featuring in this report<sup>10</sup>**



8 Premicongo, “Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin.” October 2015, <[http://media.wix.com/ugd/81d92e\\_c0541c43968541a1a1fec27fc9d3d116.pdf](http://media.wix.com/ugd/81d92e_c0541c43968541a1a1fec27fc9d3d116.pdf)> 12 December 2015.

9 These publications can be found online on the websites of the organisations. ACIDH, SOMO, Good Electronics: Unheard Voices”, December 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> Premicongo, “Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin. , October 2015, <[http://www.congomines.org/system/attachments/assets/000/000/925/original/Les\\_investissements\\_chinois\\_au\\_Katanga.pdf?1447927146](http://www.congomines.org/system/attachments/assets/000/000/925/original/Les_investissements_chinois_au_Katanga.pdf?1447927146)> ACIDH and Afrewatch, unpublished report on SEK, publication soon available on <<http://www.acidhcd.org/>>.

10 Map from Carter Center, Congomines.org, <<http://www.congomines.org/map>> 2 March 2016.

**Report aims**

This report presents new evidence of human rights violations and neglect of environmental issues by mining companies. It argues that human rights violations in Katanga's formal mining industry are not only serious, but also structural, and that addressing this problem requires the engagement of all actors in mineral supply chains. Despite the efforts of a wide variety of NGOs to engage responsible authorities and the mining companies, both the private sector and the Congolese government have consistently failed to adequately address the frequent human rights violations and to prevent further violations taking place.

Katangese copper and cobalt continue to flow freely onto the world market, without buyers, end users or foreign governments posing questions about the conditions under which they were produced. No international stakeholder has taken any steps to start setting standards for the environmental or human rights performance of the Katangese mines.

This report aims to show that end users of Congolese copper and cobalt such as electronics companies have to take steps to address the local impacts of copper and cobalt production. It also describes the Katangese context, its copper and cobalt mining sector, the transnational copper and cobalt supply chains, the violations and local conflicts that occur, and the roles and responsibilities of international public and private actors.

**Methodology and structure of the report**

This report is based on fieldwork conducted by Congolese researchers, and a desk-based study of the current state of industrial mining in Katanga. The authors have used publicly available literature, including market reports, scientific papers, media reports, Extractive Industry Transparency Initiative (EITI) reports, annual reports, and company websites. The above-mentioned field reports from partner organisations, as well as reports from other civil society organisations, were used to provide examples of environmental and human rights violations.

The report does not provide a comprehensive list of companies and the shareholders, investors, operations and human rights issues with which they are associated. Neither does the report provide chronologically structured overviews of human rights violations and the corporate social responsibility (CSR) policies and practices of all companies mentioned in this report.

Instead, the report provides a basic understanding of local problems caused by copper and cobalt mining in Katanga, the relevance of Congolese copper and cobalt in our everyday products, and the need for international actors to demand higher environmental and human rights standards from mineral producers.

Chapter one highlights various human rights and environmental violations documented by SOMO's three Congolese partner organisations in relation to eight industrial mining and processing operations, and shows how fundamental rights, livelihoods and health are impacted.

Chapter two describes the commodity markets of copper and cobalt. Descriptions of supply chains, export destinations and end-uses are provided. Following this supply chain information, a number of companies active in the supply chains are listed.

Chapter three, provides conclusions and concrete recommendations, and answers various questions on responsibility and accountability – for example: which parties can take responsibility to prevent, mitigate and remedy human rights violations? Which actors have direct links with these violations and can take action to prevent further violations happening? The focus companies described in this report were given the opportunity to review the parts of the report that concerned them. Only one company, SEK/Tiger Resources, has taken this opportunity to engage with the researchers involved in this publication. SEKs corrections and views were communicated via Skype/telephone and in text. SOMO has integrated these into the final report.



*Cobalt.*

# 1 Researched companies

This report looks at examples of human rights and environmental violations by eight companies – five of these (CMSK, Chemaf, Boss, Ruashi, and Tenke Fungurume) are described in more detail in SOMO and ACIDH’s *Unheard Voices* report (2011). The three companies researched in 2015 by Premicongo, ACIDH and Afrewatch are Chinese companies MKM and *Huachin* and Australian company SEK, working in joint ventures with minority stakeholder Gécamines, the Congolese state-owned mining company.

This chapter provides a short introduction of these newly researched companies, plus information about a fourth company described in a recent report by Congolese network POM.

The researched companies are listed in the Table 1, along with their parent companies. Information about ownership was derived from company websites and from the EITI.

## Gécamines

International mining companies operate in joint ventures with *Gécamines*, Congo’s main state mining company, which usually has a minority share in these mines. Currently *Gécamines* reports being active in 31 partnerships throughout the country, while EITI provides a list of 26 companies in which *Gécamines* had a share in 2014, most often of 20-30 per cent.<sup>11</sup> Most of these joint ventures are partnerships with foreign partners.<sup>12</sup>

## MKM

The *Minière de Kalumbwe Myunga (MKM)* is a subsidiary of the *China National Overseas Engineering Group Co. Ltd. (COVEC)*, which specialises in construction and engineering. Its Congolese operating site is based in the Basse Kando, a protected natural area near the town of Kolwezi (see Figure 2).

COVEC has various projects throughout Africa, including road construction in Morocco and water distribution infrastructure in South Africa. COVEC reports to have a US\$ 3.5 billion turnover and is a subsidiary of the *China Railway Group Limited (CREC)*, which is a subsidiary of the state-owned *China Railway Engineering Corporation*.<sup>13</sup> In Congo, CREC also holds shares in *COMILU*, the Luisha Mining Company.<sup>14</sup>

11 Gécamines website, no date, <<http://gecamines.cd/html/participation.html>> EITI 2014 DRC Report, December 2015, <[https://eiti.org/files/rapport\\_de\\_conciliation\\_itie\\_rdc\\_2014\\_-\\_final.pdf](https://eiti.org/files/rapport_de_conciliation_itie_rdc_2014_-_final.pdf)> 12 February 2016.

12 Gécamines website, no date, <<http://gecamines.cd/html/participation.html>> 12 February 2016.

13 China Railway Group limited website, no date, <<http://www.crecg.com/en/tabid/176/Default.aspx>>; COVEC website, no date, <[http://en.covec.com/about\\_us/&FrontComContent\\_list01-1330654682643ContId=19&comContentId=19.html](http://en.covec.com/about_us/&FrontComContent_list01-1330654682643ContId=19&comContentId=19.html)> 2 March 2016.

14 EITI 2014 DRC report, December 2015, <<https://eiti.org/report/democratic-republic-congo/2014>> 2 March 2016.

**Table 1: Companies researched in this report**

| Company  | Mine / operation  | Abbreviation | Shareholder 1  | Shareholder 2   | Share-holder 3  | Production since |
|--|---|--------------|--|---|-----------------|------------------|
| Société d'exploitation de Kipoi <sup>15</sup>  | Kipoi Central deposit   | SEK          | Tiger Resources Ltd. (95%)   | Gécamines (5%)  |                 | 2011             |
| Ruashi Mining <sup>16</sup>                    | Ruashi mine, Lubumbashi   | Ruashi       | Jinchuan Group International Resources Co. Ltd. (China) (via subsidiary Metorex, South Africa) | Gécamines (25%)   |                 | 2006             |
| Chemical of Africa <sup>17</sup>               | Etoile mine, processing facilities, and sulphuric acid plants, Lubumbashi | Chemaf       | Shalina Resources Ltd (100%) (India, Dubai)  | Etoile mine is 5% owned by the DRC government                           |                 | 2002             |
| Tenke Fungurume Mining <sup>18</sup>           | Tenke Fungurume mine  | TFM          | Freeport McMoran (56%) (USA)   | Lundin Mining (24%)   | Gécamines (20%) | 2009             |
| Boss Mining <sup>19</sup> , Frontier           | Mukondo Mountain Mine, Kakanda/ Luita                                     | Boss         | Eurasian Resources Group (70%) (Luxembourg)  | Gécamines (30%)   |                 | 2004             |
| Compagnie minière du Sud Katanga <sup>20</sup> | Luiswishi mine, Kawama  | CMSK         | Gécamines (99%)  | Former joint venture partner Malta Forrest General Company (until 2012) |                 | 2004             |
| Minière de Kalumbwe Myunga <sup>21</sup>       | Kalumbwe Myunga mine, Kisanfu   | MKM          | China Railway Resources (80%)  | Sukadi Diabod, CEO of MKM (18%)   |                 | 2013             |
| Huachin Mining <sup>22</sup>                   | Mabende   | Huachin      | China Nonferrous Metal Mining Group Co Ltd (Hong Kong)   |   |                 | 2014             |

- 15 Tiger Resources website, no date, <[http://www.tigerresources.com.au/company\\_profile.7.html](http://www.tigerresources.com.au/company_profile.7.html)> Gécamines website, <<http://gecamines.cd/html/participation.html>> 12 December 2015.
- 16 Metorex website, no date, <<http://www.metorexgroup.com/mine/ruashi-mining/>> 12 December 2015.
- 17 Shalina website, no date, <<http://www.shalinareources.com/operations.html>> 12 December 2015.
- 18 Freeport McMoRan website, no date, <<http://www.fcx.com/operations/AfricaTenke.htm>> 12 December 2015.
- 19 Eurasian website, no date, <<https://www.erg.kz/en/content/o-kompanii/obzor-deyatel-nosti-erg>> 12 December 2015, EITI 2014 DRC Report p.53, <[https://eiti.org/files/rapport\\_de\\_conciliation\\_itie\\_rdc\\_2014\\_-\\_final.pdf](https://eiti.org/files/rapport_de_conciliation_itie_rdc_2014_-_final.pdf)> 31 December 2015.
- 20 CMSK used to be a joint venture between Entreprise Générale Malta Forrest and Gécamines. However, Groupe Forrest sold its shares in CMSK back to Gécamines in October 2012. Gécamines website, no date, <<http://gecamines.cd/html/participation.html>> and Groupe Forrest International SA, press release, 5 February 2013, <[http://www.forrestgroup.com/news\\_fichiers/19-press-release-groupe-forrest-international.pdf](http://www.forrestgroup.com/news_fichiers/19-press-release-groupe-forrest-international.pdf)> 12 December 2015.
- 21 EITI DRC Reconciliation Report for the Year 2012, December 2014, <<https://eiti.org/files/Reconciliation%20Report%20EITI%20DRC%202012%20%5BENG%20version%5D.pdf>> 2 March 2016.
- 22 China Nonferrous Metal Mining website, 2014, <[http://www.cnmc.com.cn/detailen.jsp?article\\_millseconds=1398237712187&column\\_no=0114](http://www.cnmc.com.cn/detailen.jsp?article_millseconds=1398237712187&column_no=0114)> 12 December 2016.



## Huachin

China Nonferrous Mining Corporation Limited, a Chinese state-owned company, has invested in three companies in DRC: CNMC Huachin Metals Leach SPRL, CNMC Huachin Mabende Mining SPRL, and a new joint venture with PIMA to construct a leach plant for copper cathodes.<sup>23</sup>

Huachin started operating in 2005, when it began as a smelter, processing ore purchased from artisanal miners. This ore was primarily retrieved from the Shamitumba artisanal mining zone in Likasi. Today, the group has a mine and a processing plant in Mabende which started operating in 2014, and has operations in Likasi and Lubumbashi, Katanga's capital. Various other projects are in the exploration phase.

## SEK

Tiger Resources Limited is a relatively small Australian company (with a revenue of \$ 146 million in 2015) that recently entered DRC. Tiger operates exclusively in DRC, where it has three projects in total. The Société d'Exploitation de Kipoi (SEK) is a 95 per cent subsidiary of Tiger and has been operating the Kipoi copper mine since 2011.<sup>24</sup> Two more exploration projects in the vicinity may develop into operating mines in the future.<sup>25</sup>

## Eurasian Resources Group

In DRC, the Eurasian Resources Group (ERG, or 'Eurasian') is the main shareholder in Boss Mining (70 per cent of shares, 30 per cent Gécamines), Frontier (95 per cent Eurasian; 5 per cent Gécamines) and Comide (30 per cent Eurasian; 70 per cent Simplex, a private company owned by Camrose which is in its turn owned by Eurasian (50.5 per cent) and Fleurette Group (49.5 per cent)). Apart from the currently operational Boss Mine that Eurasian obtained through its 2009 acquisition of CAMEC plc, Eurasian has recently acquired many more copper and cobalt assets in Katanga, including the First Quantum Minerals processing plants, and licences for Dezita and SMKK.

Eurasian mainly works in the mining (mainly ferroalloys, iron ore, aluminium) and energy sector in Kazakhstan, but also has a few operations abroad: it has a Brazilian iron ore project, for which a litigation against former partner Zamin Group is pending; it has a copper smelter in Zambia, and various projects in Congo. In other African countries, various projects are in development, and the group aims to expand its operations throughout Africa.<sup>26</sup>

Eurasian, formerly ENRC, was listed on the London Stock Exchange (LSE) from 2007 until 2013, but re-privatised after a series of scandals, including corruption and a legal dispute in DRC.<sup>27</sup> The company reported revenues of \$ 5.83 billion in 2014.<sup>28</sup>

23 China Nonferrous Mining Corporation Limited, Discloseable transaction establishment of joint venture, 14 January 2015, <<http://www.hkexnews.hk/listedco/listconews/sehk/2015/0115/LTN20150115178.pdf>> 2 March 2016.

24 Tiger resources website, no date, <[http://www.tigerresources.com.au/company\\_profile.7.html](http://www.tigerresources.com.au/company_profile.7.html)> 2 March 2016.

25 Tiger resources website, no date, <[http://www.tigerresources.com.au/company\\_profile.7.html](http://www.tigerresources.com.au/company_profile.7.html)> 2 March 2016.

26 Mining weekly, Africa central to future growth - ERG, 4 March 2016, <<http://www.miningweekly.com/article/africa-central-to-future-growth-erg-2016-03-04>> 6 March 2016.

27 Financial Times, "Eurasian Resources Group seeks to draw a line under scandals", 1 November 2015, <<http://www.ft.com/cms/s/0/0132c21e-7800-11e5-a95a-27d368e1ddf7.html#axzz3vFFTA69g>> 20 December 2015.



The company is heavily in debt, with a gross debt of \$ 7.5 billion.<sup>29</sup> *Eurasian* is currently experiencing difficulties with: repaying its debts to a number of Russian banks; a very high level of financial leverage (measured as ratio of total debt to total assets); and low commodity prices.<sup>30</sup> Credit rating agency Moody's considers *Eurasian's* deleveraging prospects 'insignificant' due to the company's inability to sell any large assets and reduce its debt in the current economic environment, and has recently downgraded the company's rating.<sup>31</sup> In Congo, more than 2,000 jobs will be cut in April 2016 at *Eurasian's* Boss Mining and Congo Cobalt Corporation, a full subsidiary of *Eurasian*.<sup>32</sup>

Although *Eurasian* is registered in Luxembourg, the company is firmly grounded in Kazakhstan.<sup>33</sup> *Eurasian* is 40 per cent owned by the Kazakh government and comprises one third of the mining and metals sector in Kazakhstan, where it represents 4 per cent of GDP.<sup>34</sup> Two out of five board members are directly appointed by the Kazakh government.<sup>35</sup> Sixty per cent of *Eurasian's* shares are owned by three Kazakh businessmen.<sup>36</sup> The Serious Fraud Office, the specialist prosecuting authority in the United Kingdom, is currently conducting a criminal investigation into the company "focused on allegations of fraud, bribery and corruption around the acquisition of substantial mineral assets".<sup>37</sup>

Despite the distance from *Eurasian's* headquarters and from all of its industrial operations, the Netherlands has a significant position in *Eurasian's* business structure. In fact, the company's largest Dutch subsidiary, *Eurasian Resources Group BV* registered in Amsterdam, owns 106 of the total 109 known legal entities in *Eurasian's* corporate group. Boss Mining, Frontier and Comide are all subsidiaries of the Dutch *Eurasian Resources Group BV*.<sup>38</sup> To gain access to *Bahia Minerals BV's* Brazilian iron ore project, *Eurasian* acquired all of the company's shares from *Ardila Investments NV*, a subsidiary of *Zamin BM NV*, which is part of the *Zamin* mining group owned by Indian billionaire Pramo Agarwal. *Zamin* later sued *Eurasian*; legal processes are ongoing at the time of writing of this report.

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28 Moody's Investors Service, Moody's downgrades CFR to Caa1 for Eurasian Resources Group; negative outlook., 2 October 2015, <[https://www.moody's.com/research/Moodys-downgrades-CFR-to-Caa1-for-Eurasian-Resources-Group-negative-PR\\_335456](https://www.moody's.com/research/Moodys-downgrades-CFR-to-Caa1-for-Eurasian-Resources-Group-negative-PR_335456)> 2 March 2016.

29 Ibid.

30 Ibid.

31 Ibid.

32 Mining Weekly, *ENRC to cut over 2000 jobs in Congo – union*, 3 March 2016, <<http://www.miningweekly.com/article/enrc-to-cut-over-2-000-mining-jobs-in-congo-union-2016-03-03>> 6 March 2016.

33 ERG website, no date, <<https://www.erg.kz/en/content/o-kompanii>> 2 March 2016.

34 Ibid.

35 Moody's investor service, "Rating action: Moody's downgrades CFR to Caa1 for Eurasian Resources Group; negative outlook", 2 October 2015, <[https://www.moody's.com/research/Moodys-downgrades-CFR-to-Caa1-for-Eurasian-Resources-Group-negative-PR\\_335456](https://www.moody's.com/research/Moodys-downgrades-CFR-to-Caa1-for-Eurasian-Resources-Group-negative-PR_335456)> 9 March 2016.

36 The three billionaire shareholders, all three originally non-Kazakhs, are the co-founders of the company, which came into existence in 1994: Alexander Machkevitch, Patok Chodiev, and Alijan Ibragimov. Reuters, *ENRC, Zamin set for London court clash over Brazil mine next year*, 24 January 2015, <<http://in.reuters.com/article/mining-court-pedradeferro-idINL6NOV23Z220150123>> Financial Times, *ENRC founders made good in Kazakhstan*, 3 May 2013, <<http://www.ft.com/intl/cms/s/0/71a13774-b3e0-11e2-ace9-00144feabdc0.html#axzz42PZeQwsY>> 8 March 2016.

37 SFO, no date, <<https://www.sfo.gov.uk/cases/enrc/>> 2 March 2016.

38 Orbis database, *Eurasian Resources Group B.V. ownership report*, no date. <[www.orbis.bvdinfo.com](http://www.orbis.bvdinfo.com)> 4 April 2016.

In 2010, Eurasian was involved in a legal dispute concerning a conflict with Canadian company *First Quantum Minerals*. *First Quantum* had had its Kolwezi project and other assets expropriated by the Congolese government in 2009 after the company had been judged to be guilty of contract violations.<sup>39</sup> *First Quantum* was said to have acquired Kolwezi for US\$ 260 million and to have invested another US\$ 400 million building the project until its expropriation in 2009.<sup>40</sup> A few months after the government seized *First Quantum*'s assets, they were sold to Dan Gertler, who, in turn, sold them to *Eurasian* in the form of a controlling stake in *Camrose*, a holding company controlling some of Gertler's assets.<sup>41</sup> For this majority stake in *Camrose*, including Kolwezi and other assets, Eurasian declared to have paid a mere US\$175 million.<sup>42</sup> The dispute was finally settled when *First Quantum* and *Eurasian* reached an agreement in 2012: *First Quantum* no longer claimed back its Kolwezi tailings project, the Frontier and Lonshi mines and related exploration interests, and dropped all legal claims in return for a US\$ 1.25 billion payment by *Eurasian*.<sup>43</sup>

Together with Rights and Accountability in Development (RAID), in May 2013 ACIDH filed an official complaint against Eurasian and its operations in DRC with the UK's national contact point for the OECD Guidelines for Multinational Enterprises. In March 2016, the UK government decided on the case, recommending that Eurasian "should provide better information to the communities about the standards of conduct expected of staff and security contractors and advise them about changes to the schedule for mining", and that Eurasian should use its influence with its subsidiaries to ensure community access to water.<sup>44</sup>

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39 Financial Times, "ENRC mines a seam of anger in Katanga", 20 October 2010, <<http://www.ft.com/intl/cms/s/0/008ae8c0-dc7c-11df-a0b9-00144feabdc0.html#axzz42PZeQwsY>> 8 March 2016.

40 Reuters, "Update 3 – First Quantum starts legal action against ENRC", 15 September 2010, <<http://www.reuters.com/article/firstquantum-enrc-idINLDE68E05M20100915>> Financial Times, "Disquiet over ENRC's purchase of Congo assets", 3 September 2010. 8 March 2016.

41 Financial Times, "Disquiet over ENRC's purchase of Congo assets", 3 September 2010.

42 Reuters, op.cit.

43 First Quantum Minerals Ltd. Press Release Details, "First Quantum reaches agreement with ENRC to dispose of First Quantum's Residual DRC assets and to settle all claims in relation to First Quantum's DRC operations", 5 January 2012, <<http://www.first-quantum.com/Media-Centre/Press-Releases/Press-Release-Details/2012/First-Quantum-Reaches-Agreement-With-ENRC-to-Dispose-of-First-Quantums-Residual-DRC-Assets-and-to-Settle-All-Claims-in-Relati/default.aspx>> 8 March 2016.

44 Right and Accountability in Development, ENRC (now Eurasian Resources Group) failed to respect human rights, says UK government watchdog, 12 March 2016, <<http://www.raid-uk.org/blog/enrc-now-eurasian-resources-group-failed-respect-human-rights-says-uk-government-watchdog>> 4 April 2016.

## 2 Violations at industrial mining sites

For years civil society organisations have been gathering evidence on environmental damage and human rights violations associated with the mining sector in southern DRC, confirming suspicions that the sector is associated with gross and systematic human rights violations and severe environmental pollution. Private companies as well as government authorities have been held responsible for violations of Congolese and international human rights law, and there have been numerous publications about these issues.

In January 2016 Amnesty International and Afrewatch launched the report *This is what we die for*, which describes the working conditions and health and safety issues experienced by the up to 150,000 artisanal miners in Katanga, including an estimated 40,000 children.<sup>45</sup> The report shows how workers risk their lives in the mines, how corrupt authorities collect payments from artisanal miners, how Gécamines security guards and police assault children and adults, and how traders, smelters, and eventually end users procure the minerals.<sup>46</sup>

Focusing on industrial mining operations in Katanga rather than on artisanal mining, SOMO and its partners ACIDH, Afrewatch and Premicongo have collected information on a variety of mining companies and their relation to local communities. In the 2011 report *Unheard Voices*, ACIDH and SOMO described the impact of five companies on local communities: Tenke Fungurume Mining, Boss Mining, Ruashi Mining, South Katanga Mining Company, and Chemical of Africa.

In 2014 and 2015, ACIDH and Afrewatch conducted a new study on the Société d'Exploitation de Kipoi (SEK) and continued to work on community issues related to the activities of Golden African Resources and *Boss Mining*. At the same time, Premicongo undertook a new study on the social responsibilities of the *Minière de Kalumbwe Myunga (MKM)* and *Huachin Mining*. In all cases the NGOs attempted to engage not only with communities, but also with authorities and the companies themselves. Authorities and companies frequently refused to communicate or share information with the NGOs. In some cases, continued efforts of the Congolese NGOs and the communities have led to a dialogue between companies and affected communities.

POM, a Congolese network of civil society organisations working on mining issues, has written a report about *Eurasian's Frontier* operations (set to be published in 2016) which describes in detail how the villagers of Sakania and Kimfumpa are living in extreme poverty since their land was expropriated by the mining company.<sup>47</sup> The forced eviction has left them with a critical lack of access to

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45 Amnesty International and Afrewatch, "This is what we die for. Human rights abuses in the Democratic Republic of the Congo power the global trade in cobalt," January 2016, <<https://www.amnesty.org/en/documents/afr62/3183/2016/en/>> 2 February 2016.

46 Ibid.

47 POM report, *Gagnons ensemble*, 2015.

water and food.<sup>48</sup> In this report, *Eurasian* also features in various examples of human rights violations by its subsidiary *Boss Mining*.

This chapter describes a variety of environmental and human rights violations against communities, recorded at the mining sites of the above-mentioned companies. No research was conducted into issues that have less clear links with the local communities, such as transparency, corruption, tax payments and tax avoidance, contract negotiations or lobbying practices.



Access to the industrial area of Chemaf.

## 2.1 Environment and health

### Loss of vegetation and water pollution in protected areas

The area of the Basse Kando, which has been a protected hunting reserve since 1957, is supposed to be exempt from all mineral exploitation activities.<sup>49</sup> Nevertheless, like many other protected areas in Katanga, the Ministry of Mines is granting mining concessions in the Basse Kando, leading to the destruction of vegetation.<sup>50</sup> 'Degazettement' – or loss of formal protection of an area – as is occurring

48 Ibid.

49 DRC Mining Regulation, Chapter 2, Article 8; and Second degree by the Minister of the Environment, confirming the first decree from March 1957 indicating the status of the Basse Kando as a protected hunting reserve, December 2006. IUCN Protected Area Category VI, defined as 'protected areas that conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems[...] where a proportion is under sustainable natural resource management van where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.' IUCN website, no date, <[http://www.iucn.org/about/work/programmes/gpap\\_home/gpap\\_quality/gpap\\_pacategories/gpap\\_category6/](http://www.iucn.org/about/work/programmes/gpap_home/gpap_quality/gpap_pacategories/gpap_category6/)> 12 December 2015.

50 L. Dupin et al., *Land cover fragmentation using multi-temporal remote sensing on major mine sites in southern Katanga (Democratic Republic of Congo)*, *Advances in Remote Sensing*, Vol.2 No 2 (2013), Article 33173, and Premicongo, "Mining operations: a menace for Katanga's protected areas. The case of Phelps Dodge Congo in the Basse Kando.", 2013, unpublished.

in the Basse Kando, poses substantial risks to forests and forest carbon stocks.<sup>51</sup> *Phelps Dodge Congo* (of *Freeport McMoRan*), *Glencore* and *COVEC* are among the mining companies operating in the reserve. By granting licences to the companies, the ministry is violating national law, as are mining companies operating in the area which follow their agreements with the ministry rather than apply DRC's national law to their operations.<sup>52</sup>



Despite the protected status of the Basse Kando reserve, many mining companies were granted mining licenses and have started operating in the reserve. This picture gives an aerial view of *Glencore's Mutanda Mining* (right), and *COVEC's MKM* (left).<sup>53</sup>

Chinese mining company *Minière de Kalumbwe Myunga (MKM)* is one of the companies working in the Basse Kando. In 2015, Premicongo researchers found that *MKM's* hydro-metallurgical plant disperses effluent directly into the Dikanga river, thereby polluting the river and rendering the water unfit for use by villagers in the surrounding area. Fishing, irrigating farmland, washing and drinking have begun to impose a health risk. Swimmers complain about skin rashes and eye irritation. Villagers explained to Premicongo researchers that the water smells bad, and they occasionally observe dead fish floating in the river.<sup>54</sup> The testimonies were verified through scientific tests on the water quality, showing that the water is highly mineralised due to industrial activities, and contains very high concentrations of lead.<sup>55</sup> The high lead concentrations render the water unsuitable for any

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- 51 D.P. Edwards et al., *Mining and the African Environment*, *Conservation Letters*, 18 December 2013, <<http://onlinelibrary.wiley.com/doi/10.1111/conl.12076/full>> J.L. Forrest et al., *Tropical deforestation and carbon emissions from Protected Area Downgrading, Downsizing, and Degazettement (PADDD)*, *Conservation Letters*, 16 August 2014, <<http://onlinelibrary.wiley.com/doi/10.1111/conl.12144/epdf>> 2 March 2016.
- 52 Premicongo, "Mining operations: a menace for Katanga's protected areas. The case of Phelps Dodge Congo in the Basse Kando". 2013, <[http://media.wix.com/ugd/81d92e\\_792cdf6204a5430dae05a3796cde8deb.pdf](http://media.wix.com/ugd/81d92e_792cdf6204a5430dae05a3796cde8deb.pdf)> 12 December 2015.
- 53 Photograph Google Maps. For more information, see Premicongo, "Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin," and Swissinfo.ch, NGOs accuse Glencore of human rights violations", 2 March 2016.
- 54 Premicongo, "Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin. October 2015, <[http://www.congomines.org/system/attachments/assets/000/000/925/original/Les\\_investissements\\_chinois\\_au\\_Katanga.pdf?1447927146](http://www.congomines.org/system/attachments/assets/000/000/925/original/Les_investissements_chinois_au_Katanga.pdf?1447927146)> 12 December 2015.
- 55 Samples taken by analysts of Robinson International Afrique SARL, interpretation of results by Dr Arthur Kaniki, expert on minerals and environment, of the University of Lubumbashi. For more details on test results, see Premicongo, "Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin". October 2015, <[http://www.congomines.org/system/attachments/assets/000/000/925/original/Les\\_investissements\\_chinois\\_au\\_Katanga.pdf?1447927146](http://www.congomines.org/system/attachments/assets/000/000/925/original/Les_investissements_chinois_au_Katanga.pdf?1447927146)> 12 December 2015.

consumption by humans or animals and for the irrigation of agricultural land.<sup>56</sup> Despite the clear changes in water quality since the beginning of mining operations in 2011, villagers continue to consume the water because there is no other water source available.<sup>57</sup>

### **Air and noise pollution in the city**

Several researched mining and processing facilities are located in Lubumbashi, Katanga's capital. Others are operating in smaller towns or villages. Most of them have communities living in the vicinity. Figure 3 presents two maps of the same area of southern Katanga. In the upper map, the main mining sites are indicated by red arrows, while the second map shows the area's towns and roads.

The physical proximity of the industrial operations to local towns and villages implies that thousands of people are exposed every day to hazardous fumes, dust, noise, and effluent water flowing from mines, trucks, and processing facilities. Local people are not protected from the diesel fumes and dust coming off the numerous trucks transporting the ores, equipment and chemicals to and from the industrial sites. Breathing in this dust is harmful, particularly in the Katangese context, where trucks drive through soil and dirt that contains significant amounts of heavy metals and radioactive materials. As the trucks travel, this dirt is spread over large areas, thus affecting the health of the entire population along the road, as shown on the photos on page 22.

As the world's primary cobalt exporter, southern DRC has intense truck traffic. Since the national railway is largely dysfunctional and politicians and businessmen have invested in trucking, all mineral ores, machinery, equipment and chemicals are transported by truck. Roads are few in number and most often unpaved. Villages are usually situated along main roads, and thus exposure levels for people in villages and towns are high. For example, the main truck route for heavy vehicles, the N1 (see lower map, Figure 3), passes through Lubumbashi's city centre. Here, thousands of trucks pass each day on their way to the Zambian border. The cumulative pollution of the mining companies has a significant impact on the local population.

An example of industrial activity in the city is the Chinese mining company *Huachin*, which operates in the city of Likasi (see map, Figure 3). One of its activities is re-processing mining waste from previous operations that are stored in the open air in a residential area called Panda. The inhabitants of Panda complain about the dust entering their houses, the noise of trucks and machines that continue all day long; ground vibrations; and smoke escaping from the furnaces day and night.<sup>58</sup>

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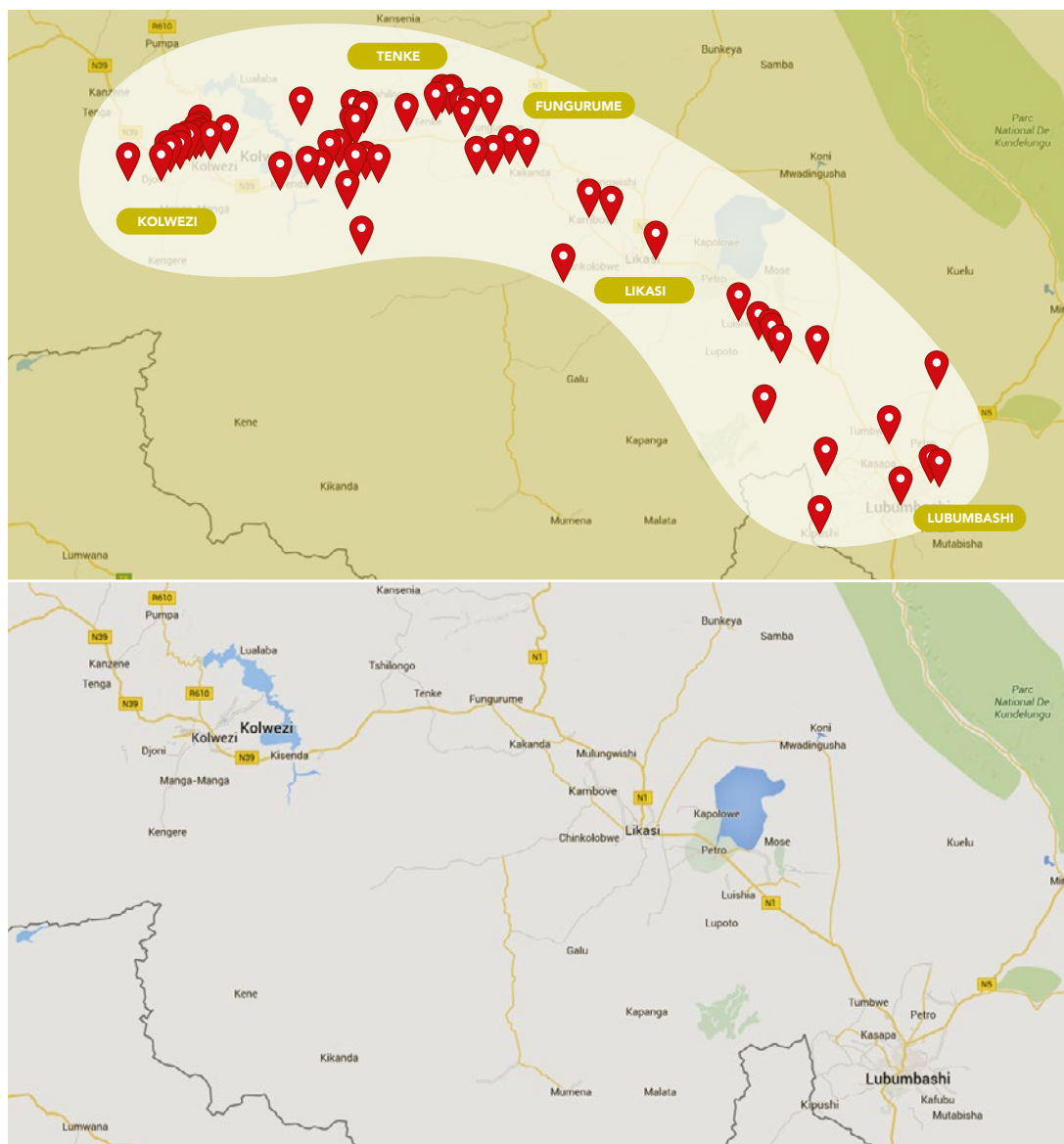
56 Premicongo, op.cit.

57 Ibid.

58 Testimonies inhabitants, interviewed by Premicongo researchers. Premicongo, "Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin". October 2015, <[http://www.congomines.org/system/attachments/assets/000/000/925/original/Les\\_investissements\\_chinois\\_au\\_Katanga.pdf?1447927146](http://www.congomines.org/system/attachments/assets/000/000/925/original/Les_investissements_chinois_au_Katanga.pdf?1447927146)> 12 December 2015.



**Figure 3: The copper belt in Katanga**



The image above shows current industrial mining operations, while the image below shows the locations of the towns and larger villages, connected by the N1 highway. The overlap between populated areas and mining concessions shows a large part of the population in this part of Katanga lives near mining operations.<sup>59</sup>

59 Upper picture from Carter Center, Congomines.org, <<http://www.congomines.org/map>> 2 March 2016. Picture below from Google Maps, 2 March 2016.



*Transporting mineral ores in Lubumbashi. The diesel fumes present a health hazard to inhabitants.<sup>60</sup>*



*A truck passing Chemaf facilities causing considerable road dust . The continuous heavy traffic over unsurfaced roads reduces visibility and causes hundreds of thousands of citizens in Katanga to inhale significant amounts of dust on a daily basis. Citizens inhale not only particulate matter, but also traces of toxic and radioactive materials that naturally occur in Katanga's soils and that are exposed through mining operations.<sup>61</sup>*

60 Photograph taken by SOMO, May 2014.

61 The persons appearing in the photograph are not related to the contents of this report. Photograph taken by SOMO. May 2014.





*Mining industry trucks pass through Lubumbashi city centre throughout the day.*

The same company disperses its waste water into the area surrounding its installations in the city of Lubumbashi.<sup>62</sup> During interviews with Premicongo researchers, inhabitants in Likasi and Lubumbashi pointed out dense smoke escaping from the processing facilities, and expressed their fear of contracting lung diseases and other respiratory problems.<sup>63</sup>

Residents living adjacent to *Shalina Resources' Chemaf* processing plants in Lubumbashi complain about dust generated by passing trucks, a change of water colour in local wells, chimney smoke causing breathing difficulties, and plants drying out.<sup>64</sup>

62 Testimonies inhabitants, interviewed by Premicongo researchers. Premicongo, "Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin". October 2015, <[http://media.wix.com/ugd/81d92e\\_c0541c43968541a1a1fec27fc9d3d116.pdf](http://media.wix.com/ugd/81d92e_c0541c43968541a1a1fec27fc9d3d116.pdf)> 12 December 2015.

63 Ibid.

64 ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> , 12 December 2015.



Communities living next to Chemaf's plants have serious concerns about air and water pollution. The pictures show one public road adjacent to the wall of the Chemaf property. The upper picture includes Chemaf drainage systems connecting to the public sewage system. The blue buildings in the back are Chemaf's.<sup>65</sup>

<sup>65</sup> The persons appearing in the photograph are not related to the contents of this report. Photographs taken by SOMO, May 2014.





*Aerial views of Ruashi mine showing the proximity of the mine to thousands of Lubumbashi houses. During the explosions necessary to free the ore in the mining pit, the people living closest to the mine are evacuated. After several hours, they are allowed to return to their homes.<sup>66</sup>*

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<sup>66</sup> Google maps photographs, 2 March 2016.

### Health: Exposure to metals

Due to the proximity of the mines and plants to residential areas, not only workers but entire communities suffer exposure to pollutants from industrial operations. Residents literally live next to the mines and the plants. For example, the distance between the mining pit of *Ruashi Mining* and the homes of residents is only a few metres, even though the Congolese mining code states that mines ought to be at a distance of at least 90 metres from an inhabited area and at least 180 metres from inhabited houses.<sup>67</sup>

Smoke escaping from factories built in populated areas by *Chemaf* leads residents to shut themselves in their houses at night to avoid it, while people are reported to suffer from respiratory problems, especially children and elderly people in the area.<sup>68</sup> Visitors to the area witness ore concentrates falling off open dump trucks, creating dangerous dust in the streets.<sup>69</sup>

Chronic exposure to dust containing cobalt compounds can lead to hard-metal lung disease, which can be fatal.<sup>70</sup> It can also lead to a variety of other health problems, including asthma, impaired lung function and pneumonia.<sup>71</sup> Children and people with malnutrition are particularly vulnerable.<sup>72</sup> In Amnesty's 2016 report, many artisanal miners report respiratory problems.<sup>73</sup> As they are in no way shielded from the mining and processing activities, it can be expected that non-worker populations will suffer from health problems caused by industrial pollutants as well. During interviews by SOMO's partners in 2015, many people complained about air pollution and respiratory problems.<sup>74</sup>

Scientific studies confirm the health effects mining operations can have on communities in the vicinity. A 2014 study on exposure routes for cobalt for the non-occupationally exposed population showed copper concentrations in urine were 4.5-fold (adults) to 6.6-fold (children) higher in mining areas

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- 67 Afrewatch, press release No.1 2015, "Les opérations de minage de l'entreprise Ruashi Mining menacent les habitants du quartier Kalukuluku dans la Commune de Ruashi", <[http://media.wix.com/ugd/415cf5\\_242a1f2999334a579201cb339db596f7.pdf](http://media.wix.com/ugd/415cf5_242a1f2999334a579201cb339db596f7.pdf)> 12 December 2015.
- 68 ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> , 12 December 2015.
- 69 SOMO observation, May 2014. ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> , 12 December 2015.
- 70 Centers for Disease Control and Prevention, Cobalt, no date, <<http://www.cdc.gov/niosh/topics/cobalt/>> 12 December 2015.
- 71 United States Environmental Protection Agency, Cobalt Compounds, 2000, <<http://www3.epa.gov/airtoxics/hlthef/cobalt.html>>; US Department of Health and Human Services, "Toxicological profile for cobalt", April 2004, <<http://www.atsdr.cdc.gov/toxprofiles/tp33.pdf>> 12 December 2015.
- 72 United States Environmental Protection Agency, Cobalt Compounds, 2000, <<http://www3.epa.gov/airtoxics/hlthef/cobalt.html>>; US Department of Health and Human Services, "Toxicological profile for cobalt", April 2004, <<http://www.atsdr.cdc.gov/toxprofiles/tp33.pdf>> 12 December 2015.
- 73 Amnesty report, *This is what we die for*
- 74 These publications can be found online on the websites of the organisations. ACIDH, SOMO, Good Electronics, : Unheard Voices", December 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> Premicongo, "Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin.", October 2015, <[http://www.congomines.org/system/attachments/assets/000/000/925/original/Les\\_investissements\\_chinois\\_au\\_Katanga.pdf?1447927146](http://www.congomines.org/system/attachments/assets/000/000/925/original/Les_investissements_chinois_au_Katanga.pdf?1447927146)> ACIDH and Afrewatch, unpublished report on SEK, publication soon available on <http://www.acidhcd.org/>

than in a control area.<sup>75</sup> In adults, the main contributor to copper intake was consumption of food (vegetables, cereals and fish), while in children, dust ingestion appeared to be the main contributor.<sup>76</sup>

Not only cobalt was found in the bodies of people from mining areas: a 2009 study found elevated levels of 16 different minerals in urine samples among people from mining areas.<sup>77</sup> In particular, people living within a three-kilometre radius of mines or refineries had remarkably high levels of metals in their bodies.<sup>78</sup> Compared with a control group (the US general population), people in the three-kilometre range showed 4-fold (cadmium and uranium), 43-fold (cobalt), and 5-fold (lead) higher urinary concentrations.<sup>79</sup> They also showed significantly higher values for arsenic.<sup>80</sup> Cobalt concentrations were markedly elevated in more than half of the adults and in nearly 90 per cent of children.<sup>81</sup> Similarly, a 2014 study on copper mining communities just across the border, in Zambia, showed elevated zinc, selenium, lead, copper and cobalt levels in the bodies of copper-mining town residents.<sup>82</sup>

## 2.2 Land and livelihoods

### Public consultations and Free, Prior and Informed Consent

Having free, prior and informed consent (FPIC) is important in giving communities a decisive voice over projects that influence their rights to use and control land and other resources. In the words of the Food and Agriculture Organization (FAO): “In the practical implementation of FPIC, indigenous peoples and local communities themselves, as the rights-holders, should shape the form, pace and participants in the process by which states and other actors respect FPIC. In order to satisfy the FPIC standard, efforts must be made to understand the particular customary or other freely identified decision-making processes used by the affected peoples or communities.”<sup>83</sup>

75 K. Cheynts et al., “Pathways of human exposure to cobalt in Katanga, a mining area of the D.R. Congo”, *Science of The Total Environment*, Vol.490, 15 August 2014, pp.313-321, <<http://www.sciencedirect.com/science/article/pii/S004896971400672X>> 12 December 2015.

76 Ibid.

77 C. Lubaba Nkulu Banza et al., “High human exposure to cobalt and other metals in Katanga, a mining area of the Democratic Republic of Congo”, *Environmental Research*, Vol.109, issue 6, August 2009, pp.745-752, <<http://www.sciencedirect.com/science/article/pii/S0013935109000814>> 12 December 2015.

78 Ibid.

79 Ibid.

80 Ibid.

81 Ibid.

82 W. Ndililila et al., “Environmental and toenail metals concentrations in copper mining and non-mining communities in Zambia”, *International Journal of Hygiene and Environmental Health*, 217(1):62-9, January 2014, <<http://www.ncbi.nlm.nih.gov/pubmed/23623595>> , 12 December 2015.

83 FOA, “Respecting Free, Prior and Informed Consent. Practical guidance for governments, companies, NGOs, indigenous peoples and local communities in relation to land acquisition”, 2014

The Congolese mining code has several articles related to consultation:<sup>84</sup>

- Article 477 describes the obligations of mining companies towards populations affected by their operations: to collect information and concerns about the impacts of the proposed developments, develop a plan for consultation, and inform communities about proposed development and rehabilitation measures, while maintaining constructive dialogue.
- Article 478 describes the phases of the consultation plan. These phases include mitigation and rehabilitation proposed by the contractor, the environmental impact, as well as responses and reactions of people affected by the mining project. Also included is translating the final project plan into local language or dialect.
- Article 479 states that mining companies should share leaflets in local languages or dialects with people affected by their projects that explain the operation and its impacts, while the article also prescribes how Environmental Impact Assessments of mining projects should take place, and how mining companies should develop mechanisms and procedures that allow populations affected by their operations to voice their concerns.

In most of the cases researched, communities had not been consulted properly prior to mining operations.<sup>85</sup> In some cases, companies have organised meetings to inform communities about their social projects, but not about their core activities and the effects thereof on the communities. By not organising public consultations, companies are not adhering to Congolese law which states that companies have the responsibility to inform communities about the project and its negative and positive impacts, and its mitigation and rehabilitation measures.<sup>86</sup> The Congolese Mining Regulation also states that companies have the obligation to maintain a constructive dialogue with affected communities.<sup>87</sup>

It is not only the low number of consultations organised that is of concern – also of concern is the quality of these meetings with communities. Organising meetings with community representatives can either be a tick-box exercise, or real efforts can be made to ensure meaningful interaction is taking place. In the first case, community members (such as women, youth, marginalised individuals) can feel they are not represented; participants may not have access to sufficient information as not all relevant information is distributed to the community; language barriers are not overcome; cultural barriers hinder real interaction; and communication remains a one-way process wherein the companies are not interested in communities' answers. While such consultations can be used by mining companies to justify their operations, it is clear that the aims of the consultations are never achieved.

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84 Congo Democratic Republic: Mining laws and regulations handbook. Volume 1 strategic laws and regulations (2013).

85 Exception is Tenke Fungurume Mining which has organised over a hundred consultation meetings with local communities, starting before the mining activities started. ACIDH researchers concluded that the company had made important steps to communicate with the communities, but that communities could not effectively participate in the consultation sessions due to language problems and lack of possibilities to react to the company's statements. See ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> 12 December 2016.

86 Articles 451, 452, 477 of the Règlement minier. See also ACIDH and Afrewatch, "Rapport sur les impacts des activités de la Société d'Exploitation de Kipoi (SEK) sur les communautés locales", 2016.

87 Article 477 of the Règlement minier. See also ACIDH and Afrewatch, "Rapport sur les impacts des activités de la Société d'Exploitation de Kipoi (SEK) sur les communautés locales", 2016.

Although the *Société d'Exploitation de Kipoi (SEK)* claims to have operated in accordance with Congolese law by organising consultations with communities during Environmental Impact Evaluation reviews in 2008 and 2011, villagers interviewed by ACIDH and Afrewatch researchers in 2015 expressed their view that they had never had any role in the decision-making process regarding the mine. They stated SEK had organised two two-hour meetings about its social projects in 2014, but were frustrated as they felt they were not initially consulted about the operations, and did not understand what was presented at the meeting.<sup>88</sup> SEK has announced it has improved its community consultation processes in 2015, and that it will organise more community consultations in 2016, that will hopefully lead to improved results.<sup>89</sup>

### Demolition of houses

At most of the researched mining operations, citizens have had their land and property expropriated by the mining companies. Some sold their houses, many sold their land, and many more saw their access to land destroyed – this was land that was not legally theirs but which they used to sustain themselves, such as forests from which wood and essential non-timber forest products are collected.

The expropriation has been disastrous for many people, who have seen few benefits. Expropriation was often carried out inadequately, unilaterally decided, and when citizens were compensated it was hardly ever enough to make up for the loss of income created by the loss of the land. Due to the fact that the affected land owners were already living in dire poverty, these expropriations have literally put their lives at even higher risk.

Hundreds of families left their homes and agricultural land to allow the construction of *Tenke Fungurume's* plant, after which they were forced to live in tents for two years and were only paid US\$ 200 to compensate for their loss of income.<sup>90</sup> In the end, all displaced people received new housing, although relocated families complained about the poor quality of the soil in their new village, and had no access to electricity and a health centre at the time of ACIDH's research.<sup>91</sup>

*Frontier* relocated villagers to Kimfumpa (where 52 houses were built) after they took over the village of Kishiba and the village's agricultural lands. The community had lived for centuries in and around Kishiba, mostly on agriculture with access to a river, whereas their new home in Kimfumpa is much smaller and without access to water. There is not enough land and hardly any is arable, causing some people to leave for Zambia. The houses are cramped – most around 10m<sup>2</sup> – and not solidly constructed, with termites eating the windows and doors. There are no health and education facilities nearby, and villagers depend on hydrants that deliver rusty water – only 2 out of 3 of which are operational.<sup>92</sup>

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88 ACIDH and Afrewatch, "Rapport sur les impacts des activités de la Société d'Exploitation de Kipoi (SEK) sur les communautés locales", 2016.

89 SEK telephone communication with SOMO, 21 March 2016.

90 ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> 12 December 2015.

91 Ibid.

92 POM report, *Gagnons ensemble*, 2016, forthcoming.





The Frontier mine of Eurasian Resources Group (not including the tailings storage facility in the centre of the picture) covers an area 3.5x3.5 kilometres, covering a surface area larger than the nearby town of Sakania. According to a POM report, 600 farmers owning of 430 hectares of agricultural land that were expropriated by the mining company were not consulted beforehand. Many of them have fallen into extreme poverty since.<sup>93</sup>

Frontier relocated villagers to Kimfumpa (where 52 houses were built) after they took over the village of Kishiba and the village's agricultural lands. The community had lived for centuries in and around Kishiba, mostly on agriculture with access to a river, whereas their new home in Kimfumpa is much smaller and without access to water. There is not enough land and hardly any is arable, causing some people to leave for Zambia. The houses are cramped – most around 10m<sup>2</sup> – and not solidly constructed, with termites eating the windows and doors. There are no health and education

93 Photograph Google Maps. Numbers from POM report, 2015.



facilities nearby, and villagers depend on hydrants that deliver rusty water – only 2 out of 3 of which are operational.<sup>94</sup>

In 2009, 400 homes were demolished by the police near the Luiswishi mine, in Kawama village.<sup>95</sup> The demolition followed illegal miners allegedly entering the mining concession and protests of Kawama inhabitants against *South Katanga Mining Company (CMSK)*, at the time a joint venture of *Malta Forrest General Company* and *Gécamines*.<sup>96</sup> Several people were killed by the police.<sup>97</sup> A few thousand people lost their homes and often did not have the means to construct new homes, and ended up living in plastic tents.<sup>98</sup> Years after the forced evictions, which were conducted without due process or warning and are therefore a violation of Congolese and international law, victims have not received any compensation.<sup>99</sup> Although Amnesty International has evidence that the mining company provided bulldozers to the police, *Forrest Group* claims it had no responsibility for the planning or conduct of the violent events, and that the mining personnel only cooperated with the police under duress.<sup>100</sup> Several human rights organisations continue to hold *Forrest Group* accountable to ensure access to effective remedy.<sup>101</sup>

### Loss of livelihoods – subsistence farming

*Huachin's* operations in Mabende have started with deforestation of the area. This has caused a loss of subsistence livelihoods among local communities, as they have seen a clear decrease in the availability of non-timber forest products (NTFPs), such as honey, caterpillars, medicinal plants, and bush meat.<sup>102</sup> The same is said by villagers depending on the forest of Myunga, where *MKM* is operating.<sup>103</sup>

94 POM report, Gagnons ensemble, 2016, forthcoming.

95 American Association for the Advancement of Science, Geospatial and Technologies Project, "Satellite imagery assessment of forced relocations near the Luiswishi Mine", November 2014, <[http://www.aaas.org/sites/default/files/AAAS\\_DRC\\_2014.pdf](http://www.aaas.org/sites/default/files/AAAS_DRC_2014.pdf)>, ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)>, 12 December 2015.

96 Three years after the incident, Forrest Group sold its shares in CMSK to Gécamines. ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)>, 12 December 2015.

97 ACIDH and Afrewatch, "Rapport sur les impacts des activités de la Société d'Exploitation de Kipoi (SEK) sur les communautés locales", 2016.

98 Amnesty International, "Bulldozed : How a mining company buried the truth about forced evictions in the Democratic Republic of Congo", 2014, <[http://www.amnesty.eu/content/assets/Reports/Bulldozed\\_DRC\\_report.pdf](http://www.amnesty.eu/content/assets/Reports/Bulldozed_DRC_report.pdf)>, 12 December 2015.

99 Amnesty International, "Bulldozed : How a mining company buried the truth about forced evictions in the Democratic Republic of Congo", 2014, <[http://www.amnesty.eu/content/assets/Reports/Bulldozed\\_DRC\\_report.pdf](http://www.amnesty.eu/content/assets/Reports/Bulldozed_DRC_report.pdf)>, 12 December 2015.

100 Ibid.

101 Including ACIDH, Amnesty International, and FIDH. See also International Federation for Human Rights (FIDH), Briefing paper, "Business and human rights: enhancing standards and ensuring redress", 2014, <[https://www.fidh.org/IMG/pdf/201403\\_briefing\\_paper\\_enhance\\_standards\\_ensure\\_redress\\_web\\_version.pdf](https://www.fidh.org/IMG/pdf/201403_briefing_paper_enhance_standards_ensure_redress_web_version.pdf)> 12 December 2015.

102 Premicongo, "Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin". October 2015, <Les investissements miniers chinois au Katanga et la détresse des communautés locales. Cas de la Minière de Kalumbwe Myunga (MKM) et de Huachin > 12 December 2015.

103 Ibid.



*Non-timber forest products such as these caterpillars and mushrooms form an important part of people's diets, yet they are becoming increasingly scarce due to deforestation in and around mining concessions.<sup>104</sup>*

In order for Chemaf to start operating its Etoile mine, nearly 300 people were forced to leave their land with very little compensation – land where they grew corn, cassava, and sweet potatoes, kept livestock and produced charcoal and beverages.<sup>105</sup> The villagers received a fraction of the amount their properties were worth: compensation ranged from US\$ 300 to US\$ 400.<sup>106</sup> The owners of 30 houses demolished by the police received amounts ranging from US\$ 700 to US\$ 1300 only.<sup>107</sup>

Over 100 families were forced to leave their houses in the village of Shilasimba to make way for SEK's Kipoi mining activities in 2011.<sup>108</sup> Subsequently, they constructed huts 10 kilometres from the company, at a site named Hewa Bora, where no basic infrastructure was available.<sup>109</sup> Medical care, schools, and drinking water were lacking.<sup>110</sup> Although SEK constructed a school in the area, children wanting to attend classes had to walk 14 kilometres to reach the school in Kangambwa. This is also where their families had to go to buy drinking water.<sup>111</sup>

Villagers entering the SEK concession area to collect wood, mushrooms, and rats or bush meat, say they are stopped by company security guards and by mining police.<sup>112</sup> Having lost access to their agricultural fields, and now having to walk 7 kilometres to the small fields they now cultivate, villagers claim they have seen a significant decrease in their production of corn, vegetables and roots.<sup>113</sup>

104 Photographs taken by SOMO, May 2014.

105 ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> , 12 December 2015.

106 Ibid.

107 Ibid.

108 ACIDH and Afrewatch, "Rapport sur les impacts des activités de la Société d'Exploitation de Kipoi (SEK) sur les communautés locales", 2016.

109 Ibid.

110 Ibid.

111 Ibid.

112 Ibid.

113 Ibid.

This combined loss of income, forced eviction and inadequate compensation amounts to an overall negative impact of the company's presence on this particular population. As SEK has only 250 permanent positions available – of which only a minority are local community members – employment generated for impacted villages is limited.<sup>114</sup>

According to the company, these villagers had no basic infrastructure in Shilasimba either, and most of them were artisanal miners working in the SEK concession.<sup>115</sup> The company also claims that the people who owned land have received an average of 500 USD from the government to compensate for the loss of land.<sup>116</sup>

Amnesty International also reported on farmers being cut off from their livelihoods at the Chinese-Congolese joint venture *COMILU*, in Luisha.<sup>117</sup> Here, a rural road between Luisha village and the villagers' fields happened to cross the *COMILU* concession.<sup>118</sup> The road had reportedly been used for decades to collect water and reach the fields, but was blocked by *COMILU* by digging a large trench.<sup>119</sup> The community was not consulted beforehand. *COMILU* constructed an alternative road around the concession, but for villagers this meant the daily walk to their fields – which was usually a 15-20 minute walk – had become a two-hour walk.<sup>120</sup> Suddenly confronted with the trench, villagers tried to create a passage for motorcycles and pedestrians. When the police intervened to disperse the crowd, one of the subsistence farmers was killed by a stray bullet.<sup>121</sup>

Twenty-two hectares of agricultural land were destroyed to make way for *CMSK*'s Luiswishi quarry. For this, 73 subsistence farmers who owned the land received compensation from *CMSK*, ranging from just US\$ 44 to US\$ 70.<sup>122</sup> They have since demanded fairer compensation, but during the three years prior to the visit of ACIDH researchers to the site, the company had not provided it.<sup>123</sup>

### Loss of access to water

The pollution of natural water resources by the mining industry has disastrous consequences for the local population. As part of their social programmes and in order to compensate for the industrial pollution of Katanga's natural water resources, many of the researched mining companies have taken measures to provide alternative water supplies for communities. These, however, have a crucial

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114 Employment number communicated by company, SEK reaction to SOMO draft report, 21 March 2016.

115 SEK telephone conversation SOMO, 21 March 2016.

116 Ibid.

117 Compagnie Minière de Luisha, a subsidiary of China Railway Group Ltd.

118 Amnesty International, "Profits and Loss. Mining and human rights in Katanga, Democratic Republic of the Congo.", 2013, <<https://www.amnesty.nl/nieuwsporaal/rapport/democratic-republic-congo-profits-and-loss-mining-and-human-rights-in-katanga>>; Groupe Forrest International, "Reaction to the Amnesty International report", 24 November 2014, <[http://www.forrestgroup.com/news\\_fichiers/42-reactionen.pdf](http://www.forrestgroup.com/news_fichiers/42-reactionen.pdf)> 12 December 2015.

119 Ibid.

120 Ibid.

121 Ibid.

122 ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> , 12 December 2015.

123 Ibid.

drawback: communities that could formerly sustain themselves have now become dependent on the company's continued commitment to provide water.

Drilling wells may sound like a promising start, but regular water-well system maintenance is essential, and water tanks need maintenance and proper cleaning. Even if companies are prepared to provide these services in the short term, there will inevitably come a time where they will stop doing so – whether after a change in management or a shift in priorities. If no long-term solutions are found, communities will be worse off as a result of short-term remedies to address water pollution.

At times, mining companies have been found to block access to water sources. *Ruashi Mining* has blocked a road used by villagers to walk to their water source, making it more difficult for 3,000 households to access water.<sup>124</sup> The operations of *Ruashi Mining* are also polluting the Luano river, which makes the water unfit for domestic use.<sup>125</sup> To address this problem, the company has provided two standpipes and four wells.<sup>126</sup> However, ACIDH researchers found that one standpipe and two wells were no longer functioning at the time of research.<sup>127</sup> Moreover, most of the communities surrounding the mine saw no wells or standpipes installed.<sup>128</sup> In addition, the water quality from the wells was inadequate, and local residents said they walk several kilometres per day to retrieve water from another source.<sup>129</sup> The company also restored Ruashi's water tank, but the tank appeared to be out of commission at the time of research.<sup>130</sup>

After the Kibembe and Luita rivers became polluted by mining operations, *Boss Mining* drilled two wells to provide clean drinking water for villagers in Kikaka. According to residents, company officials have analysed the water and told villagers that the water was not fit for consumption.<sup>131</sup> Subsequently, two drinking water storage tanks were installed by *Boss*. However, ACIDH researchers visiting the village found that the company had stopped providing water at least six months prior to the research, forcing villagers to consume water from polluted rivers and wells.<sup>132</sup>

### Social projects and employment

Mining companies have created employment and have introduced some projects for the benefit of communities, which could in theory compensate for some of the communities' economic losses. The 2015 field research on *SEK*, *Huachin* and *MKM*, however, showed poor performance both in terms of employment benefits and other social benefits.

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124 Afrewatch, press release, No.1 2015, "Les opérations de minage de l'entreprise Ruashi Mining menacent les habitants du quartier Kalukuluku dans la Commune de la Ruashi", <[http://media.wix.com/ugd/415cf5\\_242a1f2999334a579201cb339db596f7.pdf](http://media.wix.com/ugd/415cf5_242a1f2999334a579201cb339db596f7.pdf)> 12 December 2016.

125 ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> , 12 December 2015.

126 Ibid.

127 Ibid.

128 Ibid.

129 Ibid.

130 Ibid.

131 Ibid.

132 ACIDH and SOMO, "Unheard Voices. Mining activities in the Katanga province and the impact on local communities", November 2011, <[http://www.somo.nl/publications-en/Publication\\_3727](http://www.somo.nl/publications-en/Publication_3727)> , 12 December 2015.

Although *SEK* has constructed some school buildings, of the 1,500 children of school age, only 220 started the school year 2014-2015, and by the end of the year only 173 remained in the school because their parents could not afford the school fees.<sup>133</sup> Teachers complained to ACIDH researchers about their wages not being paid.<sup>134</sup> Like many of their students, they have to walk 10 kilometres to school every day.<sup>135</sup> In response, the company stated that *SEK* was commissioned to construct the school, but not to manage it or pay for the school's expenses.<sup>136</sup> The company states quite correctly that the provision of education remains the responsibility of the Congolese government, and the government should pay teachers and ensure students can attend classes.<sup>137</sup> Nevertheless, the project is an example of how social projects undertaken by mining companies do not necessarily lead to significant social improvements if all parties involved do not take full responsibility.

*SEK* is constructing a medical centre, but in 2015 ACIDH researchers found that construction had not advanced since April 2014, and that the buildings were in decay.<sup>138</sup> However, *SEK* states that although lack of funding caused delays in construction, the centre has now been completed and is successfully being operated by the Ministry of Health.<sup>139</sup>

Artisanal workers producing ore sold to *Huachin* are unprotected: they have no access to social benefits, health care, or compensation if they become disabled.<sup>140</sup> Families of workers who die while doing their job never receive any compensation.<sup>141</sup> Artisanal workers protesting against the mine owners face armed response.<sup>142</sup> *Huachin's* workers who are employed at *Huachin's* smelters and mine in Likasi and Lubumbashi claim they have no freedom of association; workers who dare to speak out against the monthly wages of US\$ 150 are dismissed immediately.<sup>143</sup> In 2015, when workers demanded better safety practices and personal protective equipment (PPE) for workers most at risk during their work in Mabende, *Huachin* management reacted by instantly dismissing 35 people.<sup>144</sup> Safety practices were not improved.<sup>145</sup>

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133 ACIDH and Afrewatch, "Rapport sur les impacts des activités de la Société d'Exploitation de Kipoi (SEK) sur les communautés locales", 2016.

134 Ibid.

135 Ibid.

136 SEK reaction to SOMO draft report, 21 March 2016.

137 Ibid.

138 ACIDH and Afrewatch, "Rapport sur les impacts des activités de la Société d'Exploitation de Kipoi (SEK) sur les communautés locales", 2016.

139 SEK reaction to SOMO draft report, 21 March 2016.

140 Premicongo, Chinese Mining Investments in Katanga and the Misery of Local Communities. Focus on Minière de Kalumbwe Myunga (MKM) and Huachin, October 2015, <[http://media.wix.com/ugd/81d92e\\_c0541c43968541a1a1fec27fc9d3d116.pdf](http://media.wix.com/ugd/81d92e_c0541c43968541a1a1fec27fc9d3d116.pdf)> 2 March 2016.

141 Ibid.

142 Ibid.

143 Ibid.

144 Ibid.

145 Ibid.

Premicongo researchers interviewing *MKM* workers learned that the company had provided no proper housing for them, leaving the workers to construct the makeshift shelters in which they were living by themselves.<sup>146</sup> The workers share their rooms with 8 to 12 workers.<sup>147</sup> They receive no holiday entitlement and work six days a week. Workers report they have no freedom of association and no right to organise<sup>148</sup> – all violations of Congolese labour law.<sup>149</sup> At 250 USD per month, salaries are below the living wage, and workers have no contracts but work as daily workers instead.<sup>150</sup> To get by, workers have started collecting wood in the Basse Kando forest to sell charcoal on the N1 road.<sup>151</sup> This has led to deforestation, about which interviewed community members expressed their concern, as they are dependent on forest products for survival.<sup>152</sup>

Although *MKM* reported to the EITI that it had paid US\$ 151,000 in social payments to local communities in 2013, Premicongo researchers found no evidence on the ground of any such payments: the medical centre that *MKM* said it had constructed was not present, and local communities had not benefitted from any social programmes.<sup>153</sup> What the communities did receive was some books, footballs and chalk.<sup>154</sup> The traditional village chief received US\$ 1,000.<sup>155</sup>

### 2.3 Security and violent conflict

Violent events at Luiswishi mine in 2009, when hundreds of houses were bulldozed unlawfully by police, are not the only violent conflicts occurring around mining sites.<sup>156</sup> Reports of illegal miners being shot and killed by the police are frequently published. A few examples from 2014 show how much deadly violence has become a routine for the police. In June 2014, police action to chase away illegal miners in the *CMSK* concession led to the deaths of three people, while the municipality of Kawama registered four people who were wounded by bullets in the previous month.<sup>157</sup> In August 2014, the military shot five diggers in Kawama.<sup>158</sup>

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146 Ibid.

147 Ibid.

148 Ibid.

149 Ibid.

150 Ibid.

151 Ibid.

152 Ibid.

153 Ibid.

154 Ibid.

155 Ibid.

156 Amnesty International, "Bulldozed : How a mining company buried the truth about forced evictions in the Democratic Republic of Congo", 2014, <[http://www.amnesty.eu/content/assets/Reports/Bulldozed\\_DRC\\_report.pdf](http://www.amnesty.eu/content/assets/Reports/Bulldozed_DRC_report.pdf)> , 12 December 2014.

157 Radio Okapi, "Katanga: une traque de creuseurs miniers clandestines tournent au drame, 3 morts", 18 June 2014, <<http://www.radiookapi.net/en-bref/2014/06/18/katanga-une-traque-de-creuseurs-miniers-clandestins-tournent-au-drame-3-morts/#.U6LOcqJglg0>> 12 December 2015.

158 Radio Okapi, "Katanga: des militaires accusés d'avoir abattu 5 personnes à la carrière de Kawama", 14 August 2014, <<http://www.radiookapi.net/actualite/2014/08/14/katanga-des-militaires-accuses-davoir-abattu-5-personnes-la-carriere-de-kawama/>>, 12 December 2015.

Villagers testify to how inhabitants of villages adjacent to the mines have gotten shot by stray bullets as the police chase artisanal miners on mining concessions.<sup>159</sup> The testimonies are confirmed by medical staff working in the villages.<sup>160</sup>

Clearly, the Congolese state is acting against Congolese and international human rights law. Rather than providing employment and rights to the Congolese population, the state chooses to prosecute, extort, chase, and kill artisanal miners who illicitly enter industrial mining concessions. The police and military are responsible for the many deaths and injuries of artisanal miners and villagers who get shot during police raids.

In Lubumbashi, inhabitants of the neighbourhood adjacent to *Ruashi mine* are warned in advance by mine personnel when the explosions are about to take place.<sup>161</sup> They are then requested to leave their homes for several hours for safety reasons, only to return after the explosions are finished. Explosions are planned and conducted several times a week.<sup>162</sup>

Although their immediate physical safety may be secured during the blast, upon return to their homes inhabitants sometimes find that their house has been hit by a rock from the mine, causing damage to the walls and rooftops.<sup>163</sup> Inhabitants are not compensated for this.<sup>164</sup>

### High death rates and child labour at artisanal mines

Even more than at industrial mining sites, security issues are a problem at artisanal mining sites. The many problems associated with artisanal mining are extensively described in Amnesty's *This is what we die for* report, published in 2016.<sup>165</sup>

Premicongo's research on *Huachin* has also shown that *Huachin* is sourcing from artisanal miners in Likasi who work in difficult conditions. Miners testify that death rates under miners are high and accidents occur frequently,<sup>166</sup> though actual rates are not monitored. Artisanal workers supplying *Huachin* have no access to social security; the prices they are paid are below real market prices; and they are highly repressed by the businessmen and politicians who hold power over the artisanal mines.<sup>167</sup> Premicongo states that workers live under 'slave-like conditions' and according to interviewees, child labour is common: due to their size, children can access narrow corridors more easily than adults.<sup>168</sup>

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159 Interviews SOMO, May 2014.

160 Ibid.

161 Ibid.

162 Ibid.

163 Ibid.

164 Ibid.

165 Amnesty International, *This is what we die for*, January 2016, <<https://www.amnesty.org/en/documents/afr62/3183/2016/en/>> 2 March 2016.

166 Premicongo, *Chinese Mining Investments in Katanga and the Misery of Local Communities. Focus on Minière de Kalumbwe Myunga (MKM) and Huachin*. October 2015, <[http://media.wix.com/ugd/81d92e\\_c0541c43968541a1a1fec27fc9d3d116.pdf](http://media.wix.com/ugd/81d92e_c0541c43968541a1a1fec27fc9d3d116.pdf)> 2 March 2016.

167 Ibid.

168 Ibid.





*Woman showing the piece of mineral ore that crashed through the rooftop of her home during one of the Ruashi mine blasts.*



*Property damaged by rocks following Ruashi mine blasts.*



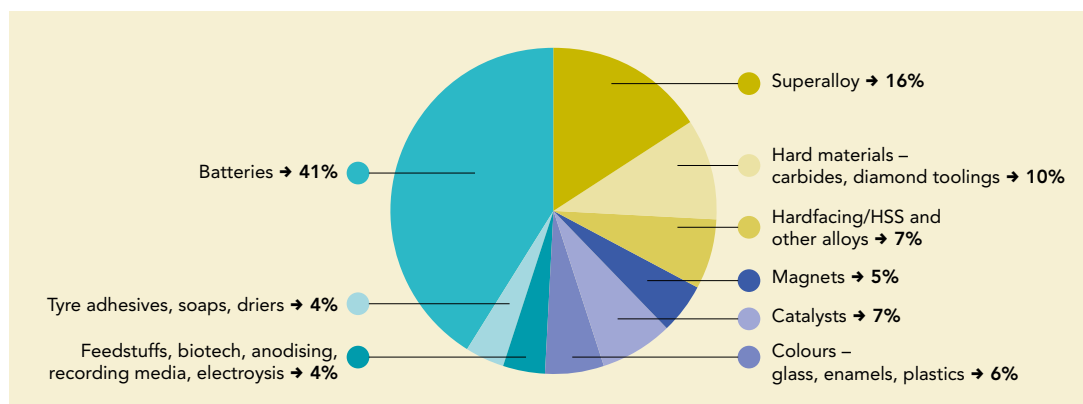
## 3 Exports and markets

### 3.1 Cobalt

#### Usage

Historically, cobalt was used to colour glasswork on jewellery.<sup>169</sup> However, its uses have expanded drastically, with cobalt now being used in a variety of products, ranging from food preservatives<sup>170</sup> to batteries and prostheses.<sup>171</sup> Although today cobalt is still used in pigments for its blue colour, the largest single end-use of cobalt worldwide is in batteries, mainly lithium-ion batteries used in mobile phones and electric cars. Lithium-ion batteries, compared to nickel batteries, provide much higher voltage, but also require between four to 12 times as much cobalt, with cobalt making up 60 per cent of the battery's total active material.<sup>172</sup> Due to its application in jet engines, among others, cobalt has been classified as a strategic metal by the US, China, and the EU, among others.<sup>173</sup>

Figure 4: Uses of cobalt, 2013



#### Production

Cobalt is usually mined as a by-product of other minerals: 85 per cent of globally mined cobalt is estimated to have been extracted as a by-product either of nickel (50 per cent) or copper (35 per cent). The remaining 15 per cent comes from mines focused primarily on the production of cobalt.<sup>174</sup>

169 The Cobalt Development Initiative, Cobalt Facts, History, 2006, <[http://thecdi.com/cdi/images/documents/facts/COBALT\\_FACTS-History.pdf](http://thecdi.com/cdi/images/documents/facts/COBALT_FACTS-History.pdf)> 1 December 2015

170 Global Cobalt Corporation website, Applications, no date, <http://globalcobaltcorp.com/cobalt.php?bp=1776>> 1 December 2015.

171 The Cobalt Development Initiative, op.cit.

172 Ibid

173 Global Cobalt Corporation website, Supply, no date <<http://globalcobaltcorp.com/cobalt.php?bp=1775>> 1 December 2015.

174 Ibid

In 2014, global cobalt production amounted to 112,000 metric tons (mt) of unrefined cobalt.<sup>175</sup> The growth in cobalt use in mobile phone batteries has occurred simultaneously with a doubling in global cobalt production. Between 2004 and 2014, this rose from 46,900 to the aforementioned 112,000 mt.<sup>176</sup> Today, production of cobalt is geographically spread as follows:

**Table 2: Annual cobalt production and reserves by country in metric tonnes<sup>177</sup>**

| Country               | Production 2013 (t) | Production 2014 (t) | Reserves <sup>178</sup> (t) |
|-----------------------|---------------------|---------------------|-----------------------------|
| United States         | –                   | NA                  | 37,000                      |
| Australia             | 6,400               | 6,500               | 390,000 - 1,100,000         |
| Brazil                | 3,000               | 3,000               | 85,000                      |
| Canada                | 6,920               | 7,000               | 250,000                     |
| China                 | 7,200               | 7,200               | 80,000                      |
| <b>DRC (Kinshasa)</b> | <b>54,000</b>       | <b>56,000</b>       | <b>3,400,000</b>            |
| Cuba                  | 4,200               | 4,200               | 500,000                     |
| New Caledonia         | 3,190               | 2,800               | 200,000                     |
| Philippines           | 3,000               | 3,700               | 270,000                     |
| Russia                | 6,300               | 6,300               | 250,000                     |
| South Africa          | 3,000               | 3,000               | 32,000                      |
| Zambia                | 5,200               | 3,100               | 270,000                     |
| Other countries       | 8,000               | 9,500               | 750,000                     |
| <b>World total</b>    | <b>110,000</b>      | <b>112,000</b>      | <b>7,200,000</b>            |

Table 2 shows that the Democratic Republic of the Congo produced half of the world's raw cobalt in 2014, and held 47 per cent of the world's reserves.

Other significant producers in 2014 were China, Canada, Australia and Russia, but these four put together produced less than half of DRC's output. Significant reserves are held by Australia, Cuba, the Philippines, Russia and Canada, but together these also make up less than the single reserve held by DRC. This means that now and for the foreseeable future, DRC will be the most important cobalt producer.

### Refining

Refining adds value to cobalt, which is why the Congolese government wants to stimulate producers to have their cobalt ore refined in the country. Although the legislator has tried several times to ban the export of unrefined ores, lack of electricity in DRC renders it impossible to have all ore refined. The ban is therefore regularly postponed – the last time was in January 2016. Some cobalt

175 U.S. Geological Survey, Cobalt Mineral Commodity Summary, January 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/cobalt/mcs-2015-cobal.pdf>> 1 December 2015.

176 Ibid.

177 U.S. Geological Survey, op.cit.

178 Not specified whether these are estimates or proven reserves, likely to be estimates.

producers, such as *Tenke Fungurume Mining*, do refine their ore in Katanga, while others export the ore and leave the refining to companies abroad.

According to data provided by the Cobalt Development Initiative, roughly 92,000 tonnes of cobalt were refined globally in 2014, of which most (39,300 tonnes) were refined in China. China produced over 42 per cent of global refined cobalt.<sup>179</sup>

Other notable refiners were Finland (11,450 tonnes), Belgium (5,850 tonnes), Australia (5,400 tonnes), and Canada (5,250 tonnes).<sup>180</sup> Following these numbers, the world's top three cobalt refiners were countries with a refining capacity far exceeding their cobalt production, or with no significant cobalt production at all. Due to this geographical spread of the cobalt production chain, much is exported from cobalt mining countries in order to supply refining facilities across the globe.

**Table 3: Cobalt facts on China and Finland**

|         | Cobalt import value in 2013 | Percentage of total cobalt imports from DRC | Tonnes of refined cobalt produced in 2014 |
|---------|-----------------------------|---|---|
| China   | \$ 708 million              | 68% (estimates up to 90%)                   | 39,300 (42% of world total)               |
| Finland | \$ 146                      | 94%   | 11,450 (12% of world total)               |

In terms of value, China reportedly imported US\$ 708 million worth of cobalt in 2013, of which 68 per cent came from DRC. Finland, the other main importer of DRC cobalt, imported cobalt worth US\$ 146 million in 2013, of which 94 per cent was from DRC. In the same year, the majority of Belgium's imports were likely from Canada and Brazil.<sup>181</sup>

Although China is by far the world's leading refiner and consumer of cobalt,<sup>182</sup> it produced only 7,200 tonnes of raw cobalt in 2014.<sup>183</sup> The rest was imported from cobalt-producing countries, with the majority coming from DRC. Trade data used in this research provide an estimate of 68 per cent of Chinese cobalt being imported from DRC as noted above, but some industry estimates put this figure at over 90 per cent.<sup>184</sup>

179 Ibid.

180 The Cobalt Development Initiative, op.cit.

181 Observatory of Economic Complexity database, 1 December 2015.

182 U.S. Geological Survey, 2013 Minerals Yearbook Cobalt, October 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/cobalt/myb1-2013-cobal.pdf>> 1 December 2015.

183 Ibid.

184 V. Basov, DR Congo reaffirms export ban on copper and cobalt, 29 May 2013, <<http://www.mining.com/dr-congo-reaffirms-export-ban-on-copper-and-cobalt-39477/>> 1 December 2015.

Global Cobalt Corporation website, About Cobalt, no date, <http://globalcobaltcorp.com/cobalt.php?bp=1774> 1 December 2015.

**Table 4: Known cobalt refining companies in China<sup>185</sup>**

| Refiner name  | Refining capacity (mt)                     |
|---|--|
| Jinchuan Group International Resources              | n.a.                                       |
| Huayou Cobalt                                       | 3,000 <sup>186</sup>                       |
| Shenzhen Green Eco-manufacture Hi-tech              | 16,000 <sup>187</sup>                      |
| Shandong Jinling Mining                             | n.a.                                       |
| Shaanxi Huaze Nickel & Cobalt Metal                 | n.a.                                       |
| Beijing Easpring Material Technology                | n.a.                                       |
| Zhejiang Galico Cobalt& Nickel Material             | 5,000 (cobalt, nickel and copper combined) |
| Ramu Nico Management                                | n.a.                                       |
| Jiangxi Jiangwu Cobalt                              | 4,000 <sup>188</sup>                       |
| Nantong Xinwei Nickel Cobalt Technology Development | 200 <sup>189</sup>                         |
| Umicore   | n.a.                                       |
| Glencore Xstrata                                    | n.a.                                       |
| Freeport  | n.a.                                       |

In 2013, 69 per cent of China’s cobalt consumption was attributed to the production of lithium-ion batteries. Considering China’s position as the world’s largest electronics producer and its large mobile phone industry – with electric and electronics exports worth US \$570 billion in 2014 – the importance of the cobalt used in batteries for its electronics devices is evident.<sup>190</sup> Furthermore, the percentage of cobalt used in electronics was 6 per cent higher than in 2011, when batteries took up 63 per cent of China’s cobalt consumption, followed by cemented carbide (11 per cent), magnetic material (6 per cent), glass and ceramic (6 per cent), and catalysts (5 per cent).<sup>191</sup>

185 PR Newswire, op.cit.

186 Zhejiang Overseas Investment Legal Center website, Zhe Jiang Huayou Cobalt Company Limited, no date, <<http://www.zhejianginvestment.com/Casestudy/ShowArticle.asp?ArticleID=271>> 1 December 2015.

187 PR Newswire, Global and China Cobalt Industry Report 2013-2016, 13 January 2014, <<http://www.prnewswire.com/news-releases/global-and-china-cobalt-industry-report-2013-2016-239897191.html>> 1 December 2015.

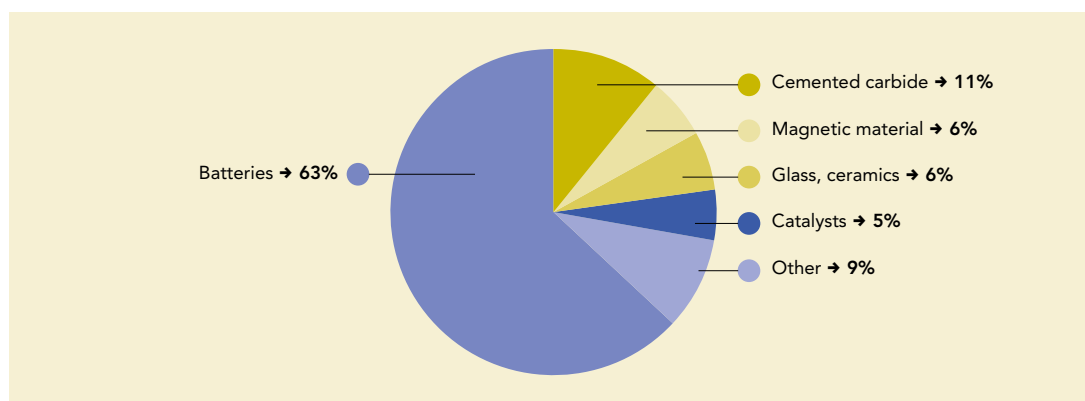
188 Asian Metal, Interview with Li Ganwei, Chairman of Jiangxi Jiangwu Cobalt Industry Co., Ltd., no date, <[http://www.asianmetal.com/metal\\_cron/index\\_lunshi\\_liganwei\\_en.shtml](http://www.asianmetal.com/metal_cron/index_lunshi_liganwei_en.shtml)> 1 December 2015.

189 Nantong Xinwei Nickel & Cobalt Hightech Development website, About Us, Company Information, no date, <<http://www.xinweinico.com/en/about.asp>> 1 December 2015.

190 UN Comtrade database

191 The Cobalt Development Initiative, Cobalt News, July 2012, <[http://www.thecdi.com/cdi/images/news\\_pdf/12-3\\_cobalt\\_news.pdf](http://www.thecdi.com/cdi/images/news_pdf/12-3_cobalt_news.pdf)> 1 December 2015.

Figure 5: China's cobalt use



In 2011, China consumed<sup>192</sup> approximately 70 per cent of the total cobalt it refined,<sup>193</sup> meaning it is likely to have exported the remaining 30 per cent. In 2014, the US reportedly imported around 11,700 mt of cobalt,<sup>194</sup> of which 21 per cent, or 2,457 mt, came from China.<sup>195</sup>

### Congolese cobalt

According to the Observatory of Economic Complexity (OEC), using UN Comtrade data, cobalt accounted for 8.8 per cent of DRC's exports in 2013 in terms of value, while cobalt in unprocessed ore form accounted for 6.9 per cent.<sup>196</sup> Seventy-seven per cent of this cobalt was exported to China in 2013, while 22 per cent was reportedly exported to Finland, and less than 1 per cent went to Brazil. Of the cobalt ore, 66 per cent was exported to China, 34 per cent to Zambia, and less than 1 per cent to Finland.<sup>197</sup>

DRC's three largest cobalt producers in 2013 were *Mutanda Mining* (13,700 mt), *Tenke Fungurume Mining* (12,751 mt), and *Boss Mining* (9,700 mt).<sup>198</sup> *Boss Mining* is known to have experienced

192 Ibid.

193 The Cobalt Development Initiative, Cobalt Facts, Cobalt Supply and Demand 2011, 2012, <<http://www.thecdi.com/cdi/images/documents/facts/Cobalt%20Facts-Supply%20%20Demand-2011.pdf>> 1 December 2015.

194 U.S. Geological Survey, Cobalt Mineral Commodity Summary, January 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/cobalt/mcs-2015-cobal.pdf>> 1 December 2015.

195 Congressional Research Service, China's Mineral Industry and U.S. Access to Strategic and Critical Minerals: Issues for Congress, 20 March 2015, <<https://www.fas.org/sgp/crs/row/R43864.pdf>> 1 December 2015.

196 Observatory of Economic Complexity database uses data from UN Comtrade. It should be noted that exports figures from the DRC are often incomplete. Therefore, all figures on cobalt and copper exports from the DRC that are provided in this report remain estimates.

197 Observatory of Economic Complexity database, 1 December 2015.

198 U.S. Geological Survey, 2013 Minerals Yearbook Cobalt, October 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/cobalt/myb1-2013-cobal.pdf>> 1 December 2015.

a decrease in production since 2013.<sup>199</sup> These three together amount to 38,400 mt or 71 per cent of Congolese copper production in 2013.

Table 5 shows the largest known cobalt mining companies in DRC and their production capacity in 2012 (if not otherwise specified).

**Table 5: DRC's known cobalt producing companies and mines, with potential production capacity (mt) in 2012<sup>200</sup>**

| Mine name  | Production capacity 2012 (mt) |
|--|-------------------------------|
| Mutanda Mine (Fleurette Group, Glencore)   | 23,000                        |
| Tenke Fungurume Mine (Freeport McMoran / Lundin Mining / Gécamines)                          | 15,000                        |
| Mukondo Mountain Mine (Boss Mining; Eurasian Natural Resources Corp (70%) / Gécamines (30%)) | 10,000                        |
| KOV and KTO Mines (Katanga Mining; Glencore, Gécamines)                                      | 8,000                         |
| Ruashi Mine (Jinchuan)   | 5,000                         |
| Big Hill tailings treatment plant (OM Group, EGMF, Gécamines)                                | 5,000                         |
| Luiswishi Mine (Gécamines)   | 4,000                         |
| Various in Katanga province (Somika)   | 3,000                         |
| Various (Gécamines)  | 2,500                         |
| Etoile Mine (Shalina Resources)  | 2,400                         |
| Various in Katanga province (Congo Dong Fang International Mining)                           | 1,900                         |

Tenke Fungurume Mining is owned jointly by Freeport-McMoRan Copper & Gold Inc., Lundin Mining, and DRC's state-owned Gécamines. These three companies have set up a joint venture, called Freeport Cobalt, through which they refine cobalt from Tenke Fungurume mine at their refinery in Kokkola, Finland. In both 2013 and 2014, Freeport Cobalt's Finnish facilities reportedly refined over 10,000 tonnes of cobalt, of which the majority was likely from DRC.

This supply connection between Tenke Fungurume and Kokkola is corroborated by: DRC's export data that show 22 per cent (or roughly 10,000 tonnes) of its cobalt going to Finland; Finnish import data that show DRC providing 94 per cent of the country's cobalt imports; and the fact that Finland

199 Metal Bulletin, CDI CONF: Expectations of tight supply lift cobalt market sentiment, 22 May 2015, <<http://www.metalbulletin.com/Article/3456032/CDI-CONF-Expectations-of-tight-supply-lift-cobalt-market-sentiment.html#axzz3tAtiq5e8>> 1 December 2015.

200 U.S. Geological Survey, 2012 Minerals Yearbook Congo (Kinshasa), June 2014, <<http://minerals.usgs.gov/minerals/pubs/country/2012/myb3-2012-cg.pdf>> 1 December 2015.



does not possess notable cobalt reserves or mines.<sup>201</sup> Freeport Cobalt reports that its products serve the pigments and ceramics, chemical, powder metallurgy, and battery industries.<sup>202</sup>

*Mutanda Mining* belongs to *Fleurette Mumi Holding* and commodities trading company *Glencore*. It is not entirely clear where cobalt produced in the Mutanda mine is refined.

Finally, *Boss Mining's* Mukondo Mountain Mine is 70 per cent owned by multinational *Eurasian Resources Group Corp.*, and 30 per cent by *Gecamines*.<sup>203</sup> It is likely that the cobalt produced by *Boss Mining*, or at least part of it, is refined in China as well, where *Eurasian Resources Group Corp.* owns *Zhejiang Galico Cobalt & Nickel Material*<sup>204</sup> – a company that produces cobalt compounds that its states are used in electric plating, ceramic glaze, hard alloy, industrial catalyst, powder metallurgy and battery material.<sup>205</sup>

Drawing on the actual production estimates provided above, these three companies produced roughly 38,400 tonnes of cobalt – or 71 per cent of DRC's annual cobalt output – in 2013. A noteworthy addition to this list is the Ruashi mine, with a reported production capacity of 5,000 tonnes of cobalt annually, which is majority controlled by the *Metorex Group*. The *Metorex Group* is, in turn, a subsidiary of the Chinese *Jinchuan Group*, which controls three further cobalt operations under development in DRC<sup>206</sup> and reportedly boasted 9,100 tonnes of refined cobalt production in China in 2012, as well as a 50 per cent market share of cobalt battery material.<sup>207</sup>

*Huayou Cobalt* is a Chinese cobalt processor and refiner looking to expand in DRC's cobalt mining industry. The company is China's largest cobalt chemicals producer, and states its cobalt products are used in rechargeable battery cathode material, high temperature and cemented carbide, frits and glazes, rubber adhesive and petrochemical catalysts.<sup>208</sup> It previously reported plans to integrate the production of cobalt in DRC into the supply chain for global operations by 2015. *Huayou Cobalt* currently controls at least five subsidiaries in DRC.<sup>209</sup> In a 2014 report, ReportLinker states

201 U.S. Geological Survey, Cobalt Mineral Commodity Summary, January 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/cobalt/mcs-2015-cobal.pdf>> 1 December 2015. The Cobalt Development Initiative, Cobalt Facts, Cobalt Supply and Demand 2011, 2012, <<http://www.thecdi.com/cdi/images/documents/facts/Cobalt%20Facts-Supply%20%20Demand-2011.pdf>> 1 December 2015.

202 Freeport Cobalt website, About, Overview, no date, <<http://www.freeportcobalt.com/overview.html>> 1 December 2015.

203 U.S. Geological Survey, 2013 Minerals Yearbook Cobalt, October 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/cobalt/myb1-2013-cobal.pdf>> 1 December 2015

204 Bloomberg website, Metals and Mining, Company Overview of Zhejiang Galico Cobalt & Nickel Material Co.,Ltd, 21 December 2015, <<http://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapid=32896931>> 1 December 2015.

205 Zhejiang Galico Cobalt & Nickel Material website, About us, no date, <<http://galico.com.cn/en/about.asp?classid=28>> 1 December 2015.

206 Jinchuan Group International Resources website, Business Overview, Mining Operations, no date, <[http://www.jinchuan-intl.com/en/business\\_overview/mining\\_operations.php](http://www.jinchuan-intl.com/en/business_overview/mining_operations.php)> 1 December 2015.

207 PR Newswire, Global and China Cobalt Industry Report 2013-2016, 13 January 2014, <<http://www.prnewswire.com/news-releases/global-and-china-cobalt-industry-report-2013-2016-239897191.html>> 1 December 2015.

208 Huayou Cobalt website, About us, Company, no date, <[http://en.huayou.com/comcontent\\_detail&FrontComContent\\_list01-1341830864215ContId=13&comContentId=13.html](http://en.huayou.com/comcontent_detail&FrontComContent_list01-1341830864215ContId=13&comContentId=13.html)> 1 December 2015.

209 Ibid.

the company owns “Kolwezi mine, Nyoka mine and Kambove tailings” and produced 5,500 tonnes of refined and processed cobalt during the year 2012, although this could not be independently verified.<sup>210</sup>

### Congolese cobalt to China for rechargeable batteries

China is DRC’s main export partner with an export value of US\$ 2.62 billion in 2013, representing 37 per cent of DRC’s total US\$ 7.13 billion export value<sup>211</sup>

China is the main export destination for Congolese cobalt, with 77 per cent of Congolese cobalt exported to China with an export value of US\$ 481 million in 2013<sup>212</sup>

China is also the world’s foremost electronics producer, while 69 per cent of cobalt consumed in China is used in rechargeable batteries.

There is a large presence of rechargeable battery producers in China, where four of the five largest battery producers operate manufacturing plants. These battery companies operating in China, namely Panasonic<sup>213</sup>, Samsung SDI<sup>214</sup>, LG Chem<sup>215</sup>, and Amperex Technology Limited (also known as ATL)<sup>216</sup>, together reportedly account for over 60 per cent of the world’s total annual rechargeable battery production<sup>217</sup>

### Ban on concentrate exports

In order to increase state income from the mining industry which has reportedly not been able to live up to its perceived potential as an engine for economic growth<sup>218</sup>, the government increased export

210 PR Newswire, op.cit.

211 The Observatory of Economic Complexity, Atlas, no date, <[http://atlas.media.mit.edu/en/visualize/tree\\_map/hs92/export/cod/show/all/2013/](http://atlas.media.mit.edu/en/visualize/tree_map/hs92/export/cod/show/all/2013/)> 2 December 2015.

212 Calculations based on VINCENT OEC TOOL?

213 Panasonic website, Introduction, General Introduction, no date, <<http://www.panasonicbattery.cn/english/main.asp>> 1 December 2015.

214 Samsung SDI website, Company Info, Global Network, no date, <<http://www.samsungsdi.com/about-sdi/company/global-network>> 1 December 2015.

215 LG Chem website, Overseas Sites, no date, <<http://www.lgchem.com/global/lg-chem-company/global-network>> 1 December 2015.

216 Amperex Technology Limited website, Contact Us, no date, <<http://www.atlbattery.com/contact/en/contact-1.htm>> 1 December 2015.

217 PV Magazine, Report: Panasonic largest li-ion battery cell producer, 6 August 2015, <[http://www.pv-magazine.com/news/details/beitrag/report--panasonic-largest-li-ion-battery-cell-producer\\_100020516/#axzz3uJAcvgUW](http://www.pv-magazine.com/news/details/beitrag/report--panasonic-largest-li-ion-battery-cell-producer_100020516/#axzz3uJAcvgUW)> 1 December 2015.

218 N. Garrett & M Lintzer, Can Katanga's mining sector drive growth and development in the DRC?, Journal of Eastern African Studies, 4 (November 2010), 400-424.

duties on mineral concentrates from US\$ 60 to US\$ 100 per metric tonne in 2013<sup>219</sup> Another attempt to increase government revenue from cobalt mining focused on the refining process. Although DRC produces over half of annual raw cobalt, it refines only 3 per cent of annual output<sup>220</sup>. In order to increase the amount of DRC's domestically refined cobalt and copper, thereby adding value to the product before export, DRC's government has repeatedly attempted to implement an export ban on cobalt and copper concentrates.

However, due to unreliable electricity infrastructure in the country, domestic refiners have not been able to significantly increase their output of finished cobalt and copper, which has repeatedly forced the government to suspend its export ban, most recently in January 2016.<sup>221</sup> Miners in the province of Katanga, where most cobalt is extracted, reportedly experienced an electricity deficit of over 300 megawatts in 2014<sup>222</sup> while the province in its entirety reportedly receives only half the electricity it needs from the national grid.<sup>223</sup> The graph below shows the discrepancy between refinery capacity and production in DRC, caused mostly by this inadequate electricity infrastructure from 1995 to 2007.<sup>224</sup>

As stated above, DRC and China are the world's largest producers of raw and refined cobalt, respectively. The interdependency created by their respective supply of and demand for cobalt and other mineral resources appears to have gone hand in hand with an increase in economic cooperation. In 2007, China and DRC signed the Sicomines agreement wherein China would provide US\$ 6 billion for the improvement of infrastructure, for which they were to be repaid in minerals. Through this deal, the Chinese state-owned China Railway Group Limited is involved in the exploitation of at least four copper and cobalt deposits, which are reported to hold combined reserves of over 57 million tonnes of these minerals.<sup>225</sup>

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219 M.J. Kavanagh, Congo Raises Tax on Copper, Cobalt Concentrates by Two-Thirds, 25 July 2013, <<http://www.bloomberg.com/news/articles/2013-07-25/congo-raises-tax-on-copper-cobalt-concentrates-by-two-thirds>> 1 December 2015.

220 The Cobalt Development Initiative, Cobalt Facts, Cobalt Supply and Demand 2011, 2012, <<http://www.thecdi.com/cdi/images/documents/facts/Cobalt%20Facts-Supply%20%20Demand-2011.pdf>> 1 December 2015.

221 V. Basov, DR Congo reaffirms export ban on copper and cobalt, 29 May 2013, <<http://www.mining.com/dr-congo-reaffirms-export-ban-on-copper-and-cobalt-39477/>> 1 December 2015.

C. McLeod, DRC Delays Copper, Cobalt Export Ban Once Again, 9 January 2014, <<http://investingnews.com/daily/resource-investing/critical-metals-investing/cobalt-investing/drc-delays-copper-cobalt-export-ban-once-again/>> 1 December 2015.

M.J. Kavanagh, Congo Postpones Ban on Mineral Exports Amid Power Shortages, 15 January 2014, <<http://www.bloomberg.com/news/articles/2014-01-15/congo-postpones-ban-on-mineral-exports-because-of-power-shortage>> 1 December 2015.

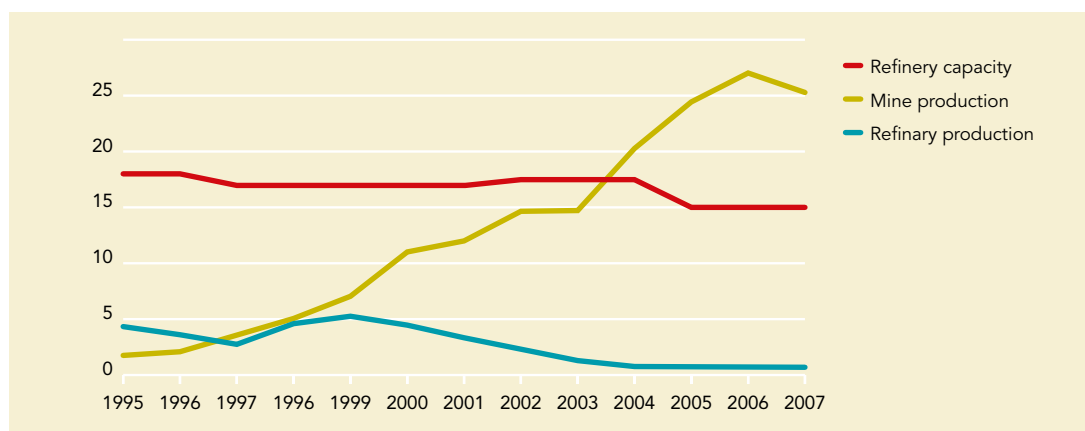
222 M.J. Kavanagh, Congo Postpones Ban on Mineral Exports Amid Power Shortages, 15 January 2014, <<http://www.bloomberg.com/news/articles/2014-01-15/congo-postpones-ban-on-mineral-exports-because-of-power-shortage>> 1 December 2015.

223 A. Ross, China's 'infrastructure for minerals' deal gets reality-check in Congo, 9 July 2015, <<http://www.reuters.com/article/2015/07/09/us-congodemocratic-mining-china-insight-idUSKCN0P11UB20150709#aEKXQ8PmdqdBZoWF.97>> 1 December 2015.

224 U.S. Geological Survey, Cobalt Mineral Exploration and Supply From 1995 Through 2013, 2012, <[http://pubs.usgs.gov/sir/2011/5084/pdf/SIR2011-5084\\_final\\_012612.pdf](http://pubs.usgs.gov/sir/2011/5084/pdf/SIR2011-5084_final_012612.pdf)> 1 December 2015.

225 South African Institute of International Affairs, The Sicomines Agreement: Change and Continuity in the Democratic Republic of Congo's International Relations, October 2011, <<http://dspace.africaportal.org/jspui/bitstream/123456789/32499/1/saiaa%20OP%2097.pdf?1>> 1 December 2015.

**Figure 6: Discrepancy between refinery capacity and production 1995-2007, USGS figure<sup>226</sup>**



### Supply chain responsibility of end users

Because 41 per cent of cobalt is used for renewable batteries, which are needed in laptops, mobile phones, tablets, cameras, GPS devices and other products, electronics companies are a major buyer of cobalt. As described above, Congolese cobalt is distributed worldwide and is mixed with cobalt of other origin at a later stage in the supply chain. Because of the primary position of Congo as the world's primary cobalt producer, the odds are that any electronic device will contain some Congolese cobalt.

For its 2016 report on artisanal mining in Katanga, Amnesty international sent questionnaires to electronics manufacturers on due diligence in their cobalt supply chains. Many companies agreed to participate and fill out the questionnaire; however, the results were disappointing and Amnesty International concluded that the companies are "currently failing to conduct adequate human rights due diligence".<sup>227</sup>

## 3.2 Copper

### Usage

Copper, unlike cobalt, has been in use by humans for millennia, with copper tools and jewellery dating back several thousand years B.C. Today, copper is used mostly in the construction of buildings and in various types of equipment, which account for 30 per cent of consumption each. Other major

<sup>226</sup> United States Geological Survey, "cobalt Mineral Exploration and Supply From 1995 Through 2013", 2012, <[http://pubs.usgs.gov/sir/2011/5084/pdf/SIR2011-5084\\_final\\_012612.pdf](http://pubs.usgs.gov/sir/2011/5084/pdf/SIR2011-5084_final_012612.pdf)> 2 December 2015.

<sup>227</sup> Amnesty report. *This is what we die for: Human rights abuses in the DRC Power the global trade in cobalt*. 19 January 2016, <<https://www.amnesty.org/en/documents/afr62/3183/2016/en/>> 25 March 2016.

copper usages are reportedly infrastructure (15 per cent), transport (12 per cent), and industrial uses (12 per cent).<sup>228</sup>

In 2014, most copper consumption took place in Asia (62 per cent), with little over a third taking place in Europe (19 per cent), America (14 per cent), and the rest of the world (5 per cent) together. A large percentage of copper consumption in Asia takes place in China, the country which in 2013 accounted for 9.7 million metric tonnes, or 45 per cent of global copper consumption.<sup>229</sup>

### Production

Copper, like cobalt, is produced through its extraction from mines, wherein copper containing ore is taken from the ground for further processing. In the year 2014, 18,700,000 metric tonnes of copper were produced worldwide. By far the largest producer was Chile, accounting for 5,800,000 tonnes, with China coming in second with 1,620,000 tonnes of copper.<sup>230</sup>

**Table 6: Annual copper production and reserves by country in thousand metric tons<sup>231</sup>**

| Country                 | Production 2013 (kt) | Production 2014 (kt) | Reserves (kt)  |
|-------------------------|----------------------|----------------------|----------------|
| United States           | 1,250                | 1,370                | 35,000         |
| Australia               | 990                  | 1,000                | 893,000        |
| Canada                  | 632                  | 680                  | 11,000         |
| Chile                   | 5,780                | 5,800                | 209,000        |
| China                   | 1,600                | 1,620                | 30,000         |
| <b>Congo (Kinshasa)</b> | <b>970</b>           | <b>1,100</b>         | <b>20,000</b>  |
| Indonesia               | 504                  | 400                  | 25,000         |
| Kazakhstan              | 446                  | 430                  | 6,000          |
| Mexico                  | 480                  | 520                  | 38,000         |
| Peru                    | 1,380                | 1,400                | 68,000         |
| Poland                  | 429                  | 425                  | 28,000         |
| Russia                  | 833                  | 850                  | 30,000         |
| Zambia                  | 760                  | 730                  | 20,000         |
| Other countries         | 2,200                | 2,400                | 90,000         |
| <b>World total</b>      | <b>18,300</b>        | <b>18,700</b>        | <b>700,000</b> |

Table 6 shows that DRC produced 1,100,000 tonnes of raw copper in 2014, accounting for 5.8 per cent of world production. On a 2015 list of the 20 largest copper mines in the world, only number

228 International Copper Study Group, The World Copper Factbook 2015, 2015, <<http://www.icsg.org/index.php/component/jdownloads/finish/170-publications-press-releases/2092-2015-10-03-icsg-factbook-2015?Itemid=0>> 1 December 2015.

229 U.S. Geological Survey, 2013 Minerals Yearbook Copper, October 2015, <http://minerals.usgs.gov/minerals/pubs/commodity/copper/myb1-2013-coppe.pdf>> 1 December 2015.

230 U.S. Geological Survey, Copper Mineral Commodity Summary, January 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/copper/mcs-2015-coppe.pdf>> 1 December 2015.

231 U.S. Geological Survey, Copper Mineral Commodity Summary, January 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/copper/mcs-2015-coppe.pdf>> 1 December 2015.

17, the Kamoto mine owned by Glencore (74.4 per cent) and Gecamines (25 per cent), is located in DRC.<sup>232</sup> According to Table 6, DRC was the world's sixth largest copper producer in 2014. To put this into perspective: the weight of the world's annual copper production is 360 times higher than that of the world's annual cobalt production.

### Refining

After copper ore is extracted through mining, it undergoes three further steps before the copper is ready for the different uses described above. The first of these is processing, where waste minerals and rock are removed to separate the copper. This is followed by either smelting or leaching which removes impurities from the copper, producing so-called 'blister copper'. Finally, blister copper is refined, with the end product being 99 per cent pure copper.<sup>233</sup>

The second and third of these steps often take place outside the country of origin. This is illustrated by the fact that, although Chile accounted for about 31 per cent of global copper production in 2014, it accounted for only 8 per cent of smelting, and 12 per cent of copper refining.<sup>234</sup> China, on the other hand, accounted for 8.6 per cent of copper production, while it was responsible for more than a third of both global copper smelting and refining.<sup>235</sup> Furthermore, Japan, which appears to have no noteworthy copper reserves or mines, is the world's second largest smelter and third largest refiner of copper.<sup>236</sup>

### Congolese copper

According to OEC data, DRC exported around US\$ 1.37 billion-worth of copper ores and concentrates in 2013, of which 99 per cent went to Zambia. Zambia processes and possibly refines these copper ores, before re-exporting the copper, apparently mostly to Switzerland and China. In terms of DRC's raw copper exports, 99 per cent of the total US\$ 537 million-worth went to China. Furthermore, DRC reportedly exported a total US\$ 2.38 billion's worth of refined copper in 2013, of which 29 per cent went to Italy, 27 per cent to Saudi Arabia, 16 per cent to China, 8.9 per cent to South Korea, and 5.1 per cent to Germany.<sup>237</sup> What this means in terms of tonnage refined domestically is difficult to discern, as the value per tonne for refined copper is likely to be higher than that for unrefined copper. It is unlikely that the UN Comtrade data used by the OEC is complete, meaning the actual trade flows may differ somewhat from the information provided above. According to graphs in a 2015 report by the International Copper Study Group, DRC domestically refined around 85 per cent of the copper it produced.<sup>238</sup>

232 International Copper Study Group, *The World Copper Factbook 2015*, 2015, <<http://www.icsg.org/index.php/component/jdownloads/finish/170-publications-press-releases/2092-2015-10-03-icsg-factbook-2015?Itemid=0>> 1 December 2015.

233 Encyclopaedia Britannica website, *Copper Processing*, no date, <<http://www.britannica.com/technology/copper-processing>> 1 December 2015.

234 International Copper Study Group, *The World Copper Factbook 2015*, <<http://www.icsg.org/index.php/component/jdownloads/finish/170-publications-press-releases/2092-2015-10-03-icsg-factbook-2015?Itemid=0>> 1 December 2015.

235 Ibid.

236 Ibid.

237 Observatory of Economic Complexity database 1 December 2015.

238 International Copper Study Group, *The World Copper Factbook 2015*, 2015, <<http://www.icsg.org/index.php/component/jdownloads/finish/170-publications-press-releases/2092-2015-10-03-icsg-factbook-2015?Itemid=0>> 1 December 2015.



**Table 7: ICSG Top 20 copper refineries by capacity, 2015<sup>239</sup>**

| Rank | Refinery                          | Country         | Owner(s)  | Process      | Capacity (kt) |
|------|-----------------------------------|-----------------|---|--------------|---------------|
| 1    | Guixi                             | China           | Jiangxi Copper Corporation  | Electrolytic | 900           |
| 2    | Jinchuan                          | China           | Jinchuan Non Ferrous Co.  | Electrolytic | 650           |
| 3    | Daye/ Hubei (refinery)            | China           | Daye Non-Ferrous Metals Co.   | Electrolytic | 600           |
| 3    | Chuquicamata Refinery             | Chile           | Codelco   | Electrolytic | 600           |
| 5    | Yunnan Copper                     | China           | Yunnan Copper Industry Group (64.8%)  | Electrolytic | 500           |
| 5    | Birla                             | India           | Birla Group Hidarco   | Electrolytic | 500           |
| 7    | Pyshma Refinery                   | Russia          | UMMC (Urals Mining & Metallurgical Co.)   | Electrolytic | 460           |
| 8    | Toyo/Niihama (Besshi)             | Japan           | Sumitomo Metal Mining Co. Ltd.  | Electrolytic | 450           |
| 8    | Amarillo                          | United States   | Grupo Mexico  | Electrolytic | 450           |
| 10   | Onsan Refinery I                  | Korean Republic | LS-Nikko Co. (LS, Nippon Mining)  | Electrolytic | 440           |
| 11   | Hamburg (refinery)                | Germany         | Aurubis   | Electrolytic | 416           |
| 12   | El Paso (refinery)                | United States   | Freeport-McMoRan Copper & Gold Inc.   | Electrolytic | 415           |
| 13   | Las Ventanas                      | Chile           | Codelco   | Electrolytic | 410           |
| 14   | Jinguan (refinery)                | China           | Tongling Non-Ferrous Metals Group   | Electrolytic | 400           |
| 14   | Jinlong (Tongdu) (refinery)       | China           | Tongling NonFerrous Metal Corp. 52 %, Sharpline International 13%, Sumitomo Corp. 7.5%, Itochu Corp. 7.5% | Electrolytic | 400           |
| 14   | Xiangguang Copper                 | China           | Yanggu Xiangguang Copper Co   | Electrolytic | 400           |
| 14   | Shandong Fangyuan                 | China           | Dongying, Shandong  | Electrolytic | 400           |
| 14   | Jinchuan (Fangchenggang refinery) | China           | Jinchuan Non-Ferrous Metal Co.  | Electrolytic | 400           |
| 14   | Sterlite Refinery                 | India           | Vedanta   | Electrolytic | 400           |
| 20   | CCR Refinery (Montreal)           | Canada          | Glencore plc  | Electrolytic | 370           |

As stated before, cobalt is often a by-product of copper mining. In DRC, this means that many of DRC's largest cobalt mines are also important copper mines. Therefore, the list of DRC's largest copper mines below is quite similar to the same list for cobalt provided above.

Unlike cobalt, trade flows from mines in DRC to refineries elsewhere, or from refineries in DRC to copper using companies elsewhere, are difficult to establish. A minor exception to this is the Jinchuan Group, which has a majority share in the Ruashi Mine and also owns two of the world's largest copper refineries in China, the Jinchuan and Fangchenggang refineries.<sup>240</sup> It is likely that Jinchuan exports at least part of the copper produced in the Ruashi mine to either of these refineries. Jinchuan was also previously noted to control cobalt refining facilities in China, further contributing to the likelihood that the company exports both metals from DRC to China.

239 International Copper Study Group, The World Copper Factbook 2015, 2015, <<http://www.icsg.org/index.php/component/jdownloads/finish/170-publications-press-releases/2092-2015-10-03-icsg-factbook-2015?Itemid=0>> 1 December 2015. .

240 International Copper Study Group, op.cit.

**Table 8: DRC's known copper producing companies and mines, with potential production and refining capacity in metric tons for 2012<sup>241</sup>**

| Mine/refinery name                  | Mine ownership   | Production capacity (mt)      | Refining/processing capacity (mt) |
|-------------------------------------|--|-------------------------------|-----------------------------------|
| Kamoto Mine                         | Glencore (55%) / Gecamines (25%) <sup>242</sup>                  | 245,000 (2015) <sup>243</sup> | n.a.                              |
| Tenke Fungurume Mine                | Freeport McMoran (56%) / Lundin Mining (24%) / Gecamines (24.8%) | 157,671                       | 157,671                           |
| Luilu Refinery                      | Glencore (75.2%) / Gecamines (24.8%)                             | n.a.                          | 190,000 (2011) <sup>244</sup>     |
| Mutanda Mine                        | Glencore (69%) / Fleurette Group (31%) <sup>245</sup>            | 110,000                       | 83,500                            |
| Mukondo Mountain Mine (Boss Mining) | Eurasian Natural Resources Corp (70%) / Gecamines (30%)          | 35,200                        | 24,400                            |
| Luiswishi Mine                      | Gecamines (100%)   | 10,000                        | n.a.                              |
| Various other                       |  | 35,015                        | 30,000                            |
| Kipoi Central mine                  | Gecamines / Tiger Resources Ltd.                                 | 36,966                        | n.a.                              |
| Etoile Mine                         | Chemaf SPRL  |                               | 18,777                            |
| Kinsevere refinery                  | Anvil Mining Ltd.( MMG Ltd of China since 2011)                  | 18,777                        | 29,000                            |
| Ruashi Mine                         | Jinchuan Group (75%) / n.a.                                      | 27,281                        | n.a.                              |
| Various in Katanga province         | Somika (100%)  | n.a.                          | 20,000                            |
| Dikulushi Mine                      | Mawson West Ltd.   | 5,818                         | n.a.                              |
| Big Hill tailings treatment plant   | OM Group (55%) / EGMF (25%) / Gecamines (20%)                    | 3,000                         | n.a.                              |
| Etoile Mine                         | Shalina Resources (100%)   | 2,400                         | n.a.                              |

Copper from the Kamoto Mine, owned by Glencore and Gecamines, is reportedly exported to Zambia and sold to Zambian companies Mopani Copper Mines plc and Sable Zinc Kabwe Ltd. This could account for at least part of the trade flow of copper ore from DRC to Zambia as stated before.<sup>246</sup>

Two Chinese copper companies that have invested in DRC's copper sector in recent years are the China Nonferrous Metal Mining Group (CNMC) and Yunnan Copper Industry. CNMC operates copper mines in Vietnam, Iran and Zambia, and in 2014 announced the launch of a copper

241 U.S. Geological Survey, 2012 Minerals Yearbook Congo (Kinshasa), June 2014, <<http://minerals.usgs.gov/minerals/pubs/country/2012/myb3-2012-cg.pdf>> 1 December 2015.

242 International Copper Study Group, The World Copper Factbook 2015, 2015, <<http://www.icsg.org/index.php/component/jdownloads/finish/170-publications-press-releases/2092-2015-10-03-icsg-factbook-2015?Itemid=0>> 1 December 2015.

243 Ibid.

244 U.S. Geological Survey, 2012 Minerals Yearbook Congo (Kinshasa), June 2014, <<http://minerals.usgs.gov/minerals/pubs/country/2012/myb3-2012-cg.pdf>> 1 December 2015.

245 U.S. Geological Survey, 2013 Minerals Yearbook Copper, October 2015, <<http://minerals.usgs.gov/minerals/pubs/commodity/copper/myb1-2013-coppe.pdf>> 1 December 2015.

246 U.S. Geological Survey, 2013, op.cit.

processing plant called Mabende Leaching Project.<sup>247</sup> The second, Yunnan Copper Industry, operates the world's fifth largest copper refinery, the Yunnan Copper Refinery in China. Together with its subsidiary, Chinalco Yunnan Copper Resources, in September 2015 it announced plans to acquire multiple copper mining projects as well as set up a smelting operation in DRC.<sup>248</sup>

### Responsibility of electronics companies

Companies using copper and cobalt in their products have so far shown little initiative in improving environmental impact and human and labour rights in this part of their supply chain. Although most companies have adopted ethical codes that entail the whole production chain, including the extraction of minerals, most efforts concentrate on the first production tiers. International guidelines that provide the framework for both governments and companies such as the UN Guiding Principles on Business and Human Rights and the OECD Guidelines for Multinational Enterprises are barely followed. Companies should avoid infringing on human rights and conduct due diligence to identify, prevent, and mitigate any actual and potential adverse impacts they cause, or to which they contribute or are directly linked through a business relationship.<sup>249</sup> This includes adverse impacts that are not caused by the company itself, but by other companies (or even states) to which the company is linked through its operations or products. The mining of copper and cobalt, whether for use in consumer electronics or for other uses, thus falls under the due diligence of companies further downstream in the supply chain, and would clearly demand much further action than is currently being taken to ensure these minerals are sourced responsibly and with respect for human rights.

247 China Nonferrous Metal Mining Group, CNMC Controlled DRC Mabende Leaching Project Commenced production, 18 April 2014, <[http://www.cnmc.com.cn/detailen.jsp?article\\_millseconds=1398237712187&column\\_no=0114](http://www.cnmc.com.cn/detailen.jsp?article_millseconds=1398237712187&column_no=0114)> 1 December 2015.

248 Proactive Investors, Chinalco Yunnan Copper in DRC game changer with Yunnan Copper, 8 September 2015, <<http://www.proactiveinvestors.com.au/companies/news/64408/chinalco-yunnan-copper-in-drc-game-changer-with-yunnan-copper-64408.html>> 1 December 2015.; Proactive Investors, Chinalco Yunnan Copper advances 10,000tpa smelter in DRC, 26 October 2015, <<http://www.proactiveinvestors.com.au/companies/news/65271/chinalco-yunnan-copper-advances-10000tpa-smelter-in-drc-65271.html>> 1 December 2015.

249 OECD, OECD Guidelines for Multinational Enterprises. (Paris, OECD), 2011, <<http://www.oecd.org/corporate/mne/>> Chapter II, §10>

## 4 Conclusions and recommendations

Research conducted over recent years shows a clear neglect of Congolese and international human rights laws by authorities and mining companies.

Without doubt, the Congolese state is seriously neglecting its tasks to protect human rights and the environment. The state is using the worst forms of violence and is killing its own citizens in the process. Police forces are guilty of deliberately shooting and killing miners that illicitly enter industrial mining concessions, and injure and kill innocent passers-by in adjacent villages while aiming at miners. Hundreds of homes have been illegally demolished by police forces at CMSK, forcing inhabitants to move to tents and never compensating them. The Ministry of Mines has granted concessions to mining companies in protected natural areas. Government authorities illegally extort money from artisanal miners living and working under the most terrible conditions. The environment and public health are severely impacted by pollution caused by mining activities, but polluters are not held to account. In a context in which the rule of law is virtually absent as in Katanga, mining companies can operate almost without restriction. The many cases in this report demonstrate that this has compromised public health, safety, biodiversity, quality of water, air, and livelihoods, as well as access to water.

Given the mining sector's significant impact on economy, social structure, culture, and environment, good governance and effective law enforcement are essential to ensure that negative impacts are mitigated and positive impacts are maximised. Industrial mining companies, but also trading houses and processing facilities that procure from industrial and artisanal mines, are responsible for a wide range of human rights and environmental violations. Although some mining companies deservedly have a better reputation than others, SOMO's Congolese partner organisations ACIDH, Premicongo and Afrewatch have mining companies where no violations had occurred.

As the world's primary cobalt producer and Africa's biggest copper producer which is exporting worldwide, Congo plays an essential role in our copper and cobalt supply chains. Therefore, chances are high that products containing copper and/or cobalt will contain minerals produced in Katanga.

The DRC government should:

- work towards effective law enforcement;
- work with local stakeholders including local governments, companies, mining cooperatives, mine owners, CSOs, and trade unions, to set up programmes aimed at eradicating negative environmental impact; improving the overall health of the people and communities around mining sites; implement FPIC, and improve the security situation for communities around mining sites.

Mining companies should:

- improve their labour conditions, environmental conditions as well as their community engagement, in line with national laws and international standards.



Countries where the various mining companies that operate in DRC are headquartered, such as the US, India, Luxembourg as well as other EU countries should:

- ❑ engage in a dialogue with DRC and find ways to jointly develop programmes that improve labour conditions, and the environmental and human rights violations caused by the mining of cobalt and copper;
- ❑ require their mining companies to uphold international accepted labour, environmental and human rights standards such as those frameworks outlined by the ILO, the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles for Business and Human Rights, and the right to FPIC as described by the FAO.

Companies downstream of the cobalt mine, such as refiners, battery and car manufacturers, computer and mobile phone companies must:

- ❑ acknowledge that they are also responsible for the mining phase within the supply chain and therefore must develop activities accordingly. These refiners and car suppliers must map their entire cobalt supply chains, including industrial and artisanal cobalt mining, and share this information publicly;
- ❑ conduct due diligence, take remedial action and stimulate other companies in the supply chain to support improvement of the human rights and environmental situation at mining and processing sites;
- ❑ include the principle of FPIC in their sourcing policies and practices'

- develop activities that move beyond mapping and transparency and include initiatives to improve the situation at mining sites through in-region programmes and collaboration with international and local civil society and other companies – both in the supply chain as well as other companies in the sector;
- Industry organisations within the electronics and car sectors should stimulate learning and knowledge exchange concerning sustainability efforts in cobalt mining, and demand continuous and ongoing improvements from their members in this respect.



## Cobalt blues

### Environmental pollution and human rights violations in Katanga's copper and cobalt mines

This research reveals new evidence of human rights violations and environmental negligence and argues that abuses caused by Katanga's industrial mining industry are not only serious, but also structural. By researching seven Democratic Republic of the Congo (DRC) cobalt and copper mining operations and the companies in charge of the operations, SOMO and their DRC partners – ACIDH, Afrewatch, and Premicongo – found that these companies are responsible for damaging the environment, destroying livelihoods, and exposing communities to security risks and violent conflict. In addition, the report describes how companies in the supply chain of Congolese cobalt and copper, as well as governments connected to these minerals, have failed to ensure that human rights are respected. The report concludes by providing recommendations on how these actors can work towards improving practices in the DRC's mining industry.

